RESOLUTION TO PROPOSE FOR ADOPTION DESIRED FUTURE CONDITIONS FOR RELEVANT AQUIFERS IN GROUNDWATER MANAGEMENT AREA 8

THE STATE OF TEXAS	§
	§
GROUNDWATER MANAGEMENT AREA 8	§
	§
GROUNDWATER CONSERVATION DISTRICTS	§

WHEREAS, Section 36.108 of the Texas Water Code requires groundwater conservation districts located entirely or partially within a groundwater management area designated by the Texas Water Development Board ("TWDB") to propose for adoption desired future conditions ("DFCs") for the relevant aquifers within each groundwater management area by May 1, 2016, and every five years thereafter;

WHEREAS, Senate Bill 1282 passed by the 83rd Texas Legislature in 2013 extended the statutory deadline for a GMA to vote for a proposal for the adoption of DFCs under Section 36.108 to May 1, 2016;

WHEREAS, the groundwater conservation districts located entirely or partially within Groundwater Management Area 8 ("GMA 8") as of the date of this resolution are as follows: Central Texas Groundwater Conservation District, Clearwater Underground Water Conservation District, Middle Trinity Groundwater Conservation District, North Texas Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Prairielands Groundwater Conservation District, Red River Groundwater Conservation District, Saratoga Underground Water Conservation District, Southern Trinity Groundwater Conservation District (formerly McLennan County Groundwater Conservation District), and Upper Trinity Groundwater Conservation District (collectively referenced hereinafter as "GMA 8 Districts");

WHEREAS, the GMA 8 Districts are each governmental agencies and bodies politic and corporate operating pursuant to Chapter 36 of the Texas Water Code and their specific enabling statutes;

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

WHEREAS, the GMA 8 Districts last adopted desired future conditions for the relevant aquifers within GMA 8 on April 27, 2011;

WHEREAS, the GMA 8 Districts approved the use of the updated Northern Trinity and Woodbine Aquifer Groundwater Availability Model ("updated GAM") in establishing DFCs for the Trinity and Woodbine Aquifers within GMA 8, which was approved by the executive administrator of the TWDB as the official Groundwater Availability Model for the Northern Trinity and Woodbine Aquifers on November 21, 2014;

WHEREAS, GMA 8 held meetings on September 24, 2013; January 21, 2014; April 22, 2014; July 29, 2014; November 3, 2014; March 25, 2015; May 27, 2015; September 2, 2015; November 18, 2015; February 17, 2016; March 23, 2016; and April 1, 2016 in order to comply with its statutory duty and to publically consider all nine factors listed in § 36.108(d);

WHEREAS, the GMA 8 Districts used the best available scientific and hydrogeological data, as set forth in the updated GAM, to establish the proposed DFCs;

WHEREAS, the GMA 8 Districts ran multiple model runs using the updated GAM to establish the proposed DFCs;

WHEREAS, the GMA 8 Districts considered all of the nine (9) statutory factors set forth in Section 36.108(d) of the Texas Water Code before voting to propose the DFCs for the relevant aquifers in GMA 8, including:

- aquifer uses or conditions within the management area, including conditions that differ substantially from one geographic area to another;
- the water supply needs and water management strategies included in the state water plan;
- hydrological conditions, including for each aquifer in the management area the total estimated recoverable storage as provided by the TWDB executive administrator, and the average annual recharge, inflows, and discharge;
- other environmental impacts, including impacts on spring flow and other interactions between groundwater and surface water;
- the impact on subsidence;
- socioeconomic impacts reasonably expected to occur;
- the impact on the interests and rights in private property, including ownership and the rights of management area landowners and their lessees and assigns in groundwater as recognized under Section 36.002 of the Texas Water Code;
- the feasibility of achieving the desired future condition;
- any other information relevant to the specific desired future conditions;

WHEREAS, the GMA 8 Districts considered groundwater availability models and other data or information for GMA 8 as required by Section 36.108(d) of the Texas Water Code;

WHEREAS, the DFCs proposed by the GMA 8 Districts provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater and control of subsidence in the management area pursuant to Section 36.108(d-2);

WHEREAS, the GMA 8 Districts will document in the explanatory report required under Section 36.108(d-3) of the Texas Water Code all consideration of the factors and criteria required for proposing DFCs for adoption under Section 36.108 of the Texas Water Code;

WHEREAS, representatives of the GMA 8 Districts convened for a meeting, which was open to the public, this day, the first day of April, 2016, at 10:00 a.m. at the Cleburne Conference Center, to take up and consider proposing for adoption the DFCs for all relevant aquifers within GMA 8;

WHEREAS, of the eleven (11) GMA 8 Districts, the meeting this day was attended by duly appointed voting representatives from the following districts (as indicated):

- ☐ Central Texas Groundwater Conservation District
- ☐ Clearwater Underground Water Conservation District
- ☐ Middle Trinity Groundwater Conservation District
- ☐ North Texas Groundwater Conservation District
- ☐ Northern Trinity Groundwater Conservation District
- ☐ Post Oak Savannah Groundwater Conservation District
- ☐ Prairielands Groundwater Conservation District
- ☐ Red River Groundwater Conservation District
- ☐ Saratoga Underground Water Conservation District
- ☐ Southern Trinity Groundwater Conservation District
- ☐ Upper Trinity Groundwater Conservation District;

WHEREAS, with voting representatives in attendance from at least two-thirds (2/3) of the GMA 8 Districts, notice and meeting requirements set forth by Sections 36.108(e) of the Texas Water Code have been met regarding this April 1, 2016, meeting, and a true and correct copy of each of the notices required under Section 36.108(e) are attached hereto as Attachment "A" and are each incorporated herein for all purposes;

WHEREAS, the GMA 8 Districts have adopted administrative procedures for the consideration, proposal, and adoption of DFCs, and the GMA 8 Districts find that the DFCs proposed by this resolution were considered and proposed in compliance with the requirements of those administrative procedures in all respects;

WHEREAS, the GMA 8 Districts find therefore that the notice and meeting requirements to take up, consider, and propose for adoption the proposed DFCs for all relevant aquifers within GMA 8 have been and are satisfied;

WHEREAS, the DFCs proposed by this resolution will be distributed by mail to the GMA 8 Districts, initiating a 90-day public comment period by which each district in GMA 8 must hold a public hearing on the DFCs proposed that are relevant to that district pursuant to Section 36.108(d-2) of the Texas Water Code;

WHEREAS, each district within GMA 8 will thereafter compile a written summary of relevant comments received at the public hearing held by the district, any suggested revisions to the proposed DFCs, and the basis for any such revisions, and will submit its summary report to the GMA 8 Administrator District, and the GMA 8 district representatives shall reconvene once each district has submitted its summary report or upon the expiration of the 90-day public

comment period, whichever is earlier, to review the reports, consider any suggested revisions to the proposed DFCs, and finally adopt the DFCs for GMA 8;

WHEREAS, it is the intent and purpose of the GMA 8 Districts by adoption of this resolution to fulfill the DFC proposal requirements of Section 36.108 of the Texas Water Code; and

WHEREAS, the GMA 8 Districts find that the proposed DFCs for adoption in GMA 8 are in each instance merited and necessary to support the management of groundwater resources within the boundaries of the GMA 8 Districts in a manner consistent with the requirements of Chapter 36, Water Code.

NOW, THEREFORE, BE IT RESOLVED BY THE REPRESENTATIVES OF THE GROUNDWATER CONSERVATION DISTRICTS WITHIN GROUNDWATER MANAGEMENT AREA 8:

1) Each of the affirmations and recitals set forth above are true and correct and fully incorporated into this resolution.

2) No less than two-thirds (2/3) of the authorized voting representatives of the GMA 8 Districts hereby propose the desired future conditions for the relevant aquifers within GMA 8 as those set forth in Attachments "B", "C" and "D" to this resolution, which is fully incorporated herein. The desired future conditions proposed for the aquifers comprising the Trinity Aquifer Group and the Woodbine Aquifer in GMA 8 are based on the "Results of Predictive Simulation in Support of GMA 8 Joint Planning—NTGCD GMA 8 Run 10" memorandum that is set forth in Attachment "E" to this resolution ("the Run 10 memorandum"), which is fully incorporated herein. The desired future conditions proposed for the Edwards (Balcones Fault Zone) Aquifer in GMA 8 are based on GAM Run 08-10mag that is set forth in Attachment "F" to this resolution, which is fully incorporated herein. The desired future conditions proposed for the Llano Uplift Aquifers in GMA 8 are based on the Draft Numerical Model Report: Minor Aquifers of the Llano Uplift Region of Texas (Marble Falls, Ellenburger-San Saba, and Hickory) that is set forth in Attachment "G" to this resolution, which is fully incorporated herein. The proposed DFCs for the aquifers comprising the Trinity Aquifer Group and the Woodbine Aquifer in GMA 8 provided in Attachment "B" can be extrapolated as provided in the Run 10 memorandum to provide proposed DFCs on the following three scales, which do not differ substantively in their application: (1) an aquifer-wide scale, which for the aquifers comprising the Trinity Aquifer Group and Woodbine Aquifer are the identified aquifers in the five hydrogeologic regions defined in the Run 10 memorandum; (2) a groundwater-district-wide scale for each aquifer; and (3) a county-by-county scale for each aquifer.

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, including but not limited to the additional actions required for adoption of the DFCs in accordance with Section 36.108 of the Texas Water Code.

AND IT IS SO ORDERED.

PASSED AND ADOPTED on this 1st day of April, 2016.

ATTEST:

Central Texas Groundwater Conservation District

Clearwater Underground Water Conservation District

Middle Trinity Groundwater Conservation District

North Texas Groundwater Conservation District

Northern Trinity Groundwater Conservation District

Post Oak Savannah Groundwater Conservation District

Prairielands Groundwater Conservation District

Red River Groundwater Conservation District

Saratoga Underground Water Conservation District

Southern Trinity Groundwater Conservation District

Mike Massey / VOTED - NAY

Upper Trinity Groundwater Conservation District

INDEX TO ATTACHMENTS

Attachment A – Required Notices of April 1, 2016 GMA Meeting

Attachment B – Proposed DFCs for Adoption – Northern Trinity and Woodbine Aquifer

Attachment C - Proposed DFCs for Adoption – Edwards (Balcones Fault Zone) Aquifer

Attachment D – Proposed DFCs for Adoption – Llano Uplift Aquifers

Attachment E – GAM Run 10 Memorandum dated January 14, 2016

Attachment F – GAM Run 08-10mag dated April 3, 2008

Attachment G - Draft Numerical Model Report: Minor Aquifers of the Llano Uplift Region of Texas(Marble Falls, Ellenburger-San Saba, and Hickory)

ATTACHMENT A

From: Texas Register
To: Velma Starks
Subject: S.O.S. Acknowledgment of Receipt
Date: Thursday, March 10, 2016 2:58:09 PM

Acknowledgment of Receipt

Agency: Greater Texoma Utility Authority

Liaison: Velma Starks

The Office of the Secretary of State has posted

notice of the following meeting:

Board: GMA-8

Committee:

Date: 04/01/2016 10:00 AM "TRD# 2016001699"

Notice posted: 03/10/16 02:57 PM

Proofread your current open meeting notice at:

http://texreg.sos.state.tx.us/public/pub_om_lookup$.startup?Z_TRD=2016001699

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, Middle Trinity Groundwater Conservation District, North Texas Groundwater Conservation District, Northern Trinity Groundwater Conservation District, Post Oak Savannah Groundwater Conservation District, Prairielands Groundwater Conservation District, Red River Groundwater Conservation District, Saratoga Underground Water Conservation District, Southern Trinity Groundwater Conservation District, and Upper Trinity Groundwater Conservation District will hold a ***Joint Planning meeting at 10:00 A.M. on Friday, April 1, 2016,*** at the **Cleburne Conference Center** located at **1501 W. Henderson**, Cleburne, TX 76033. The meeting will be open to the public. The following items of business will be discussed and potentially acted upon:

POSTED
March 11, 2016
Janet Parker
County Clerk - Burnet County, Texas
By Amy Grant Deputy

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of March 23, 2016, GMA 8 meeting.
6. Updates from individual member districts of GMA 8 regarding other studies, reports, data, or developments relevant to GMA 8 joint planning activities.
7. Presentation by each GMA-8 District Representative of the survey results for each GMA-8 GCD with regards to factors referenced in TWC 36.108 (6-7).
8. Discussion and possible action on proposed options for desired future condition statements– GMA 8 – District Representatives.
9. Consider DFC options proposed during February 17, 2016 and, if applicable, March 23, 2016 meetings with respect to factors referenced in TWC 36.108 (d)(6-8).
10. Discussion and consideration of the approval of proposed DFCs for all relevant aquifers in GMA-8.
11. Discussion and consideration of next steps necessary to approve proposed desired future conditions options – Bill Mullican/Eddy Daniel.
12. Discussion of possible agenda items and dates for next GMA 8 meeting.
13. Closing comments.
14. Adjourn.

Dated this 10th day of March, 2016.

Eddy Daniel, Chair
Groundwater Management Area 8

The above agenda schedules represent an estimate of the order for the indicated items and is subject to change at any time. These public meetings are available to all persons regardless of disability. If you require special assistance to attend the meeting, please call (855) 426-4433 at least 24 hours in advance of the meeting to coordinate any special physical access arrangements.

For questions regarding this notice, please contact Velma Starks at (855) 426-4433, at ntgcd@northtexasgcd.org, or at 5100 Airport Drive, Denison, TX 75020.

At any time during the meeting or work session and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Groundwater Management Area 8 may meet in executive session on any of the above agenda items or other lawful items for consultation concerning attorney-client matters (§551.071); deliberation regarding real property (§551.072); deliberation regarding prospective gifts (§551.073); personnel matters (§551.074); and deliberation regarding security devices (§551.076). Any subject discussed in executive session may be subject to action during an open meeting.

This is to certify that I, Charles Shell, posted this agenda on the door and outside window of the Administrative Offices of the District at 225 S. Pierce, Burnet, Texas 78611 and also provided this agenda to the County Clerk in Burnet County with a request that it be posted at or before 5:00 p.m. on March 11, 2016.

Charles Shell, General Manager
Central Texas Groundwater Conservation District

FILED

2016 MAR 11 AM 9:49

ED PARKER
COUNTY CLERK
SUMMIT COUNTY TEXAS

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FILED FOR RECORD
2016 MAR 14 A 7:19
SHELLEY COSTON
CO. CLK. BELL CO. TX

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
5. Approve minutes of March 23, 2016, GMA 8 meeting.
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Dated this 10th day of March, 2016.

Eddy Daniel, Chair
Groundwater Management Area 8

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GMA 8 (Middle Trinity GCD)

4/1/16 meeting

FILE-MARKED COPIES OF AGENDA POSTING

Erath, Comanche, Bosque & Coryell Counties

Comanche Co.

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POSTED
_____ A.M. 12:52 P.M.
MAR 17 2016
GWINDA JONES, COUNTY CLERK
ERATH COUNTY, TEXAS
By CW Deputy

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3. Welcome and introductions.
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BOSQUE CO.
FILED FOR RECORD
2016 MAR 18 AM 9:15

NOTICE OF MEETING
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Dated this 10th day of March, 2016.

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Coryell Co.

FILED
AT_____O'CLOCK___M

MAR 18 2016

COUNTY CLERK, CORYELL CO., TEXAS

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4. **Public comment.**
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13. **Closing comments.**
14. **Adjourn.**

Dated this 10th day of March, 2016.

Eddy Daniel, Chair
Groundwater Management Area 8

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For questions regarding this notice, please contact Velma Starks at (855) 426-4493, at ptacd@northtexasgcd.org, or at 9100 Airport Drive, Denison, TX 75020.

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Comanche Co.

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FILED
AT 8:30 O'CLOCK A M
MAR 18 2016
Clerk, County Court Comanche Co., Texas

1. Invocation.
2. Call meeting to order and establish quorum.
3. Welcome and introductions.
4. Public comment.
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FILED
TARRANT COUNTY CLERK
2016 MAR 16 PM 1:32
MARY LOUISE GARCIA
COUNTY CLERK

NOTICE OF MEETING
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12. Discussion of possible agenda items and dates for next GMA 8 meeting.
13. Closing comments.
14. Adjourn.

Dated this 10th day of March, 2016.

Eddy Daniel, Chair
Groundwater Management Area 8

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(§551.072); deliberation regarding prospective gifts (§551.073); personnel matters (§551.074); and deliberation regarding security devices (§551.076). Any subject discussed in executive session may be subject to action during an open meeting.

FILED
TARRANT COUNTY CLERK
2016 MAR 16 PM 1:32
MARY LOUISE GARCIA
COUNTY CLERK
BY

Certificate:

This is to certify that I, Robert Patterson, posted the above agenda giving notice of meeting on the bulletin board at the Office of Northern Trinity GCD, 1100 Circle Drive, Suite 300, Fort Worth, TX 76119 and also provided this agenda to the County Clerk in Tarrant County, Texas with a request that it be posted on or before 12:00 noon on Friday March 18, 2016.

Robert Patterson

Robert Patterson, General Manager

Sworn and subscribed to before me on this 16th day of March, 2016

LAURA P. SCHUMACHER
NOTARY PUBLIC STATE OF TEXAS
COMMISSION EXPIRES:
03-23-2016

Laura P Schumacher

Laura Schumacher, Notary

(SEAL)

FILED

3/10/2016 3:04:18 PM

STACEY KEMP
COUNTY CLERK
COLLIN COUNTY, TEXAS
BY : DM DEPUTY

NOTICE OF MEETING
GROUNDWATER MANAGEMENT AREA 8

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1. Invocation.
2. Call meeting to order and establish quorum.
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14. Adjourn.

FILED FOR RECORD
16 MAR 10 PM 2:51
REBECCA LAWSON
COUNTY CLERK, COOKE CO. TX
BY _____ DEPUTY

Dated this 10th day of March, 2016.

Eddy Daniel, Chair
Groundwater Management Area 8

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From: automail@dentoncounty.com
To: Velma Starks
Subject: Approval: New Public Notice Document
Date: Thursday, March 10, 2016 2:54:50 PM
Attachments: ATT00001.png

DENTON COUNTY TEXAS

The following public notice event has been approved.

Title: GMA-8
Description: Meeting Agenda
Category: Notice of Public Meeting
Event Date: 04/01/2016
Document: GMA8 Agenda 4-01-2016.pdf

You can visit Denton County Public Notice Events website to view it.

NOTICE OF MEETING- GROUNDWATER MANAGEMENT AREA 8

April 1, 2016 – 10:00 a.m.

Cleburne Conference Center
1501 W Henderson St.
Cleburne, TX 76033

MAR 17 2016

AGENDA

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FILED
at 3:22 o'clock P M
MAR 14 2016
ANNA L. SCHELACK
COUNTY CLERK, BURLESON CO., TEX.
By _____ Deputy

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Dated this 11th day of March, 2016

By: _____
Gary Westbrook, General Manager, POSGCD

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NOTICE OF MEETING- GROUNDWATER MANAGEMENT AREA 8
April 1, 2016 – 10:00 a.m.
Cleburne Conference Center
1501 W Henderson St.
Cleburne, TX 76033

MAR 21 2016

Filed 14 day of March
in 2016, At 10:45A M.
BARBARA VANSA
County Clerk, Milam County, Texas
By Linda Hall
Deputy

AGENDA

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FILED FOR RECORD
CINDY POLLEY
ELLIS COUNTY CLERK

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Groundwater Management Area 8

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FILED
NICOLE TANNER, COUNTY CLERK
HILL COUNTY, TEXAS

2016 MAR 11 AM 9:45

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POSTED
9:35 A.M. _____ P.M.

MAR 1 1 2016

Becky Ivey
County Clerk, Johnson County Texas
BY _____ DEPUTY

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POSTED
DATE 3-11-2016
9:10 A.M. P.M.
BY AB Deputy

FILED
MICHELLE REYNOLDS
COUNTY/DISTRICT CLERK
SOMERVELL CO., TEXAS
2016 MAR 11 AM 9:05
DEPUTY
BY AB

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rosetta@prairielandsgcd.org

From: Texas Register <TexReg@sos.texas.gov>
Sent: Friday, March 11, 2016 10:30 AM
To: rosetta@prairielandsgcd.org
Subject: S.O.S. Acknowledgment of Receipt

Acknowledgment of Receipt

Agency: Prairielands Groundwater Conservation District

Liaison: Rosetta Douthitt

The Office of the Secretary of State has posted

notice of the following meeting:

Board: Groundwater Management Area 8 (GMA 8)

Committee:

Date: 04/01/2016 10:00 AM "TRD# 2016001714"

Notice posted: 03/11/16 10:29 AM

Proofread your current open meeting notice at:

http://texreg.sos.state.tx.us/public/pub_om_lookup$.startup?Z_TRD=2016001714

Open Meeting Information

Agency Name:	**Prairielands Groundwater Conservation District**
Date of Meeting:	04/01/2016
Time of Meeting:	10:00 AM **(Local Time)**
Board:	Groundwater Management Area 8 (GMA 8)
Status:	Accepted
Street Location:	1501 W. HENDERSON STREET
City Location:	Cleburne
Meeting State:	TX
TRD:	2016001714
Submit Date:	03/11/2016
Emergency Mtg:	No
Additional Information Obtained From:	Prairielands District Staff at (817) 556-2299

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Updates from individual member districts of GMA 8 regarding other studies, reports, data, or developments relevant to GMA 8 joint planning activities
Presentation by each GMA-8 District Representative of the survey results for each GMA-8 GCD with regards to factors referenced in TWC 36.108 (6-7)
Discussion and possible action on proposed options for desired future condition statements, GMA 8 District Representatives
Consider DFC options proposed during February 17, 2016 and, if applicable, March 23, 2016 meetings with respect to factors referenced in TWC 36.108 (d)(6-8)
Discussion and consideration of the approval of proposed DFCs for all relevant aquifers in GMA-8.
Discussion and consideration of next steps necessary to approve proposed desired future conditions options, Bill Mullican and Eddy Daniel
Discussion of possible agenda items and dates for next GMA 8 meeting
Closing comments
Adjourn

Dated this 10th day of March, 2016. Eddy Daniel, Chair
Groundwater Management Area 8

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13. Closing comments.
14. Adjourn.

FILED FOR RECORD
2016 MAR 10 PM 2:53
WILMA BLACKSHEAR BUSH
COUNTY CLERK
GRAYSON COUNTY, TX

Dated this 10th day of March, 2016.

Eddy Daniel, Chair
Groundwater Management Area 8

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FILED FOR RECORD
2016 MAR 10 PM 2:43
WILMA BLACKSHEAR BUSH
COUNTY CLERK
GRAYSON COUNTY, TX

Fannin County Clerk

Tammy Biggar
Fannin County Courthouse
101 E. Sam Rayburn Dr. #102
Bonham, TX 75418
903.583.7486 – Office
903.640.4241 – Fax

FAX COVER

DATE: 3-10-16

TO: Velma

FAX #: 903-786-8211

FROM: Angela

SUBJECT: Agenda

PAGES (including cover sheet): 2

REMARKS:

Attached is your filed stamped Agenda

Disclaimer: This information is intended only for the use of the individual or entity named above. If you are not the intended recipient, please notify us by telephone immediately. Thank you.

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Filed for Record at 3:41 **o'clock** P **on** 3-10-16

Tammy Biggar, County Clerk By Angela Frazier **Deputy**

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FILED

11th day of Mar 20 16

Connie Hartmann

COUNTY CLERK, LAMPASAS COUNTY, TEXAS

BY Dawn Ford DEPUTY

THE STATE OF TEXAS
COUNTY OF McLENNAN

This is to certify that the Notice of a Meeting a copy of which is attached hereto, was posted on the official bulletin board at the Courthouse as required by Article 6252-17 V. T. C. S.

Executed on March 23 2016

J. A. "Andy" Harwell, County Clerk
McLennan County, Texas

By _____ Deputy

8:00 Am

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Hood Co.
10:36AM
RECEIVED
3/18/16
KF

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FILED
MAR 17 PM 2:05
MONTAGUE COUNTY CLERK
MONTAGUE, TX

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AT 1:34 o'clock P M

MAR 17 2016

SHERRY LEMON, COUNTY CLERK
WISE COUNTY, TEXAS
By [signature] DEPUTY
Sarah Enochs

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RECEIVED
11:30 O'Clock A M
MAR 17 2016
Jeane Bo... Clerk
PARKER COUNTY, TEXAS
By P. Adams Deputy

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ATTACHMENT B

NTWGAM Run 10 - GMA 8 Aquifer-Wide Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)							
Woodbine	**Paluxy**	**Glen Rose**	**Twin Mountain**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
146	144	116	313	177	118	206	177

NTWGAM Run 10 - Groundwater-District-Wide Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)								
GCD	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mountain**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Central Texas GCD	—	—	2	—	16	7	20	—
Clearwater UWCD	—	19	83	—	300	137	330	—
Middle Trinity GCD	—	6	27	6	88	72	111	10
North Texas GCD	278	671	341	569	—	—	—	290
Northern Trinity GCD	7	101	148	315	—	—	—	148
Post Oak Savannah GCD	—	—	212	—	345	229	345	—
Prairielands GCD	39	35	126	142	258	190	289	—
Red River GCD	204	699	283	377	269	—	—	304
Saratoga UWCD	—	—	1	—	6	1	11	—
Southern Trinity GCD	6	35	133	—	471	220	542	—
Upper Trinity GCD	—	4	17	29	80	43	141	30

NTWGAM Run 10 - County-by-County Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)								
County	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mountain**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Bell	—	19	83	—	300	137	330	—
Bosque	—	6	49	—	167	129	201	—
Bowie	—	—	—	—	—	—	—	—
Brown	—	—	2	—	1	1	1	2
Burnet	—	—	2	—	16	7	20	—
Callahan	—	—	—	—	—	—	—	1
Collin	459	705	339	526	—	—	—	570
Comanche	—	—	1	—	2	2	3	9
Cooke	2	—	—	—	—	—	—	176
Coryell	—	7	14	—	99	66	130	—
Dallas	123	324	263	463	348	332	351	—
Delta	—	264	181	—	186	—	—	—
Denton	22	552	349	716	—	—	—	395
Eastland	—	—	—	—	—	—	—	3
Ellis	61	107	194	333	301	263	310	—
Erath	—	1	5	6	19	11	31	12
Falls	—	144	215	—	462	271	465	—
Fannin	247	688	280	372	269	—	—	251

NTWGAM Run 10 - County-by-County Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)								
Franklin	—	—	—	—	—	—	—	—
Grayson	160	922	337	417	—	—	—	348
Hamilton	—	2	4	—	24	13	35	—
Hill	20	38	133	—	298	186	337	—
Hood	—	5	9	25	80	43	141	—
Hopkins	—	—	—	—	—	—	—	—
Hunt	598	586	299	370	324	—	—	—
Johnson	2	-61	58	156	179	126	235	—
Kaufman	208	276	269	381	323	309	295	—
Lamar	38	93	97	—	114	—	—	122
Lampasas	—	—	1	—	6	1	11	—
Limestone	—	178	271	—	392	183	404	—
McLennan	6	35	133	—	471	220	542	—
Milam	—	—	212	—	345	229	345	—
Mills	—	1	1	—	7	2	13	—
Montague	—	—	—	—	—	—	—	18
Navarro	92	119	232	—	290	254	291	—
Parker	—	4	22	34	—	—	—	11
Rains	—	—	—	—	—	—	—	—
Red River	2	21	36	—	51	—	—	13
Rockwall	243	401	311	426	—	—	—	—
Somervell	—	1	4	31	51	26	83	—
Tarrant	7	101	148	315	—	—	—	148
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	85	—	141	50	146	—
Williamson	—	—	77	—	173	74	177	—
Wise	—	—	—	—	—	—	—	45

NTWGMA Run 10 - GMA 8 Aquifer-Wide Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)																			
Region 1		Region 2				Region 3				Region 4						Region 5			
Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
160	177	227	337	210	313	144	131	102	120	41	34	85	133	228	197	94	93	171	163

NTWGAM Run 10 - Groundwater-District-Wide Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)																				
	Region 1		Region 2				Region 3				Region 4						Region 5			
GCD	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Central Texas GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	7	20	16
Clearwater UWCD	—	—	—	—	—	—	—	—	—	—	—	19	61	186	342	291	86	130	328	301
Middle Trinity GCD	—	10	—	1	6	6	—	—	—	—	—	6	29	75	113	90	2	10	65	43
North Texas GCD	75	290	372	671	341	569	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Northern Trinity GCD	—	148	7	101	148	315	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Post Oak Savannah GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	212	229	345	345
Prairielands GCD	—	—	9	-47	48	142	176	245	256	308	40	40	130	190	289	257	253	235	319	315
Red River GCD	187	304	666	700	322	377	503	698	257	269	—	—	—	—	—	—	—	—	—	—
Saratoga UWCD	—	—	—	—	—	—	—	—	—	—	—	—	1	2	19	12	1	1	10	5
Southern Trinity GCD	—	—	—	—	—	—	—	—	—	—	6	35	133	220	543	471	304	202	411	409
Upper Trinity GCD	—	30	—	4	17	29	—	—	—	—	—	4	5	43	141	80	—	—	—	—

NTWGAM Run 10 - County-by-County Scale Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)																				
	Region 1		Region 2				Region 3				Region 4						Region 5			
County	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Bell	—	—	—	—	—	—	—	—	—	—	—	19	61	186	342	291	86	130	328	301
Bosque	—	—	—	—	—	—	—	—	—	—	—	6	49	129	201	167	—	—	—	—
Bowie	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brown	—	2	—	—	—	—	—	—	—	—	—	—	2	1	2	1	—	1	1	1
Burnet	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	7	20	16
Callahan	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collin	302	570	481	705	339	526	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Comanche	—	9	—	—	—	—	—	—	—	—	—	—	1	2	3	2	—	—	—	—
Cooke	2	176	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coryell	—	—	—	—	—	—	—	—	—	—	—	7	16	75	141	108	2	10	65	43
Dallas	—	—	123	325	263	463	174	251	258	329	123	208	236	332	351	348	—	—	—	—
Delta	—	—	—	—	—	—	—	264	181	186	—	—	—	—	—	—	—	—	—	—
Denton	13	395	30	552	349	716	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eastland	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ellis	—	—	27	52	160	333	176	245	256	308	61	107	194	263	310	301	249	274	267	267
Erath	—	12	—	1	6	6	—	—	—	—	—	1	4	11	31	19	—	—	—	—
Falls	—	—	—	—	—	—	—	—	—	—	—	144	201	242	513	508	220	280	449	448
Fannin	218	251	668	671	320	372	503	698	257	269	—	—	—	—	—	—	—	—	—	—
Franklin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grayson	158	348	654	922	337	417	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hamilton	—	—	—	—	—	—	—	—	—	—	—	2	4	13	35	24	1	2	17	11
Hill	—	—	—	—	—	—	—	—	—	—	20	38	132	186	337	297	255	223	335	329
Hood	—	—	—	5	9	25	—	—	—	—	—	4	5	43	141	80	—	—	—	—
Hopkins	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hunt	—	—	684	596	321	370	591	585	296	324	—	—	—	—	—	—	—	—	—	—
Johnson	—	—	3	-51	50	156	—	—	—	—	2	-64	60	126	235	179	—	—	—	—
Kaufman	—	—	218	316	284	381	207	266	265	325	176	239	253	312	298	298	253	283	273	274
Lamar	57	122	—	—	—	—	34	93	97	114	—	—	—	—	—	—	—	—	—	—
Lampasas	—	—	—	—	—	—	—	—	—	—	—	—	1	2	19	12	1	1	10	5
Limestone	—	—	—	—	—	—	—	—	—	—	—	178	254	160	422	403	291	211	383	379
McLennan	—	—	—	—	—	—	—	—	—	—	6	35	133	220	543	471	304	202	411	409
Milam	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	212	229	345	345
Mills	—	—	—	—	—	—	—	—	—	—	—	1	1	3	13	7	1	1	13	6
Montague	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Navarro	—	—	—	—	—	—	—	—	—	—	92	119	212	244	310	308	239	258	284	284
Parker	—	11	—	4	22	34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rains	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Red River	0	13	—	—	—	—	2	21	36	51	—	—	—	—	—	—	—	—	—	—
Rockwall	—	—	243	401	311	426	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Somervell	—	—	—	—	7	31	—	—	—	—	—	1	4	26	83	51	—	—	—	—
Tarrant	—	148	7	101	148	315	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	85	50	146	141
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77	74	177	173
Wise	—	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

ATTACHMENT C

Proposed Desired Future Conditions:

Proposed DFCs for the northern segment of the Edwards (Balcones Fault Zone) Aquifer within Groundwater Management Area 8 are as follows:

- Maintain at least 100 acre-feet per month of stream/spring flow in Salado Creek during a repeat of the drought of record in Bell County.

- Maintain at least 42 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record in Travis County.

- Maintain at least 60 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record in Williamson County.

ATTACHMENT D

Proposed Desired Future Conditions:

Proposed DFCs for the Ellenburger-San Saba, Hickory, and Marble Falls aquifers in within GMA 8 are as follows:

- Ellenburger-San Saba Aquifer - maintain 90 percent of saturated thickness from 2010 to 2070
- Hickory Aquifer - maintain 90 percent of saturated thickness from 2010 to 2070
- Marble Falls Aquifer - maintain 90 percent of saturated thickness from 2010 to 2070

ATTACHMENT E

LBG-GUYTON ASSOCIATES

TECHNICAL MEMORANDUM

TO: Mr. Drew Satterwhite, General Manager, NTGCD

FROM: James Beach, P.G., Michael Keester, P.G., and Brant Konetchy

SUBJECT: Results of Predictive Simulation in Support of GMA 8 Joint Planning – NTGCD GMA 8 Run 10

DATE: January 14, 2016

Per our proposal dated December 14, 2015, LBG-Guyton Associates conducted a predictive simulation in support of the Groundwater Management Area (GMA) 8 joint planning effort on behalf of North Texas Groundwater Conservation District (NTGCD). The work we conducted was designed to provide NTGCD and other GMA 8 districts with necessary and sufficient information for discussing potential desired future conditions with the other members of GMA 8. Our work involved using the Groundwater Availability Model of the Northern Trinity and Woodbine Aquifers (NTWGAM) (Kelley, et al., 2014) to simulate potential production within the model area and evaluate the simulated response of the aquifers within GMA 8. We will identify the described simulation as "NTGCD GMA 8 Run 10" or "Run 10" in this report.

MODIFICATION OF PUMPING INPUTS

For the Run 10 pumping, we used the Run 9 pumping file as the base pumping amounts and distribution. Pumping for Run 9 (Keester & Beach, 2015) was based on modifications to Run 5 (Kelley, et al., 2015) where changes were made to the pumping in the south GMA 8 districts, but no changes were made to NTGCD or other districts in the northern portion of GMA 8. We updated pumping in Run 10 by applying changes to the pumping file as a multiplier on the current pumping amounts in the file. Table 1 provides a summary of the pumping amounts by region and regional aquifer in each county and Table 2 summarizes the pumping by regional aquifer in each county. Table 3 and Table 4 provide the percent of Run 5 pumping present in Run 10.

In areas of the model where the surficial layer (model layer 1) represents the outcrop of an aquifer, we shifted pumping from the surficial layer to the aquifer layer. The reason for moving the pumping was to eliminate the potential for reductions in pumping due to cutbacks by the model code. The NTWGAM is configured so that when the saturated thickness of layer 1 becomes 25 percent or less of the total cell thickness then any pumping in that cell will be reduced. However, the vertical conductance of the model allows water to move from layer 1 to the underlying layer so that heads in each layer match as long as layer 1 remains saturated. While this vertical distribution of pumping is different than in Run 5, it is the same pumping amounts per aquifer, location of pumping, and the simulated effect is equivalent.

METHODOLOGY

We conducted the simulation using the Texas Water Development Board (TWDB) accepted version NTWGAM. As presented to GMA 8 with regard to Run 5 and Run 6, there are areas where this model configuration creates results that may not representative of actual conditions (Kelley, et al., 2015). These areas are primarily in the western portions of GMA 8 where the aquifers are relatively thin. To address potentially non-representative conditions, if the water level in a cell was below the bottom of the aquifer at the start of the simulation, results for that cell were omitted from future calculations. However, if the water level fell below the bottom of a cell during the simulation, the simulated water level was set equal to the bottom of the aquifer.

Initial conditions for Run 10 were the simulated conditions on January 1, 2010 (December 31, 2009) from the transient calibration of the GAM obtained from the TWDB. We used this starting point because the pumping file for Run 5 is based on the best estimates of pumping during 2010. In some areas, particularly in the southern areas of GMA 8, there were significant changes to the pumping distribution used in the transient calibration and these changes in location, vertical distribution, or amount of pumping altered the trend of the transient calibration water levels (Kelley, et al., 2015). However, the results indicate the simulation stabilized to the new distribution of pumping quickly. As with Runs 1 – 9, the simulation was run through December 31, 2070 to evaluate the effects of the potential pumping.

For all calculations, we used the cell assignments as defined in the grid shapefiles for the Woodbine and Trinity available from TWDB. These shapefiles assign each cell to a particular county, district, GMA, or other political subdivision based on the location of the center of the grid cell. For determining the aquifer that a cell represents, we used the "IBND" values as described in the grid shapefile metadata. For determining if a cell was part of the official aquifer, we used the "AQ_Active" values as described in the grid shapefile metadata from TWDB.

For GMA-8 purposes, the "aquifer region" in which the cell center is located was added to the grid shapefiles. The aquifer regions are defined using the shapefiles used to create Figure 4.1.4 of the NTWGAM model report. Figure 1 is a map illustrating the regions along with the districts and counties of GMA 8. For active model cells that were outside of the aquifer regions, we assigned the cell to the aquifer region nearest to the cell.

All calculations and results were performed on a cell-by-cell basis. That is, the model results for a cell were read and then assigned to the hydrogeologic or political subdivision per the TWDB grid shapefile definitions. An average value for each area was calculated based on the total number of cells assigned to a particular area.

As presented on Figure 1, the regional aquifers may include several model layers. To calculate the representative water level (i.e., the composite head) for the regional aquifer, we used the transmissivity weighted method discussed by Mr. Van Kelley at the GMA 8 meeting held on November 11, 2015. We also discussed the application of the method with Intera on December 22, 2015 to ensure we were using consistent methods. The method involves determining which model layers represent a particular aquifer, adding together the product of

the transmissivity and head for each layer, then dividing by the sum of the transmissivity for each layer; the following formula represents the calculation:

$$H_c = \frac{\sum_{i=UL}^{LL} T_i H_i}{\sum_{i=UL}^{LL} T_i}$$

Where:

H_c = Composite Head, feet mean sea level
T_i = Transmissivity of model layer *i*, square feet per day – Determined by multiplying the hydraulic conductivity of model layer *i* by the thickness of model layer *i*; in outcrop areas the thickness calculated using the simulated water level and the base of the aquifer.
H_i = Head of model layer *i*, feet mean sea level
LL = Lowest model layer representing the regional aquifer
UL = Uppermost model layer representing the regional aquifer

For example, if a model cell is in Region 1, then the composite head in the Antlers would be calculated as follows:

Model Layer	Example Transmissivity	Example Head	T_iH_i
4	1,000	150	150,000
5	500	125	62,500
6	1,500	160	240,000
7	725	175	126,875
8	1,250	140	175,000
Sum	**4,975**	**—**	**754,375**

$$H_c = \frac{754{,}375}{4{,}975} = 151.6$$

All calculations were performed on a county, district, regional, and GMA basis. The regional calculations were weighted by land area in each county that the region covers. The land area for the county was based on the grid cells assigned to the county in the region. For example, if County A has 15 quarter-mile square model cells with an average drawdown of 10 feet and County B has 25 model cells with an average drawdown of 20 feet, the county-weighted regional average drawdown would be:

$$County\text{–}Weighted\ Reg.DD = \frac{10 \times 15 \times 1320^2 + 20 \times 25 \times 1320^2}{15 \times 1320^2 + 25 \times 1320^2} = 16.25\ feet$$

NTGCD GMA 8 RUN 10 RESULTS

Tables Summarizing the Percent of January 1, 2010 Simulated Water Level Remaining on December 31, 2070

Attachment 1 contains tables that provide the Run 10 results for the percent of water remaining above the top of the aquifer and the base of the aquifer. The results were calculated by first calculating the average simulated water level above the top or base of the aquifer for each time period. We then divided the average value for the area on December 31, 2070 by the average value for the area on January 1, 2010. The tables provide the results by region and aquifer and also summarized by each aquifer.

Tables Summarizing the Average Drawdown in Feet from January 1, 2010 through December 31, 2070

Attachment 1 contains tables that provide the Run 10 results for average drawdown. The average drawdown was calculated by subtracting the December 31, 2070 water levels from the January 1, 2010 water levels. The tables provide the results by region and aquifer and also summarized by each aquifer.

Tabulation of Model Water Budget

The model water budget describes the various sources of inflow and outflow in an aquifer. Attachment 2 contains a tabulation of the model water budget for Run 10 through 2070 and charts illustrating the change in the aquifer inflows and outflows through time.

DIGITAL FILES

The memo report discussing the run and all of the attachments are provided in a Portable Document Format (PDF) file. The report, model files, and results files are provided on portable flash drive. The root directory of the flash drive contains a "readme" file describing the contents of the drive.

GEOSCIENTIST SEAL

This report documents the work of the following licensed professional geoscientist's with LBG-Guyton Associates, a licensed professional geoscientist firm in the State of Texas (License No. 50111).

James Beach, P.G.
Senior Vice President

The seal appearing on this document was authorized by James A. Beach, P.G. on January 13, 2016.

Pocket Seal

Michael R. Keester, P.G.
Associate

The seal appearing on this document was authorized by Michael R. Keester, P.G. on January 13, 2016.

REFERENCES

Keester, M. & Beach, J., 2015. *Technical Memorandum - Results of Predictive Simulation in Support of GMA 8 Joint Planning — South GMA 8 Run 9 (December 1, 2015),* Austin: LBG-Guyton Associates.

Kelley, V. A. et al., 2014. *Updated Groundwater Availability Model of the Northern Trinity and Woodbine Aquifers.* Austin(Texas): INTERA Incorporated.

Kelley, V., Jigamond, M. & Harding, J., 2015. *Technical Memorandum - Predictive Simulations to Support the GMA-8 Joint-Planning Process; Runs 5 and 6,* Austin: Intera Inc.

Attachment 1 —
Figures and Tables

Table 1. NTGCD Run 10 - Pumping Amounts in Acre-Feet per Year

County	Region 1			Region 2					Region 3				
	Woodbine	Antlers	Other Aquifer	Woodbine	Paluxy	Glen Rose	Twin Mtn	Other Aquifer	Woodbine	Paluxy	Glen Rose	Travis Peak	Other Aquifer
Bell	0	0	0	0	0	0	0	0	0	0	0	0	0
Bosque	0	0	0	0	0	0	0	0	0	0	0	0	0
Bowie	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown	0	1,052	0	0	0	0	0	0	0	0	0	0	0
Burnet	0	0	0	0	0	0	0	0	0	0	0	0	0
Callahan	0	1,726	0	0	0	0	0	0	0	0	0	0	0
Collin	376	1,962	1	3,878	1,548	83	2,202	28	0	0	0	0	0
Comanche	0	5,873	0	0	0	0	0	0	0	0	0	0	0
Cooke	800	10,522	1,473	0	0	0	0	0	0	0	0	0	0
Coryell	0	0	0	0	0	0	0	0	0	0	0	0	0
Dallas	0	0	0	2,735	359	131	3,201	524	0	0	0	0	0
Delta	0	0	0	0	0	0	0	0	0	56	0	0	0
Denton	2,287	16,557	1,664	1,322	4,823	339	8,372	497	0	0	0	0	0
Eastland	0	5,751	0	0	0	0	0	0	0	0	0	0	0
Ellis	0	0	0	1	0	0	0	0	0	0	0	0	0
Erath	0	2,630	0	0	1	71	5,022	0	0	0	0	0	0
Falls	0	0	0	0	0	0	0	0	0	0	0	0	0
Fannin	4,506	0	169	418	0	0	0	1	0	2,088	0	0	0
Franklin	0	0	0	0	0	0	0	0	0	0	0	0	0
Grayson	7,526	10,716	2,862	0	0	0	0	0	0	0	0	0	0
Hamilton	0	0	0	0	0	0	0	0	0	0	0	0	0
Hill	0	0	0	0	0	0	0	0	0	0	0	0	0
Hood	0	0	0	0	159	756	11,439	0	0	0	0	0	0
Hopkins	0	0	0	0	0	0	0	0	0	0	0	0	0
Hunt	0	0	0	0	0	0	0	0	763	3	0	0	17
Johnson	0	0	0	190	586	132	384	24	0	0	0	0	0
Kaufman	0	0	0	0	0	0	0	2	0	47	0	0	3
Lamar	46	0	0	0	0	0	0	0	3	8	0	0	0
Lampasas	0	0	0	0	0	0	0	0	0	0	0	0	0
Limestone	0	0	0	0	0	0	0	0	0	0	0	0	0
McLennan	0	0	0	0	0	0	0	0	0	0	0	0	0
Milam	0	0	0	0	0	0	0	0	0	0	0	0	0
Mills	0	0	0	0	0	0	0	0	0	0	0	0	0
Montague	0	3,878	0	0	0	0	0	0	0	0	0	0	0
Navarro	0	0	0	0	0	0	0	0	0	0	0	0	0
Parker	0	2,899	0	0	2,659	3,164	3,158	0	0	0	0	0	0
Rains	0	0	0	0	0	0	0	0	0	0	0	0	0
Red River	0	0	0	0	0	0	0	0	2	177	0	0	0
Rockwall	0	0	0	0	0	0	0	0	0	0	0	0	0
Somervell	0	0	0	0	0	4	173	0	0	0	0	0	0
Tarrant	0	1,248	2	1,139	8,963	793	6,922	1,342	0	0	0	0	0
Taylor	0	13	0	0	0	0	0	0	0	0	0	0	0
Travis	0	0	0	0	0	0	0	0	0	0	0	0	0
Williamson	0	0	0	0	0	0	0	0	0	0	0	0	0
Wise	0	9,760	603	0	0	0	0	0	0	0	0	0	0

Table 1. NTGCD Run 10 - Pumping Amounts in Acre-Feet per Year (cont.)												
Region 4							Region 5					
Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak*	Other Aquifer	Glen Rose	Hensell	Hosston	Travis Peak*	Other Aquifer	Total
0	0	35	78	315	393	94	938	1,019	6,864	7,883	7,893	**17,235**
0	357	729	3,837	3,765	7,602	1,821	0	0	0	0	0	**10,509**
0	0	0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	4	207	210	32	0	0	150	151	1	**1,448**
0	0	0	0	0	0	0	424	1,891	1,381	3,272	197	**3,893**
0	0	0	0	0	0	0	0	0	0	0	0	**1,726**
0	0	0	0	0	0	0	0	0	0	0	0	**10,078**
0	0	41	204	5,870	6,075	91	0	0	0	0	0	**12,079**
0	0	0	0	0	0	0	0	0	0	0	0	**12,796**
0	0	118	1,889	2,129	4,018	1,255	2	308	34	342	0	**5,735**
63	0	0	0	0	0	0	0	0	0	0	0	**7,014**
0	0	0	0	0	0	0	0	0	0	0	0	**56**
0	0	0	0	0	0	0	0	0	0	0	0	**35,859**
0	0	0	0	0	0	0	0	0	0	0	0	**5,751**
2,073	442	50	0	5,029	5,029	324	0	0	0	0	0	**7,920**
0	60	1,008	5,140	6,387	11,527	297	0	0	0	0	0	**20,615**
0	0	0	0	1,089	1,089	2	1	0	346	346	0	**1,438**
0	0	0	0	0	0	0	0	0	0	0	0	**7,182**
0	0	0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	0	0	0	0	0	**21,104**
0	0	218	1,672	385	2,057	370	0	0	0	0	0	**2,645**
587	352	115	225	3,274	3,499	379	0	0	0	0	0	**4,933**
0	0	0	36	53	89	0	0	0	0	0	0	**12,443**
0	0	0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	0	0	0	0	0	**782**
1,791	1,857	1,502	1,084	3,855	4,939	2,545	0	0	0	0	0	**13,949**
0	0	0	0	0	0	0	0	0	0	0	0	**52**
0	0	0	0	0	0	0	0	0	0	0	0	**58**
0	0	5	7	27	34	0	63	706	830	1,536	30	**1,668**
0	0	0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	4,701	15,948	20,649	2	0	0	0	0	0	**20,651**
0	0	0	0	0	0	0	0	0	0	0	3	**3**
0	6	111	156	258	415	144	77	451	1,210	1,661	135	**2,550**
0	0	0	0	0	0	0	0	0	0	0	0	**3,878**
5	0	0	0	0	0	3	0	0	0	0	127	**135**
0	0	0	0	0	0	0	0	0	0	0	0	**11,879**
0	0	0	0	0	0	0	0	0	0	0	0	**0**
0	0	0	0	0	0	0	0	0	0	0	0	**179**
0	0	0	0	0	0	0	0	0	0	0	0	**0**
0	13	141	1,974	844	2,818	31	0	0	0	0	0	**3,181**
0	0	0	0	0	0	0	0	0	0	0	0	**20,410**
0	0	0	0	0	0	0	0	0	0	0	0	**13**
0	0	0	0	0	0	0	973	1,144	2,799	3,943	11,140	**16,056**
0	0	0	0	0	0	0	689	752	1,934	2,686	21,022	**24,397**
0	0	0	0	0	0	0	0	0	0	0	0	**10,363**

*Travis Peak for Region 4 and Region 5 is the sum of the Hensell and Hosston

Table 2. NTGCD Run 10 - Pumping Amounts in Acre-Feet per Year

County	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers	Total
Bell	0	0	972	0	0	1,097	7,179	0	9,248
Bosque	0	357	729	0	0	3,837	3,765	0	8,688
Bowie	0	0	0	0	0	0	0	0	0
Brown	0	0	0	0	0	4	357	1,052	1,414
Burnet	0	0	424	0	0	1,891	1,381	0	3,696
Callahan	0	0	0	0	0	0	0	1,726	1,726
Collin	4,254	1,548	83	2,202	0	0	0	1,962	10,049
Comanche	0	0	41	0	0	204	5,870	5,873	11,988
Cooke	800	0	0	0	0	0	0	10,522	11,323
Coryell	0	0	120	0	0	2,197	2,163	0	4,480
Dallas	2,798	359	131	3,201	0	0	0	0	6,490
Delta	0	56	0	0	0	0	0	0	56
Denton	3,609	4,823	339	8,372	0	0	0	16,557	33,699
Eastland	0	0	0	0	0	0	0	5,751	5,751
Ellis	2,074	442	50	0	0	0	5,029	0	7,596
Erath	0	61	1,078	5,022	0	5,140	6,387	2,630	20,319
Falls	0	0	1	0	0	0	1,435	0	1,436
Fannin	4,924	2,088	0	0	0	0	0	0	7,012
Franklin	0	0	0	0	0	0	0	0	0
Grayson	7,526	0	0	0	0	0	0	10,716	18,242
Hamilton	0	0	218	0	0	1,672	385	0	2,275
Hill	587	352	115	0	0	225	3,274	0	4,554
Hood	0	159	756	11,439	0	36	53	0	12,443
Hopkins	0	0	0	0	0	0	0	0	0
Hunt	763	3	0	0	0	0	0	0	766
Johnson	1,981	2,442	1,633	384	0	1,084	3,855	0	11,380
Kaufman	0	47	0	0	0	0	0	0	47
Lamar	49	8	0	0	0	0	0	0	58
Lampasas	0	0	68	0	0	713	857	0	1,638
Limestone	0	0	0	0	0	0	0	0	0
McLennan	0	0	0	0	0	4,701	15,948	0	20,649
Milam	0	0	0	0	0	0	0	0	0
Mills	0	6	189	0	0	607	1,469	0	2,271
Montague	0	0	0	0	0	0	0	3,878	3,878
Navarro	5	0	0	0	0	0	0	0	5
Parker	0	2,659	3,164	3,158	0	0	0	2,899	11,879
Rains	0	0	0	0	0	0	0	0	0
Red River	2	177	0	0	0	0	0	0	179
Rockwall	0	0	0	0	0	0	0	0	0
Somervell	0	13	146	173	0	1,974	844	0	3,150
Tarrant	1,139	8,963	793	6,922	0	0	0	1,248	19,066
Taylor	0	0	0	0	0	0	0	13	13
Travis	0	0	973	0	0	1,144	2,799	0	4,916
Williamson	0	0	689	0	0	752	1,934	0	3,375
Wise	0	0	0	0	0	0	0	9,760	9,760

Table 3. Percent of Run 5 Pumping per Region in NTGCD Run 10

County	Region 1			Region 2					Region 3				
	Woodbine	Antlers	Other Aquifer	Woodbine	Paluxy	Glen Rose	Twin Mtn	Other Aquifer	Woodbine	Paluxy	Glen Rose	Travis Peak	Other Aquifer
Bell	—	—	—	—	—	—	—	—	—	—	—	—	—
Bosque	—	—	—	—	—	—	—	—	—	—	—	—	—
Bowie	—	—	—	—	—	—	—	—	—	—	—	—	—
Brown	—	100%	—	—	—	—	—	—	—	—	—	—	—
Burnet	—	—	—	—	—	—	—	—	—	—	—	—	—
Callahan	—	100%	—	—	—	—	—	—	—	—	—	—	—
Collin	120%	350%	100%	120%	130%	100%	1100%	100%	—	—	—	—	—
Comanche	—	100%	—	—	—	—	—	—	—	—	—	—	—
Cooke	130%	250%	100%	—	—	—	—	—	—	—	—	—	—
Coryell	—	—	—	—	—	—	—	—	—	—	—	—	—
Dallas	—	—	—	100%	100%	100%	100%	100%	—	—	—	—	—
Delta	—	—	—	—	—	—	—	—	—	100%	100%	—	—
Denton	130%	150%	100%	130%	170%	100%	460%	100%	—	—	—	—	—
Eastland	—	100%	—	—	—	—	—	—	—	—	—	—	—
Ellis	—	—	—	100%	—	—	—	100%	—	—	—	—	—
Erath	—	130%	—	—	130%	130%	130%	—	—	—	—	—	—
Falls	—	—	—	—	—	—	—	—	—	—	—	—	—
Fannin	100%	—	100%	100%	—	—	—	100%	—	600%	—	—	—
Franklin	—	—	—	—	—	—	—	—	—	—	—	—	—
Grayson	145%	145%	100%	—	—	—	—	—	—	—	—	—	—
Hamilton	—	—	—	—	—	—	—	—	—	—	—	—	—
Hill	—	—	—	—	—	—	—	—	—	—	—	—	—
Hood	—	—	—	—	130%	130%	130%	—	—	—	—	—	—
Hopkins	—	—	—	—	—	—	—	—	—	—	—	—	—
Hunt	—	—	—	—	—	—	—	—	100%	100%	—	—	100%
Johnson	—	—	—	100%	100%	100%	100%	100%	—	—	—	—	—
Kaufman	—	—	—	—	—	—	—	100%	—	100%	100%	—	100%
Lamar	100%	—	—	—	—	—	—	—	100%	100%	—	—	—
Lampasas	—	—	—	—	—	—	—	—	—	—	—	—	—
Limestone	—	—	—	—	—	—	—	—	—	—	—	—	—
McLennan	—	—	—	—	—	—	—	—	—	—	—	—	—
Milam	—	—	—	—	—	—	—	—	—	—	—	—	—
Mills	—	—	—	—	—	—	—	—	—	—	—	—	—
Montague	—	130%	—	—	—	—	—	—	—	—	—	—	—
Navarro	—	—	—	—	—	—	—	—	—	—	—	—	—
Parker	—	130%	—	—	130%	130%	130%	—	—	—	—	—	—
Rains	—	—	—	—	—	—	—	—	—	—	—	—	—
Red River	—	—	100%	—	—	—	—	—	100%	100%	100%	—	100%
Rockwall	—	—	—	—	—	—	—	—	—	—	—	—	—
Somervell	—	—	—	—	—	100%	100%	—	—	—	—	—	—
Tarrant	—	130%	100%	100%	130%	130%	130%	100%	—	—	—	—	—
Taylor	—	100%	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—
Wise	—	130%	130%	—	—	—	—	—	—	—	—	—	—

Table 3. Percent of Run 5 Pumping per Region in NTGCD Run 10 (cont.)

Region 4							Region 5				
Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak*	Other Aquifer	Glen Rose	Hensell	Hosston	Travis Peak*	Other Aquifer
—	—	100%	351%	934%	702%	135%	114%	175%	831%	560%	220%
—	120%	120%	120%	120%	120%	120%	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	100%	100%	100%	100%	100%	—	100%	100%	100%	100%
—	—	—	—	—	—	—	100%	190%	190%	190%	190%
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	100%	100%	100%	100%	100%	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	120%	120%	120%	120%	120%	120%	120%	120%	120%	120%
100%	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
100%	100%	100%	100%	100%	100%	100%	—	—	—	—	100%
—	130%	130%	130%	130%	130%	130%	—	—	—	—	—
—	—	—	—	100%	100%	100%	100%	—	100%	100%	100%
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	100%	100%	100%	100%	100%	—	—	—	—	—
100%	100%	100%	100%	100%	100%	100%	—	—	—	—	—
—	—	130%	130%	130%	130%	130%	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
100%	100%	100%	100%	100%	100%	100%	—	—	—	—	—
—	—	—	—	—	—	100%	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	140%	124%	127%	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
—	—	—	—	—	—	—	—	—	—	—	—
100%	—	—	—	—	—	100%	—	—	—	—	100%
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	100%	100%	100%	100%	100%	100%	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	100%	100%	100%	100%	100%
—	—	—	—	—	—	—	101%	100%	100%	100%	100%
—	—	—	—	—	—	—	—	—	—	—	—

*Travis Peak for Region 4 and Region 5 is the sum of the Hensell and Hosston

Table 4. Percent of Run 5 Pumping in NTGCD Run 10

County	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
Bell	—	—	114%	—	—	182%	835%	—
Bosque	—	120%	120%	—	—	120%	120%	—
Bowie	—	—	—	—	—	—	—	—
Brown	—	—	100%	—	—	100%	100%	100%
Burnet	—	—	100%	—	—	190%	190%	—
Callahan	—	—	—	—	—	—	—	100%
Collin	120%	130%	100%	1100%	—	—	—	350%
Comanche	—	—	100%	—	—	100%	100%	100%
Cooke	130%	—	—	—	—	—	—	250%
Coryell	—	—	120%	—	—	120%	120%	—
Dallas	100%	100%	100%	100%	—	—	—	—
Delta	—	100%	100%	—	—	—	—	—
Denton	130%	170%	100%	460%	—	—	—	150%
Eastland	—	—	—	—	—	—	—	100%
Ellis	100%	100%	100%	—	—	100%	100%	—
Erath	—	130%	130%	130%	—	130%	130%	130%
Falls	—	—	100%	—	—	—	100%	—
Fannin	100%	600%	—	—	—	—	—	—
Franklin	—	—	—	—	—	—	—	—
Grayson	145%	—	—	—	—	—	—	145%
Hamilton	—	—	100%	—	—	100%	100%	—
Hill	100%	100%	100%	—	—	100%	100%	—
Hood	—	130%	130%	130%	—	130%	130%	—
Hopkins	—	—	—	—	—	—	—	—
Hunt	100%	100%	—	—	—	—	—	—
Johnson	100%	100%	100%	100%	—	100%	100%	—
Kaufman	—	100%	100%	—	—	—	—	—
Lamar	100%	100%	—	—	—	—	—	—
Lampasas	—	—	100%	—	—	100%	100%	—
Limestone	—	—	—	—	—	—	—	—
McLennan	—	—	—	—	—	140%	124%	—
Milam	—	—	—	—	—	—	—	—
Mills	—	100%	100%	—	—	100%	100%	—
Montague	—	—	—	—	—	—	—	130%
Navarro	100%	—	—	—	—	—	—	—
Parker	—	130%	130%	130%	—	—	—	130%
Rains	—	—	—	—	—	—	—	—
Red River	100%	100%	100%	—	—	—	—	—
Rockwall	—	—	—	—	—	—	—	—
Somervell	—	100%	100%	100%	—	100%	100%	—
Tarrant	100%	130%	130%	130%	—	—	—	130%
Taylor	—	—	—	—	—	—	—	100%
Travis	—	—	100%	—	—	100%	100%	—
Williamson	—	—	101%	—	—	100%	100%	—
Wise	—	—	—	—	—	—	—	130%

Table 5. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070

	Region 1		Region 2				Region 3				Region 4						Region 5			
County	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Bell	—	—	—	—	—	—	—	—	—	—	—	93%	92%	76%	61%	68%	93%	90%	80%	82%
Bosque	—	—	—	—	—	—	—	—	—	—	—	96%	89%	70%	56%	68%	—	—	—	—
Bowie	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brown	—	97%	—	—	—	—	—	—	—	—	—	—	97%	99%	99%	99%	—	99%	99%	99%
Burnet	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99%	96%	87%	91%
Callahan	—	99%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collin	48%	73%	56%	62%	87%	84%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Comanche	—	88%	—	—	—	—	—	—	—	—	—	—	98%	98%	98%	98%	—	—	—	—
Cooke	99%	73%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coryell	—	—	—	—	—	—	—	—	—	—	—	96%	96%	82%	70%	79%	99%	97%	84%	90%
Dallas	—	—	86%	78%	88%	82%	90%	91%	93%	92%	89%	89%	91%	88%	88%	88%	—	—	—	—
Delta	—	—	—	—	—	—	—	92%	95%	96%	—	—	—	—	—	—	—	—	—	—
Denton	95%	58%	91%	11%	71%	51%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eastland	—	96%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ellis	—	—	90%	92%	88%	74%	91%	92%	93%	93%	92%	93%	91%	89%	87%	88%	94%	93%	95%	95%
Erath	—	92%	—	98%	93%	96%	—	—	—	—	—	99%	97%	94%	85%	93%	—	—	—	—
Falls	—	—	—	—	—	—	—	—	—	—	—	91%	91%	88%	81%	82%	91%	89%	86%	86%
Fannin	76%	91%	38%	68%	88%	89%	68%	75%	92%	94%	—	—	—	—	—	—	—	—	—	—
Franklin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grayson	65%	78%	32%	47%	87%	87%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hamilton	—	—	—	—	—	—	—	—	—	—	—	98%	98%	95%	89%	93%	99%	99%	92%	95%
Hill	—	—	—	—	—	—	—	—	—	—	95%	95%	90%	85%	75%	79%	91%	92%	91%	91%
Hood	—	—	—	95%	95%	89%	—	—	—	—	—	96%	98%	86%	53%	80%	—	—	—	—
Hopkins	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hunt	—	—	52%	75%	90%	90%	65%	78%	91%	92%	—	—	—	—	—	—	—	—	—	—
Johnson	—	—	97%	149%	88%	68%	—	—	—	—	99%	133%	90%	81%	51%	73%	—	—	—	—
Kaufman	—	—	88%	88%	92%	91%	90%	91%	93%	93%	91%	92%	93%	92%	94%	94%	94%	93%	95%	95%
Lamar	93%	95%	—	—	—	—	96%	96%	96%	96%	—	—	—	—	—	—	—	—	—	—
Lampasas	—	—	—	—	—	—	—	—	—	—	—	—	99%	99%	92%	95%	99%	99%	93%	97%
Limestone	—	—	—	—	—	—	—	—	—	—	—	91%	90%	93%	86%	87%	90%	93%	90%	90%
McLennan	—	—	—	—	—	—	—	—	—	—	98%	96%	90%	80%	60%	66%	90%	93%	89%	89%
Milam	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92%	92%	92%	92%
Mills	—	—	—	—	—	—	—	—	—	—	—	100%	99%	98%	94%	97%	99%	99%	90%	96%
Montague	—	91%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Navarro	—	—	—	—	—	—	—	—	—	—	91%	94%	92%	90%	90%	90%	93%	92%	93%	93%
Parker	—	94%	—	96%	90%	84%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rains	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Red River	100%	99%	—	—	—	—	100%	99%	98%	98%	—	—	—	—	—	—	—	—	—	—
Rockwall	—	—	86%	85%	91%	90%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Somervell	—	—	—	—	95%	89%	—	—	—	—	—	99%	98%	89%	74%	86%	—	—	—	—
Tarrant	—	71%	96%	55%	77%	55%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	100%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	95%	97%	94%	95%
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	95%	95%	92%	92%
Wise	—	84%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	100%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Titus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	95%	97%	94%	95%
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	95%	95%	92%	92%
Wise	—	84%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 6. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070								
County	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mtn**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Bell	—	93%	93%	—	81%	89%	79%	—
Bosque	—	96%	89%	—	68%	70%	56%	—
Bowie	—	—	—	—	—	—	—	—
Brown	—	—	97%	—	99%	99%	99%	97%
Burnet	—	—	99%	—	91%	96%	87%	—
Callahan	—	—	—	—	—	—	—	99%
Collin	55%	62%	87%	84%	—	—	—	73%
Comanche	—	—	98%	—	98%	98%	98%	88%
Cooke	99%	—	—	—	—	—	—	73%
Coryell	—	96%	96%	—	80%	84%	72%	—
Dallas	86%	78%	88%	82%	89%	88%	88%	—
Delta	—	92%	95%	—	96%	—	—	—
Denton	93%	11%	71%	51%	—	—	—	58%
Eastland	—	—	—	—	—	—	—	96%
Ellis	92%	93%	91%	74%	88%	89%	88%	—
Erath	—	99%	96%	96%	93%	94%	85%	92%
Falls	—	91%	91%	—	85%	88%	85%	—
Fannin	74%	73%	91%	89%	94%	—	—	91%
Franklin	—	—	—	—	—	—	—	—
Grayson	65%	47%	87%	87%	—	—	—	78%
Hamilton	—	98%	98%	—	93%	95%	89%	—
Hill	95%	95%	90%	—	79%	86%	75%	—
Hood	—	95%	95%	89%	80%	86%	53%	—
Hopkins	—	—	—	—	—	—	—	—
Hunt	64%	78%	91%	90%	92%	—	—	—
Johnson	99%	135%	90%	68%	73%	81%	51%	—
Kaufman	90%	90%	93%	91%	93%	92%	94%	—
Lamar	95%	96%	96%	—	96%	—	—	95%
Lampasas	—	—	99%	—	97%	99%	93%	—
Limestone	—	91%	90%	—	89%	93%	88%	—
McLennan	98%	96%	90%	—	66%	80%	60%	—
Milam	—	—	92%	—	92%	92%	92%	—
Mills	—	100%	99%	—	96%	98%	91%	—
Montague	—	—	—	—	—	—	—	91%
Navarro	91%	94%	93%	—	92%	92%	92%	—
Parker	—	96%	90%	84%	—	—	—	94%
Rains	—	—	—	—	—	—	—	—
Red River	100%	99%	98%	—	98%	—	—	99%
Rockwall	86%	85%	91%	90%	—	—	—	—
Somervell	—	99%	98%	89%	86%	89%	74%	—
Tarrant	96%	55%	77%	55%	—	—	—	71%
Taylor	—	—	—	—	—	—	—	100%
Travis	—	—	95%	—	95%	97%	94%	—
Williamson	—	—	95%	—	92%	95%	92%	—
Wise	—	—	—	—	—	—	—	84%
Taylor	—	—	—	—	—	—	—	100%
Titus	—	—	—	—	—	—	—	—
Travis	—	—	95%	—	95%	97%	94%	—
Williamson	—	—	95%	—	92%	95%	92%	—
Wise	—	—	—	—	—	—	—	84%

Table 7. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070

	Region 1		Region 2				Region 3				Region 4						Region 5			
County	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Bell	—	—	—	—	—	—	—	—	—	—	—	92%	69%	73%	53%	54%	88%	90%	76%	75%
Bosque	—	—	—	—	—	—	—	—	—	—	—	95%	34%	60%	41%	33%	—	—	—	—
Bowie	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brown	—	—	—	—	—	—	—	—	—	—	—	—	—	96%	98%	84%	—	—	99%	—
Burnet	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94%	80%	70%
Callahan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collin	1%	38%	29%	58%	83%	79%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Comanche	—	—	—	—	—	—	—	—	—	—	—	—	—	96%	98%	91%	—	—	—	—
Cooke	—	6%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coryell	—	—	—	—	—	—	—	—	—	—	—	96%	53%	77%	64%	63%	—	96%	80%	80%
Dallas	—	—	76%	75%	83%	75%	87%	90%	90%	90%	83%	88%	88%	88%	87%	85%	—	—	—	—
Delta	—	—	—	—	—	—	—	91%	94%	95%	—	—	—	—	—	—	—	—	—	—
Denton	41%	2%	62%	3%	57%	30%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eastland	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ellis	—	—	26%	90%	80%	61%	88%	91%	91%	91%	88%	93%	88%	88%	86%	84%	92%	93%	94%	93%
Erath	—	—	—	—	97%	77%	—	—	—	—	—	99%	88%	82%	78%	58%	—	—	—	—
Falls	—	—	—	—	—	—	—	—	—	—	—	90%	86%	88%	77%	74%	87%	89%	83%	81%
Fannin	56%	83%	—	65%	86%	86%	47%	72%	91%	92%	—	—	—	—	—	—	—	—	—	—
Franklin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grayson	5%	51%	—	40%	83%	84%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hamilton	—	—	—	—	—	—	—	—	—	—	—	97%	62%	91%	86%	81%	—	98%	89%	84%
Hill	—	—	—	—	—	—	—	—	—	—	92%	95%	82%	85%	70%	70%	88%	92%	89%	88%
Hood	—	—	—	—	32%	34%	—	—	—	—	—	—	65%	78%	41%	44%	—	—	—	—
Hopkins	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hunt	—	—	17%	73%	87%	88%	42%	76%	89%	90%	—	—	—	—	—	—	—	—	—	—
Johnson	—	—	#DIV/0!	240%	57%	21%	—	—	—	—	77%	150%	72%	77%	35%	48%	—	—	—	—
Kaufman	—	—	84%	87%	90%	89%	87%	90%	91%	91%	88%	91%	91%	92%	93%	92%	92%	93%	94%	93%
Lamar	86%	91%	—	—	—	—	92%	95%	95%	95%	—	—	—	—	—	—	—	—	—	—
Lampasas	—	—	—	—	—	—	—	—	—	—	—	—	—	98%	89%	86%	—	98%	90%	82%
Limestone	—	—	—	—	—	—	—	—	—	—	—	90%	86%	93%	84%	83%	86%	93%	88%	87%
McLennan	—	—	—	—	—	—	—	—	—	—	98%	96%	82%	79%	52%	52%	85%	93%	87%	85%
Milam	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	89%	92%	88%	87%
Mills	—	—	—	—	—	—	—	—	—	—	—	99%	98%	97%	92%	89%	90%	98%	83%	72%
Montague	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Navarro	—	—	—	—	—	—	—	—	—	—	88%	93%	88%	90%	88%	87%	90%	92%	92%	91%
Parker	—	—	—	96%	46%	45%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rains	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Red River	99%	98%	—	—	—	—	98%	98%	98%	98%	—	—	—	—	—	—	—	—	—	—
Rockwall	—	—	82%	84%	89%	87%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Somervell	—	—	—	—	—	51%	—	—	—	—	—	99%	73%	80%	64%	46%	—	—	—	—
Tarrant	—	#DIV/0!	4%	33%	53%	22%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93%	97%	92%	91%
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	91%	95%	89%	88%
Wise	—	#DIV/0!	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Titus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93%	97%	92%	91%
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	91%	95%	89%	88%
Wise	—	#DIV/0!	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 8. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070								
County	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mtn**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Bell	—	92%	87%	—	73%	89%	74%	—
Bosque	—	95%	34%	—	33%	60%	41%	—
Bowie	—	—	—	—	—	—	—	—
Brown	—	—	—	—	84%	96%	98%	—
Burnet	—	—	—	—	70%	94%	80%	—
Callahan	—	—	—	—	—	—	—	—
Collin	29%	58%	83%	79%	—	—	—	38%
Comanche	—	—	—	—	91%	96%	98%	—
Cooke	—	—	—	—	—	—	—	6%
Coryell	—	96%	53%	—	65%	79%	66%	—
Dallas	76%	75%	83%	75%	85%	88%	87%	—
Delta	—	91%	94%	—	95%	—	—	—
Denton	59%	3%	57%	30%	—	—	—	2%
Eastland	—	—	—	—	—	—	—	—
Ellis	88%	93%	88%	61%	84%	88%	86%	—
Erath	—	99%	88%	77%	58%	82%	78%	—
Falls	—	90%	87%	—	80%	88%	82%	—
Fannin	56%	70%	89%	86%	92%	—	—	83%
Franklin	—	—	—	—	—	—	—	—
Grayson	5%	40%	83%	84%	—	—	—	51%
Hamilton	—	97%	62%	—	81%	91%	86%	—
Hill	92%	95%	82%	—	71%	85%	70%	—
Hood	—	—	37%	34%	44%	78%	41%	—
Hopkins	—	—	—	—	—	—	—	—
Hunt	41%	76%	89%	88%	90%	—	—	—
Johnson	77%	152%	70%	21%	48%	77%	35%	—
Kaufman	86%	90%	91%	89%	91%	92%	93%	—
Lamar	91%	95%	95%	—	95%	—	—	91%
Lampasas	—	—	—	—	82%	98%	90%	—
Limestone	—	90%	86%	—	85%	93%	86%	—
McLennan	98%	96%	82%	—	52%	79%	52%	—
Milam	—	—	89%	—	87%	92%	88%	—
Mills	—	99%	98%	—	83%	97%	87%	—
Montague	—	—	—	—	—	—	—	—
Navarro	88%	93%	90%	—	90%	92%	91%	—
Parker	—	96%	46%	45%	—	—	—	—
Rains	—	—	—	—	—	—	—	—
Red River	98%	98%	98%	—	98%	—	—	98%
Rockwall	82%	84%	89%	87%	—	—	—	—
Somervell	—	99%	73%	51%	46%	80%	64%	—
Tarrant	4%	33%	53%	22%	—	—	—	—
Taylor	—	—	—	—	—	—	—	—
Travis	—	—	93%	—	91%	97%	92%	—
Williamson	—	—	91%	—	88%	95%	89%	—
Wise	—	—	—	—	—	—	—	—
Taylor	—	—	—	—	—	—	—	—
Titus	—	—	—	—	—	—	—	—
Travis	—	—	93%	—	91%	97%	92%	—
Williamson	—	—	91%	—	88%	95%	89%	—
Wise	—	—	—	—	—	—	—	—

Table 9. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)

County	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Bell	—	—	—	—	—	—	—	—	—	—	—	19	61	186	342	291	86	130	328	301
Bosque	—	—	—	—	—	—	—	—	—	—	—	6	49	129	201	167	—	—	—	—
Bowie	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brown	—	2	—	—	—	—	—	—	—	—	—	—	2	1	2	1	—	1	1	1
Burnet	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	7	20	16
Callahan	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Collin	302	570	481	705	339	526	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Comanche	—	9	—	—	—	—	—	—	—	—	—	—	1	2	3	2	—	—	—	—
Cooke	2	176	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coryell	—	—	—	—	—	—	—	—	—	—	—	7	16	75	141	108	2	10	65	43
Dallas	—	—	123	325	263	463	174	251	258	329	123	208	236	332	351	348	—	—	—	—
Delta	—	—	—	—	—	—	—	264	181	186	—	—	—	—	—	—	—	—	—	—
Denton	13	395	30	552	349	716	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eastland	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ellis	—	—	27	52	160	333	176	245	256	308	61	107	194	263	310	301	249	274	267	267
Erath	—	12	—	1	6	6	—	—	—	—	—	1	4	11	31	19	—	—	—	—
Falls	—	—	—	—	—	—	—	—	—	—	—	144	201	242	513	508	220	280	449	448
Fannin	218	251	668	671	320	372	503	698	257	269	—	—	—	—	—	—	—	—	—	—
Franklin	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Grayson	158	348	654	922	337	417	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hamilton	—	—	—	—	—	—	—	—	—	—	—	2	4	13	35	24	1	2	17	11
Hill	—	—	—	—	—	—	—	—	—	—	20	38	132	186	337	297	255	223	335	329
Hood	—	—	—	5	9	25	—	—	—	—	—	4	5	43	141	80	—	—	—	—
Hopkins	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hunt	—	—	684	596	321	370	591	585	296	324	—	—	—	—	—	—	—	—	—	—
Johnson	—	—	3	-51	50	156	—	—	—	—	2	-64	60	126	235	179	—	—	—	—
Kaufman	—	—	218	316	284	381	207	266	265	325	176	239	253	312	298	298	253	283	273	274
Lamar	57	122	—	—	—	—	34	93	97	114	—	—	—	—	—	—	—	—	—	—
Lampasas	—	—	—	—	—	—	—	—	—	—	—	—	1	2	19	12	1	1	10	5
Limestone	—	—	—	—	—	—	—	—	—	—	—	178	254	160	422	403	291	211	383	379
McLennan	—	—	—	—	—	—	—	—	—	—	6	35	133	220	543	471	304	202	411	409
Milam	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	212	229	345	345
Mills	—	—	—	—	—	—	—	—	—	—	—	1	1	3	13	7	1	1	13	6
Montague	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Navarro	—	—	—	—	—	—	—	—	—	—	92	119	212	244	310	308	239	258	284	284
Parker	—	11	—	4	22	34	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rains	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Red River	0	13	—	—	—	—	2	21	36	51	—	—	—	—	—	—	—	—	—	—
Rockwall	—	—	243	401	311	426	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Somervell	—	—	—	—	7	31	—	—	—	—	—	1	4	26	83	51	—	—	—	—
Tarrant	—	148	7	101	148	315	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	85	50	146	141
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77	74	177	173
Wise	—	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taylor	—	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Titus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	85	50	146	141
Williamson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	77	74	177	173
Wise	—	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 10. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)								
County	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mtn**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Bell	—	19	83	—	300	137	330	—
Bosque	—	6	49	—	167	129	201	—
Bowie	—	—	—	—	—	—	—	—
Brown	—	—	2	—	1	1	1	2
Burnet	—	—	2	—	16	7	20	—
Callahan	—	—	—	—	—	—	—	1
Collin	459	705	339	526	—	—	—	570
Comanche	—	—	1	—	2	2	3	9
Cooke	2	—	—	—	—	—	—	176
Coryell	—	7	14	—	99	66	130	—
Dallas	123	324	263	463	348	332	351	—
Delta	—	264	181	—	186	—	—	—
Denton	22	552	349	716	—	—	—	395
Eastland	—	—	—	—	—	—	—	3
Ellis	61	107	194	333	301	263	310	—
Erath	—	1	5	6	19	11	31	12
Falls	—	144	215	—	462	271	465	—
Fannin	247	688	280	372	269	—	—	251
Franklin	—	—	—	—	—	—	—	—
Grayson	160	922	337	417	—	—	—	348
Hamilton	—	2	4	—	24	13	35	—
Hill	20	38	133	—	298	186	337	—
Hood	—	5	9	25	80	43	141	—
Hopkins	—	—	—	—	—	—	—	—
Hunt	598	586	299	370	324	—	—	—
Johnson	2	-61	58	156	179	126	235	—
Kaufman	208	276	269	381	323	309	295	—
Lamar	38	93	97	—	114	—	—	122
Lampasas	—	—	1	—	6	1	11	—
Limestone	—	178	271	—	392	183	404	—
McLennan	6	35	133	—	471	220	542	—
Milam	—	—	212	—	345	229	345	—
Mills	—	1	1	—	7	2	13	—
Montague	—	—	—	—	—	—	—	18
Navarro	92	119	232	—	290	254	291	—
Parker	—	4	22	34	—	—	—	11
Rains	—	—	—	—	—	—	—	—
Red River	2	21	36	—	51	—	—	13
Rockwall	243	401	311	426	—	—	—	—
Somervell	—	1	4	31	51	26	83	—
Tarrant	7	101	148	315	—	—	—	148
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	85	—	141	50	146	—
Williamson	—	—	77	—	173	74	177	—
Wise	—	—	—	—	—	—	—	45
Taylor	—	—	—	—	—	—	—	0
Titus	—	—	—	—	—	—	—	—
Travis	—	—	85	—	141	50	146	—
Williamson	—	—	77	—	173	74	177	—
Wise	—	—	—	—	—	—	—	45

Table 11. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070

GCD	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Central Texas GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	99%	96%	87%	91%
Clearwater UWCD	—	—	—	—	—	—	—	—	—	—	—	93%	92%	76%	61%	68%	93%	90%	80%	82%
Middle Trinity GCD	—	90%	—	98%	93%	96%	—	—	—	—	—	97%	92%	78%	68%	77%	99%	97%	84%	90%
North Texas GCD	74%	66%	59%	58%	85%	80%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Northern Trinity GCD	—	71%	96%	55%	77%	55%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Post Oak Savannah GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	92%	92%	92%	92%
Prairielands GCD	—	—	94%	139%	89%	70%	91%	92%	93%	93%	93%	96%	91%	87%	81%	84%	92%	92%	92%	92%
Red River GCD	72%	86%	38%	66%	88%	89%	68%	75%	92%	94%	—	—	—	—	—	—	—	—	—	—
Saratoga UWCD	—	—	—	—	—	—	—	—	—	—	—	—	99%	99%	92%	95%	99%	99%	93%	97%
Southern Trinity GCD	—	—	—	—	—	—	—	—	—	—	98%	96%	90%	80%	60%	66%	90%	93%	89%	89%
Upper Trinity GCD	—	87%	—	96%	92%	86%	—	—	—	—	—	96%	98%	86%	53%	80%	—	—	—	—

Table 12. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070

GCD	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Central Texas GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	94%	80%	70%
Clearwater UWCD	—	—	—	—	—	—	—	—	—	—	—	92%	69%	73%	53%	54%	88%	90%	76%	75%
Middle Trinity GCD	—	—	—	—	97%	77%	—	—	—	—	—	95%	40%	69%	58%	49%	—	96%	80%	80%
North Texas GCD	11%	17%	31%	54%	81%	74%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Northern Trinity GCD	—	—	4%	33%	53%	22%	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Post Oak Savannah GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	89%	92%	88%	87%
Prairielands GCD	—	—	26%	154%	62%	28%	88%	91%	91%	91%	89%	95%	85%	86%	77%	77%	89%	92%	90%	90%
Red River GCD	48%	72%	—	62%	85%	86%	47%	72%	91%	92%	—	—	—	—	—	—	—	—	—	—
Saratoga UWCD	—	—	—	—	—	—	—	—	—	—	—	—	—	98%	89%	86%	—	98%	90%	82%
Southern Trinity GCD	—	—	—	—	—	—	—	—	—	—	98%	96%	82%	79%	52%	52%	85%	93%	87%	85%
Upper Trinity GCD	—	—	—	96%	45%	41%	—	—	—	—	—	—	65%	78%	41%	44%	—	—	—	—

Table 13. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)

GCD	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
Central Texas GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	7	20	16
Clearwater UWCD	—	—	—	—	—	—	—	—	—	—	—	19	61	186	342	291	86	130	328	301
Middle Trinity GCD	—	10	—	1	6	6	—	—	—	—	—	6	29	75	113	90	2	10	65	43
North Texas GCD	75	290	372	671	341	569	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Northern Trinity GCD	—	148	7	101	148	315	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Post Oak Savannah GCD	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	212	229	345	345
Prairielands GCD	—	—	9	-47	48	142	176	245	256	308	40	40	130	190	289	257	253	235	319	315
Red River GCD	187	304	666	700	322	377	503	698	257	269	—	—	—	—	—	—	—	—	—	—
Saratoga UWCD	—	—	—	—	—	—	—	—	—	—	—	—	1	2	19	12	1	1	10	5
Southern Trinity GCD	—	—	—	—	—	—	—	—	—	—	6	35	133	220	543	471	304	202	411	409
Upper Trinity GCD	—	30	—	4	17	29	—	—	—	—	—	4	5	43	141	80	—	—	—	—

Table 14. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070								
GCD	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mtn**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Central Texas GCD	—	—	99%	—	91%	96%	87%	—
Clearwater UWCD	—	93%	93%	—	81%	89%	79%	—
Middle Trinity GCD	—	97%	92%	96%	78%	79%	69%	90%
North Texas GCD	61%	58%	85%	80%	—	—	—	66%
Northern Trinity GCD	96%	55%	77%	55%	—	—	—	71%
Post Oak Savannah GCD	—	—	92%	—	92%	92%	92%	—
Prairielands GCD	93%	96%	91%	70%	84%	87%	81%	—
Red River GCD	71%	72%	91%	89%	94%	—	—	86%
Saratoga UWCD	—	—	99%	—	97%	99%	93%	—
Southern Trinity GCD	98%	96%	90%	—	66%	80%	60%	—
Upper Trinity GCD	—	96%	92%	86%	80%	86%	53%	87%

Table 15. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070								
GCD	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mtn**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Central Texas GCD	—	—	—	—	70%	94%	80%	—
Clearwater UWCD	—	92%	87%	—	73%	89%	74%	—
Middle Trinity GCD	—	95%	41%	77%	51%	70%	59%	—
North Texas GCD	30%	54%	81%	74%	—	—	—	17%
Northern Trinity GCD	4%	33%	53%	22%	—	—	—	—
Post Oak Savannah GCD	—	—	89%	—	87%	92%	88%	—
Prairielands GCD	89%	95%	85%	28%	77%	86%	77%	—
Red River GCD	48%	69%	89%	86%	92%	—	—	72%
Saratoga UWCD	—	—	—	—	82%	98%	90%	—
Southern Trinity GCD	98%	96%	82%	—	52%	79%	52%	—
Upper Trinity GCD	—	96%	46%	41%	44%	78%	41%	—

Table16. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)								
GCD	**Woodbine**	**Paluxy**	**Glen Rose**	**Twin Mtn**	**Travis Peak**	**Hensell**	**Hosston**	**Antlers**
Central Texas GCD	—	—	2	—	16	7	20	—
Clearwater UWCD	—	19	83	—	300	137	330	—
Middle Trinity GCD	—	6	27	6	88	72	111	10
North Texas GCD	278	671	341	569	—	—	—	290
Northern Trinity GCD	7	101	148	315	—	—	—	148
Post Oak Savannah GCD	—	—	212	—	345	229	345	—
Prairielands GCD	39	35	126	142	258	190	289	—
Red River GCD	204	699	283	377	269	—	—	304
Saratoga UWCD	—	—	1	—	6	1	11	—
Southern Trinity GCD	6	35	133	—	471	220	542	—
Upper Trinity GCD	—	4	17	29	80	43	141	30

Table 17. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070

GCD	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
GMA 8	74%	81%	72%	68%	86%	79%	86%	94%	96%	96%	93%	95%	91%	85%	76%	80%	94%	93%	90%	90%
County Weighted Regions	74%	81%	72%	68%	86%	79%	86%	94%	96%	96%	93%	95%	91%	85%	76%	80%	94%	93%	90%	90%

Table 18. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070

GCD	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
GMA 8	50%	68%	54%	64%	80%	71%	75%	93%	95%	95%	89%	95%	84%	83%	71%	70%	90%	93%	87%	85%
County Weighted Regions	50%	68%	54%	64%	80%	71%	75%	93%	95%	95%	89%	95%	84%	83%	71%	70%	90%	93%	87%	86%

Table 19. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)

GCD	Region 1		Region 2				Region 3				Region 4						Region 5			
	Woodbine	Antlers	Woodbine	Paluxy	Glen Rose	Twin Mtn	Woodbine	Paluxy	Glen Rose	Travis Peak	Woodbine	Paluxy	Glen Rose	Hensell	Hosston	Travis Peak	Glen Rose	Hensell	Hosston	Travis Peak
GMA 8	160	177	227	337	210	313	144	131	102	120	41	34	85	133	228	197	94	93	171	163
County Weighted Regions	159	175	227	337	210	312	144	131	102	120	41	34	85	133	228	197	96	94	172	163

Table 20. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Bottom of Aquifer Remaining on December 31, 2070

GCD	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
GMA 8	80%	86%	91%	79%	88%	89%	83%	81%
County Weighted Regions	80%	86%	92%	79%	88%	89%	83%	81%

Table 21. NTGCD Run 10 - Percent of January 1, 2010 Water Level Above Top of Aquifer Remaining on December 31, 2070

GCD	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
GMA 8	67%	85%	87%	71%	82%	88%	79%	68%
County Weighted Regions	67%	85%	87%	71%	83%	88%	79%	68%

Table 22. NTGCD Run 10 - Total Average Drawdown from January 1, 2010 through December 31, 2070 (feet)

GCD	Woodbine	Paluxy	Glen Rose	Twin Mtn	Travis Peak	Hensell	Hosston	Antlers
GMA 8	146	144	116	313	177	118	206	177
County Weighted Regions	146	144	116	312	177	118	206	175

Attachment 2 —
Model Water Budget Tables

NTGCD Run 10 - Bell County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	211	408	524	592	642	710	728
Leakage (Below)	-274	-465	-580	-647	-697	-765	-782
Recharge	7	7	7	7	7	5	7
Perennial	42	44	45	46	47	48	48
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1	-1	-1	-1	-1	-1	-1
Flowing	0	0	0	0	0	0	0
Storage	16	7	5	3	2	3	1
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bell County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	299	303	256	171	105	136	106
Leakage (Above)	274	465	580	647	697	765	782
Leakage (Below)	-136	-250	-330	-388	-430	-456	-486
Recharge	14,271	14,271	14,271	14,271	14,271	9,179	14,271
Perennial	-6,786	-6,350	-6,097	-5,919	-5,782	-5,415	-5,522
Ephemeral	-6,529	-5,985	-5,347	-4,698	-4,520	-4,323	-4,291
Evapotransipration	0	0	-1	-5	-9	-12	-15
Springs	-139	-136	-125	-81	-40	-30	-29
Reservoir	-592	-622	-649	-675	-698	-713	-733
Wells	-6,460	-6,460	-6,460	-6,460	-6,460	-6,460	-6,460
Flowing	0	0	0	0	0	0	0
Storage	6,346	5,270	4,398	3,639	3,373	7,833	2,883
Total	549	506	496	502	507	504	508

NTGCD Run 10 - Bell County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	8	8	8	8	8	8	8
Leakage (Above)	136	250	330	388	430	456	486
Leakage (Below)	-229	-418	-526	-598	-649	-684	-713
Recharge	299	299	299	299	299	187	299
Perennial	0	0	0	0	0	0	0
Ephemeral	-2	-1	-1	-1	-1	0	-1
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-93	-97	-98	-99	-99	-98	-97
Wells	-1	-1	-1	-1	-1	-1	-1
Flowing	-66	-69	-69	-69	-68	-66	-65
Storage	-52	27	58	72	80	198	84
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bell County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	817	762	678	626	594	577	567
Leakage (Above)	229	418	526	598	649	684	713
Leakage (Below)	-1,331	-2,597	-2,961	-3,147	-3,261	-3,332	-3,384
Recharge	6,621	6,621	6,621	6,621	6,621	3,872	6,621
Perennial	-7,548	-7,113	-6,869	-6,674	-6,510	-6,078	-6,205
Ephemeral	-52	-52	-51	-48	-46	-41	-38
Evapotransipration	-2	-2	-2	-2	-2	-1	-1
Springs	0	0	0	0	0	0	0
Reservoir	-188	-192	-192	-190	-188	-185	-183
Wells	-972	-972	-972	-972	-972	-972	-972
Flowing	0	0	0	0	0	0	0
Storage	1,693	2,380	2,465	2,426	2,348	4,709	2,115
Total	-734	-748	-757	-763	-767	-768	-768

NTGCD Run 10 - Bell County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	187	164	166	170	173	176	178
Leakage (Above)	1,331	2,597	2,961	3,147	3,261	3,332	3,384
Leakage (Below)	-672	-1,727	-2,060	-2,237	-2,348	-2,420	-2,470
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,097	-1,097	-1,097	-1,097	-1,097	-1,097	-1,097
Flowing	-51	0	0	0	0	0	0
Storage	302	64	30	18	11	9	6
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bell County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-50	-57	-71	-81	-89	-93	-96
Leakage (Above)	672	1,727	2,060	2,237	2,348	2,420	2,470
Leakage (Below)	-889	-1,876	-2,094	-2,217	-2,299	-2,353	-2,392
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	267	206	105	62	39	27	18
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bell County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,338	4,675	4,756	4,755	4,744	4,732	4,723
Leakage (Above)	889	1,876	2,094	2,217	2,299	2,353	2,392
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-7,179	-7,179	-7,179	-7,179	-7,179	-7,179	-7,179
Flowing	-48	0	0	0	0	0	0
Storage	4,000	627	328	206	136	93	64
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bosque County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bosque County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-531	-514	-522	-528	-533	-541	-545
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-6,824	-7,107	-7,254	-7,329	-7,372	-7,361	-7,400
Recharge	27,480	27,480	27,480	27,480	27,480	15,821	27,480
Perennial	-10,100	-9,077	-8,872	-8,761	-8,684	-8,124	-8,520
Ephemeral	-13,859	-12,829	-12,452	-12,218	-12,045	-11,623	-11,650
Evapotransipration	-195	-184	-183	-182	-182	-179	-182
Springs	0	0	0	0	0	0	0
Reservoir	-184	-208	-228	-246	-261	-270	-282
Wells	-1,740	-1,740	-1,740	-1,740	-1,740	-1,740	-1,740
Flowing	0	0	0	0	0	0	0
Storage	5,953	4,180	3,771	3,523	3,337	14,017	2,838
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bosque County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	477	433	411	398	389	365	375
Leakage (Above)	6,824	7,107	7,254	7,329	7,372	7,361	7,400
Leakage (Below)	-4,825	-5,325	-5,544	-5,661	-5,731	-5,767	-5,799
Recharge	3,681	3,681	3,681	3,681	3,681	2,060	3,681
Perennial	-3,988	-3,517	-3,424	-3,371	-3,335	-3,062	-3,269
Ephemeral	-3,043	-2,875	-2,796	-2,741	-2,699	-2,621	-2,615
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-357	-357	-357	-357	-357	-357	-357
Flowing	0	0	0	0	0	0	0
Storage	1,233	855	776	723	681	2,022	584
Total	2	1	1	1	0	0	0

NTGCD Run 10 - Bosque County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,514	1,574	1,510	1,458	1,421	1,386	1,372
Leakage (Above)	4,825	5,325	5,544	5,661	5,731	5,767	5,799
Leakage (Below)	-4,731	-5,940	-6,326	-6,516	-6,627	-6,697	-6,748
Recharge	4,830	4,830	4,830	4,830	4,830	2,603	4,830
Perennial	-7,478	-6,456	-6,106	-5,874	-5,700	-5,168	-5,396
Ephemeral	-1,308	-1,181	-1,093	-1,023	-968	-901	-866
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-729	-729	-729	-729	-729	-729	-729
Flowing	0	0	0	0	0	0	0
Storage	3,031	2,531	2,324	2,146	1,995	3,692	1,692
Total	-46	-47	-47	-47	-47	-47	-47

NTGCD Run 10 - Bosque County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,025	1,420	1,461	1,460	1,455	1,450	1,447
Leakage (Above)	4,731	5,940	6,326	6,516	6,627	6,697	6,748
Leakage (Below)	-2,814	-3,718	-4,037	-4,188	-4,277	-4,334	-4,374
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,837	-3,837	-3,837	-3,837	-3,837	-3,837	-3,837
Flowing	0	0	0	0	0	0	0
Storage	895	196	87	50	32	24	16
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bosque County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-94	-106	-139	-161	-175	-184	-190
Leakage (Above)	2,814	3,718	4,037	4,188	4,277	4,334	4,374
Leakage (Below)	-3,038	-3,677	-3,879	-3,981	-4,044	-4,084	-4,113
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-81	-81	-81	-81	-81	-81	-81
Flowing	0	0	0	0	0	0	0
Storage	399	146	63	35	22	16	11
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Bosque County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-368	-251	-261	-299	-331	-356	-373
Leakage (Above)	3,038	3,677	3,879	3,981	4,044	4,084	4,113
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,765	-3,765	-3,765	-3,765	-3,765	-3,765	-3,765
Flowing	0	0	0	0	0	0	0
Storage	1,094	339	146	83	53	36	25
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Brown County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Brown County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Brown County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Brown County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	13	13	13	13	13	13	13
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-37	-37	-37	-37	-36	-36	-36
Recharge	24	24	24	24	24	13	24
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	4	4	4	3	3	13	3
Total	3	3	3	3	3	3	3

NTGCD Run 10 - Brown County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-165	-167	-170	-172	-174	-175	-177
Leakage (Above)	37	37	37	37	36	36	36
Leakage (Below)	-312	-314	-314	-314	-314	-312	-311
Recharge	401	401	401	401	401	224	401
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-4	-4	-4	-4	-4	-4	-4
Flowing	0	0	0	0	0	0	0
Storage	39	43	46	48	50	226	51
Total	-5	-5	-5	-5	-5	-5	-5

NTGCD Run 10 - Brown County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-237	-251	-257	-259	-261	-262	-262
Leakage (Above)	312	314	314	314	314	312	311
Leakage (Below)	-687	-693	-696	-698	-698	-700	-698
Recharge	712	712	712	712	712	406	712
Perennial	0	0	0	0	0	0	0
Ephemeral	-249	-245	-241	-238	-234	-228	-225
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-34	-34	-34	-34	-34	-34	-34
Flowing	0	0	0	0	0	0	0
Storage	146	160	164	165	164	469	160
Total	-37	-38	-37	-37	-37	-36	-36

NTGCD Run 10 - Brown County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,701	-1,666	-1,639	-1,621	-1,607	-1,592	-1,582
Leakage (Above)	687	693	696	698	698	700	698
Leakage (Below)	0	0	0	0	0	0	0
Recharge	4,197	4,197	4,197	4,197	4,197	2,381	4,197
Perennial	0	0	0	0	0	0	0
Ephemeral	-3,303	-3,234	-3,183	-3,137	-3,097	-3,033	-3,005
Evapotransipration	0	0	0	0	0	0	0
Springs	-29	-28	-28	-27	-27	-26	-25
Reservoir	0	0	0	0	0	0	0
Wells	-1,410	-1,410	-1,410	-1,410	-1,410	-1,410	-1,410
Flowing	0	0	0	0	0	0	0
Storage	1,540	1,431	1,350	1,285	1,231	2,964	1,112
Total	-19	-17	-16	-15	-15	-15	-15

NTGCD Run 10 - Burnet County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Burnet County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Burnet County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Burnet County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-1,835	-1,821	-1,812	-1,805	-1,799	-1,792	-1,789
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-7,060	-7,611	-7,754	-7,835	-7,887	-7,915	-7,941
Recharge	10,533	10,533	10,533	10,533	10,533	5,917	10,533
Perennial	-455	-270	-166	-87	-22	255	111
Ephemeral	-3,861	-3,659	-3,541	-3,444	-3,361	-3,232	-3,192
Evapotransipration	-107	-103	-102	-101	-100	-99	-99
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-424	-424	-424	-424	-424	-424	-424
Flowing	0	0	0	0	0	0	0
Storage	3,208	3,356	3,266	3,162	3,061	7,289	2,799
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Burnet County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,429	-1,430	-1,430	-1,428	-1,426	-1,424	-1,421
Leakage (Above)	7,060	7,611	7,754	7,835	7,887	7,915	7,941
Leakage (Below)	-4,055	-4,537	-4,690	-4,777	-4,835	-4,874	-4,894
Recharge	1,909	1,909	1,909	1,909	1,909	1,079	1,909
Perennial	-1,800	-1,694	-1,653	-1,626	-1,606	-1,531	-1,568
Ephemeral	-167	-158	-147	-135	-126	-114	-106
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,891	-1,891	-1,891	-1,891	-1,891	-1,891	-1,891
Flowing	0	0	0	0	0	0	0
Storage	938	753	705	666	635	1,378	565
Total	564	563	557	552	546	539	535

NTGCD Run 10 - Burnet County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-225	-238	-244	-247	-248	-250	-251
Leakage (Above)	4,055	4,537	4,690	4,777	4,835	4,874	4,894
Leakage (Below)	-4,606	-5,077	-5,227	-5,308	-5,355	-5,377	-5,391
Recharge	678	678	678	678	678	374	678
Perennial	0	0	0	0	0	0	0
Ephemeral	-42	-41	-41	-40	-40	-39	-39
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-197	-197	-197	-197	-197	-197	-197
Flowing	0	0	0	0	0	0	0
Storage	323	325	327	323	314	602	292
Total	-13	-13	-13	-13	-13	-13	-13

NTGCD Run 10 - Burnet County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-5,900	-6,605	-6,930	-7,153	-7,314	-7,420	-7,506
Leakage (Above)	4,606	5,077	5,227	5,308	5,355	5,377	5,391
Leakage (Below)	0	0	0	0	0	0	0
Recharge	3,766	3,766	3,766	3,766	3,766	2,045	3,766
Perennial	0	0	0	0	0	0	0
Ephemeral	-1,263	-1,264	-1,263	-1,260	-1,256	-1,239	-1,234
Evapotransipration	-44	-45	-47	-48	-50	-50	-51
Springs	0	0	0	0	0	0	0
Reservoir	-205	-218	-226	-232	-235	-236	-236
Wells	-1,381	-1,381	-1,381	-1,381	-1,381	-1,381	-1,381
Flowing	0	0	0	0	0	0	0
Storage	-153	96	287	441	560	2,358	709
Total	-574	-573	-566	-560	-555	-547	-542

NTGCD Run 10 - Callahan County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Callahan County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Callahan County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Callahan County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Callahan County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-18	-19	-19	-20	-20	-20	-21
Recharge	29	29	29	29	29	17	29
Perennial	0	0	0	0	0	0	0
Ephemeral	-14	-14	-14	-14	-14	-13	-13
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1	-1	-1	-1	-1	-1	-1
Flowing	0	0	0	0	0	0	0
Storage	4	4	5	5	5	18	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Callahan County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	-1	-1	-1	-1	-1	-1
Leakage (Above)	18	19	19	20	20	20	21
Leakage (Below)	-69	-65	-64	-64	-63	-63	-63
Recharge	52	52	52	52	52	30	52
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-23	-23	-23	-23	-23	-23	-23
Flowing	0	0	0	0	0	0	0
Storage	22	18	16	15	14	37	14
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Callahan County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-630	-631	-637	-640	-641	-637	-634
Leakage (Above)	69	65	64	64	63	63	63
Leakage (Below)	0	0	0	0	0	0	0
Recharge	4,376	4,376	4,376	4,376	4,376	2,605	4,376
Perennial	0	0	0	0	0	0	0
Ephemeral	-3,792	-3,730	-3,681	-3,637	-3,594	-3,524	-3,496
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,702	-1,702	-1,702	-1,702	-1,702	-1,702	-1,702
Flowing	0	0	0	0	0	0	0
Storage	1,673	1,615	1,573	1,533	1,491	3,189	1,387
Total	-7	-7	-7	-7	-7	-7	-7

NTGCD Run 10 - Collin County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,347	2,214	2,677	2,992	3,213	3,371	3,487
Leakage (Above)	142	190	224	247	263	275	284
Leakage (Below)	30	66	81	89	93	96	99
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-4,254	-4,254	-4,254	-4,254	-4,254	-4,254	-4,254
Flowing	0	0	0	0	0	0	0
Storage	2,735	1,783	1,272	926	684	512	384
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Collin County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	221	125	128	168	213	250	280
Leakage (Above)	-30	-66	-81	-89	-93	-96	-99
Leakage (Below)	-97	-182	-220	-239	-248	-253	-256
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2	-2	-2	-2	-2	-2	-2
Flowing	0	0	0	0	0	0	0
Storage	-93	124	176	161	130	101	76
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Collin County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	825	1,410	1,750	1,927	2,024	2,081	2,116
Leakage (Above)	97	182	220	239	248	253	256
Leakage (Below)	25	51	60	63	64	64	63
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,521	-2,521	-2,521	-2,521	-2,521	-2,521	-2,521
Flowing	0	0	0	0	0	0	0
Storage	1,574	878	490	292	186	124	85
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Collin County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	37	-21	16	65	104	132	152
Leakage (Above)	-25	-51	-60	-63	-64	-64	-63
Leakage (Below)	-19	-45	-47	-46	-45	-44	-44
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-97	-97	-97	-97	-97	-97	-97
Flowing	0	0	0	0	0	0	0
Storage	105	214	189	142	102	73	53
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Collin County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	730	1,475	1,583	1,623	1,645	1,658	1,668
Leakage (Above)	19	45	47	46	45	44	44
Leakage (Below)	22	63	63	61	59	57	56
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,786	-1,786	-1,786	-1,786	-1,786	-1,786	-1,786
Flowing	0	0	0	0	0	0	0
Storage	1,016	204	93	56	38	26	19
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Collin County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	71	-186	-66	27	85	122	148
Leakage (Above)	-22	-63	-63	-61	-59	-57	-56
Leakage (Below)	-71	-166	-162	-156	-153	-152	-152
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-10	-10	-10	-10	-10	-10	-10
Flowing	0	0	0	0	0	0	0
Storage	31	425	301	199	137	97	70
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Collin County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-584	518	826	957	1,035	1,089	1,126
Leakage (Above)	71	166	162	156	153	152	152
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,381	-1,381	-1,381	-1,381	-1,381	-1,381	-1,381
Flowing	0	0	0	0	0	0	0
Storage	1,894	697	393	269	193	141	103
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Comanche County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Comanche County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Comanche County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Comanche County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	542	541	540	539	538	536	536
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-1,354	-1,362	-1,357	-1,352	-1,348	-1,339	-1,336
Recharge	746	746	746	746	746	419	746
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-41	-41	-41	-41	-41	-41	-41
Flowing	0	0	0	0	0	0	0
Storage	111	120	117	113	109	430	99
Total	5	5	5	5	5	5	5

NTGCD Run 10 - Comanche County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,153	1,100	1,079	1,061	1,041	1,018	995
Leakage (Above)	1,354	1,362	1,357	1,352	1,348	1,339	1,336
Leakage (Below)	-6,936	-6,937	-6,924	-6,917	-6,925	-6,934	-6,953
Recharge	6,061	6,061	6,061	6,061	6,061	3,432	6,061
Perennial	-1,142	-1,082	-1,066	-1,055	-1,047	-1,004	-1,029
Ephemeral	-2,169	-2,110	-2,069	-2,034	-2,003	-1,950	-1,923
Evapotransipration	-20	-19	-19	-19	-19	-19	-19
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-437	-437	-437	-437	-437	-437	-437
Flowing	0	0	0	0	0	0	0
Storage	1,930	1,855	1,810	1,781	1,773	4,348	1,763
Total	-205	-207	-208	-208	-208	-207	-207

NTGCD Run 10 - Comanche County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	566	502	482	463	443	420	389
Leakage (Above)	6,936	6,937	6,924	6,917	6,925	6,934	6,953
Leakage (Below)	-6,018	-6,021	-5,983	-5,960	-5,945	-5,924	-5,905
Recharge	2,319	2,319	2,319	2,319	2,319	1,327	2,319
Perennial	-1,660	-1,583	-1,557	-1,540	-1,526	-1,464	-1,494
Ephemeral	-2,741	-2,696	-2,670	-2,651	-2,636	-2,606	-2,599
Evapotransipration	-70	-68	-68	-67	-67	-66	-66
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-427	-427	-427	-427	-427	-427	-427
Flowing	0	0	0	0	0	0	0
Storage	1,077	1,028	973	938	906	1,798	819
Total	-18	-9	-8	-8	-8	-10	-12

NTGCD Run 10 - Comanche County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,690	1,379	1,108	915	740	555	397
Leakage (Above)	6,018	6,021	5,983	5,960	5,945	5,924	5,905
Leakage (Below)	0	0	0	0	0	0	0
Recharge	10,180	10,180	10,180	10,180	10,180	5,827	10,180
Perennial	-6,186	-5,872	-5,721	-5,550	-5,347	-4,840	-4,835
Ephemeral	-6,351	-6,130	-5,961	-5,813	-5,675	-5,486	-5,373
Evapotransipration	-919	-894	-882	-871	-860	-842	-835
Springs	-4	0	0	0	0	0	0
Reservoir	-446	-420	-400	-385	-372	-360	-351
Wells	-11,173	-11,173	-11,173	-11,173	-11,173	-11,173	-11,173
Flowing	0	0	0	0	0	0	0
Storage	7,199	6,924	6,880	6,751	6,574	10,405	6,095
Total	8	14	15	14	12	9	10

NTGCD Run 10 - Cooke County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,193	-1,154	-1,124	-1,101	-1,082	-1,055	-1,047
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-1,042	-1,022	-1,038	-1,053	-1,063	-1,069	-1,078
Recharge	12,596	12,596	12,596	12,596	12,596	8,521	12,596
Perennial	0	0	0	0	0	0	0
Ephemeral	-10,536	-10,196	-9,941	-9,741	-9,583	-8,932	-9,167
Evapotransipration	0	0	0	0	0	0	0
Springs	-8	-7	-7	-7	-6	-5	-6
Reservoir	-1,210	-1,169	-1,136	-1,109	-1,087	-1,060	-1,045
Wells	-800	-800	-800	-800	-800	-800	-800
Flowing	0	0	0	0	0	0	0
Storage	2,198	1,757	1,456	1,219	1,031	4,406	552
Total	6	6	5	5	5	5	5

NTGCD Run 10 - Cooke County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-996	-1,094	-1,191	-1,256	-1,298	-1,387	-1,363
Leakage (Above)	1,042	1,022	1,038	1,053	1,063	1,069	1,078
Leakage (Below)	-4,540	-4,970	-5,249	-5,407	-5,498	-5,534	-5,581
Recharge	47,489	47,489	47,489	47,489	47,489	31,924	47,489
Perennial	-14,210	-14,234	-14,214	-14,215	-14,225	-13,231	-14,125
Ephemeral	-26,529	-25,846	-25,417	-25,099	-24,854	-23,311	-24,002
Evapotransipration	-893	-898	-903	-906	-908	-900	-904
Springs	-15	-14	-14	-14	-14	-13	-13
Reservoir	-458	-532	-594	-645	-689	-719	-752
Wells	-1,473	-1,473	-1,473	-1,473	-1,473	-1,473	-1,473
Flowing	0	0	0	0	0	0	0
Storage	805	776	753	699	633	13,798	-129
Total	223	224	225	225	225	225	224

NTGCD Run 10 - Cooke County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,549	-1,741	-1,824	-1,856	-1,871	-1,857	-1,885
Leakage (Above)	4,540	4,970	5,249	5,407	5,498	5,534	5,581
Leakage (Below)	-5,059	-5,878	-6,310	-6,540	-6,678	-6,758	-6,818
Recharge	16,420	16,420	16,420	16,420	16,420	10,932	16,420
Perennial	-6,378	-6,114	-5,935	-5,817	-5,734	-5,250	-5,565
Ephemeral	-7,510	-7,300	-7,118	-6,967	-6,839	-6,523	-6,527
Evapotransipration	-996	-1,010	-1,019	-1,025	-1,030	-1,021	-1,032
Springs	0	0	0	0	0	0	0
Reservoir	-333	-338	-340	-341	-340	-337	-336
Wells	-1,092	-1,092	-1,092	-1,092	-1,092	-1,092	-1,092
Flowing	0	0	0	0	0	0	0
Storage	1,856	1,988	1,878	1,724	1,582	6,289	1,172
Total	-100	-95	-90	-87	-84	-83	-82

NTGCD Run 10 - Cooke County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,795	1,702	1,601	1,519	1,460	1,391	1,378
Leakage (Above)	5,059	5,878	6,310	6,540	6,678	6,758	6,818
Leakage (Below)	-6,233	-7,923	-8,269	-8,392	-8,452	-8,466	-8,495
Recharge	8,965	8,965	8,965	8,965	8,965	6,046	8,965
Perennial	-8,968	-8,544	-8,253	-8,054	-7,908	-7,211	-7,626
Ephemeral	-1,116	-1,073	-1,032	-999	-971	-910	-913
Evapotransipration	-480	-476	-472	-469	-467	-455	-463
Springs	0	0	0	0	0	0	0
Reservoir	-3	-3	-3	-3	-3	-3	-2
Wells	-743	-743	-743	-743	-743	-743	-743
Flowing	0	0	0	0	0	0	0
Storage	1,480	1,970	1,649	1,388	1,194	3,345	835
Total	-245	-246	-247	-247	-247	-247	-246

NTGCD Run 10 - Cooke County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,016	-2,554	-2,604	-2,624	-2,636	-2,656	-2,652
Leakage (Above)	6,233	7,923	8,269	8,392	8,452	8,466	8,495
Leakage (Below)	-3,715	-4,556	-4,828	-4,921	-4,962	-4,967	-4,983
Recharge	2,605	2,605	2,605	2,605	2,605	1,799	2,605
Perennial	140	227	284	317	340	503	391
Ephemeral	-1,185	-1,111	-1,044	-987	-941	-876	-855
Evapotransipration	-784	-777	-771	-767	-765	-754	-760
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,474	-2,474	-2,474	-2,474	-2,474	-2,474	-2,474
Flowing	0	0	0	0	0	0	0
Storage	1,170	687	534	430	352	929	202
Total	-28	-29	-29	-29	-29	-30	-29

NTGCD Run 10 - Cooke County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	591	963	994	991	985	971	973
Leakage (Above)	3,715	4,556	4,828	4,921	4,962	4,967	4,983
Leakage (Below)	-2,949	-4,292	-4,381	-4,412	-4,430	-4,440	-4,450
Recharge	524	524	524	524	524	360	524
Perennial	-1,385	-1,295	-1,239	-1,201	-1,173	-1,112	-1,122
Ephemeral	-833	-785	-749	-724	-704	-676	-669
Evapotransipration	-63	-60	-57	-56	-54	-52	-52
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-364	-364	-364	-364	-364	-364	-364
Flowing	0	0	0	0	0	0	0
Storage	660	644	334	210	144	236	67
Total	-104	-108	-110	-111	-111	-111	-110

NTGCD Run 10 - Cooke County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,382	2,081	2,139	2,146	2,141	2,155	2,129
Leakage (Above)	2,949	4,292	4,381	4,412	4,430	4,440	4,450
Leakage (Below)	0	0	0	0	0	0	0
Recharge	1,267	1,267	1,267	1,267	1,267	883	1,267
Perennial	-1,748	-1,723	-1,705	-1,691	-1,681	-1,600	-1,650
Ephemeral	-362	-352	-342	-334	-328	-318	-316
Evapotransipration	-53	-52	-52	-51	-51	-49	-50
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-5,850	-5,850	-5,850	-5,850	-5,850	-5,850	-5,850
Flowing	0	0	0	0	0	0	0
Storage	2,414	337	161	101	71	338	20
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Coryell County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Coryell County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-1,524	-1,510	-1,496	-1,483	-1,471	-1,459	-1,449
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-3,387	-3,514	-3,583	-3,622	-3,647	-3,655	-3,671
Recharge	13,694	13,694	13,694	13,694	13,694	8,658	13,694
Perennial	-6,959	-6,580	-6,469	-6,408	-6,365	-5,980	-6,264
Ephemeral	-2,830	-2,690	-2,615	-2,559	-2,511	-2,421	-2,407
Evapotransipration	-74	-70	-68	-68	-67	-65	-66
Springs	0	0	0	0	0	0	0
Reservoir	-1	-1	-1	-1	-1	-1	-1
Wells	-1,241	-1,241	-1,241	-1,241	-1,241	-1,241	-1,241
Flowing	0	0	0	0	0	0	0
Storage	2,766	2,362	2,234	2,143	2,066	6,623	1,861
Total	444	451	455	457	457	458	457

NTGCD Run 10 - Coryell County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-226	-228	-231	-232	-233	-233	-234
Leakage (Above)	3,387	3,514	3,583	3,622	3,647	3,655	3,671
Leakage (Below)	-3,264	-3,478	-3,570	-3,613	-3,635	-3,642	-3,646
Recharge	666	666	666	666	666	439	666
Perennial	-726	-669	-643	-628	-619	-580	-602
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	164	197	196	188	176	361	146
Total	1	1	1	1	1	1	1

NTGCD Run 10 - Coryell County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	432	261	150	85	42	8	-15
Leakage (Above)	3,264	3,478	3,570	3,613	3,635	3,642	3,646
Leakage (Below)	-3,903	-5,586	-6,050	-6,254	-6,371	-6,441	-6,493
Recharge	19,211	19,211	19,211	19,211	19,211	11,965	19,211
Perennial	-21,250	-19,748	-19,104	-18,673	-18,344	-17,187	-17,736
Ephemeral	-3,118	-3,008	-2,915	-2,835	-2,766	-2,675	-2,626
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-120	-120	-120	-120	-120	-120	-120
Flowing	0	0	0	0	0	0	0
Storage	5,062	5,084	4,825	4,539	4,278	10,374	3,700
Total	-423	-429	-432	-434	-435	-435	-434

NTGCD Run 10 - Coryell County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-153	-467	-553	-602	-632	-652	-664
Leakage (Above)	3,903	5,586	6,050	6,254	6,371	6,441	6,493
Leakage (Below)	-1,874	-2,948	-3,271	-3,413	-3,496	-3,547	-3,583
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,197	-2,197	-2,197	-2,197	-2,197	-2,197	-2,197
Flowing	-115	-81	-69	-64	-61	-58	-56
Storage	437	107	41	23	15	12	7
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Coryell County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-101	-171	-187	-197	-203	-207	-210
Leakage (Above)	1,874	2,948	3,271	3,413	3,496	3,547	3,583
Leakage (Below)	-1,945	-2,846	-3,100	-3,219	-3,289	-3,333	-3,364
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-14	-14	-14	-14	-14	-14	-14
Flowing	-11	0	0	0	0	0	0
Storage	197	83	30	16	10	8	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Coryell County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-284	-889	-1,014	-1,098	-1,153	-1,189	-1,214
Leakage (Above)	1,945	2,846	3,100	3,219	3,289	3,333	3,364
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,163	-2,163	-2,163	-2,163	-2,163	-2,163	-2,163
Flowing	-30	0	0	0	0	0	0
Storage	532	206	76	41	26	19	12
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,681	1,940	1,917	1,876	1,851	1,819	1,834
Leakage (Above)	534	660	710	752	790	825	855
Leakage (Below)	110	148	140	126	114	106	101
Recharge	390	390	390	390	390	199	390
Perennial	-825	-722	-677	-646	-620	-479	-569
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,798	-2,798	-2,798	-2,798	-2,798	-2,798	-2,798
Flowing	0	0	0	0	0	0	0
Storage	908	383	319	301	273	328	187
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	584	601	598	611	632	651	669
Leakage (Above)	-110	-148	-140	-126	-114	-106	-101
Leakage (Below)	-224	-296	-337	-361	-375	-384	-390
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-233	-233	-233	-233	-233	-233	-233
Flowing	0	0	0	0	0	0	0
Storage	-18	76	111	108	91	72	55
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-363	-436	-351	-279	-227	-190	-165
Leakage (Above)	224	296	337	361	375	384	390
Leakage (Below)	38	52	54	55	55	54	54
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-359	-359	-359	-359	-359	-359	-359
Flowing	0	0	0	0	0	0	0
Storage	460	447	319	222	155	110	79
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	124	87	109	136	157	172	183
Leakage (Above)	-38	-52	-54	-55	-55	-54	-54
Leakage (Below)	-2	-20	-25	-26	-26	-26	-26
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-131	-131	-131	-131	-131	-131	-131
Flowing	0	0	0	0	0	0	0
Storage	48	116	102	76	55	40	29
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-120	-175	-94	-50	-25	-9	2
Leakage (Above)	2	20	25	26	26	26	26
Leakage (Below)	-41	-32	-37	-42	-46	-48	-50
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	159	188	106	66	44	31	22
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	78	-18	72	150	202	236	258
Leakage (Above)	41	32	37	42	46	48	50
Leakage (Below)	-298	-408	-396	-383	-377	-374	-372
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1	-1	-1	-1	-1	-1	-1
Flowing	0	0	0	0	0	0	0
Storage	180	395	288	193	131	91	65
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Dallas County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,425	2,208	2,456	2,575	2,649	2,700	2,735
Leakage (Above)	298	408	396	383	377	374	372
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,200	-3,200	-3,200	-3,200	-3,200	-3,200	-3,200
Flowing	0	0	0	0	0	0	0
Storage	1,478	584	348	242	174	127	93
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-40	-57	-65	-68	-71	-74	-76
Leakage (Above)	103	182	270	347	409	457	493
Leakage (Below)	-122	-241	-319	-375	-414	-442	-462
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	59	116	114	96	77	59	45
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	20	41	60	75	85	92	97
Leakage (Above)	122	241	319	375	414	442	462
Leakage (Below)	-163	-320	-417	-482	-525	-554	-574
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	21	38	38	32	25	19	15
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-145	-333	-351	-353	-349	-345	-341
Leakage (Above)	163	320	417	482	525	554	574
Leakage (Below)	-43	20	-54	-109	-148	-174	-193
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-56	-56	-56	-56	-56	-56	-56
Flowing	0	0	0	0	0	0	0
Storage	81	49	44	36	28	22	16
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	38	54	63	65	63	60	57
Leakage (Above)	43	-20	54	109	148	174	193
Leakage (Below)	-102	-70	-152	-203	-233	-252	-264
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	21	35	34	29	23	18	13
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	24	18	16	20	25	30	33
Leakage (Above)	102	70	152	203	233	252	264
Leakage (Below)	-134	-102	-181	-234	-267	-288	-302
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	8	14	13	11	9	7	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-41	-39	-69	-89	-99	-105	-108
Leakage (Above)	134	102	181	234	267	288	302
Leakage (Below)	-120	-114	-161	-186	-200	-208	-214
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	28	51	49	41	32	25	19
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Delta County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-157	-183	-228	-242	-244	-242	-239
Leakage (Above)	120	114	161	186	200	208	214
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	37	69	67	55	44	33	25
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Denton County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,809	-2,102	-2,331	-2,486	-2,595	-2,645	-2,727
Leakage (Above)	26	77	125	164	195	223	243
Leakage (Below)	-3,005	-3,008	-3,089	-3,147	-3,187	-3,187	-3,214
Recharge	18,915	18,915	18,915	18,915	18,915	10,699	18,915
Perennial	-210	-202	-199	-197	-196	-174	-191
Ephemeral	-11,924	-11,180	-10,649	-10,226	-9,878	-8,927	-9,084
Evapotransipration	0	0	0	0	0	0	0
Springs	-37	-36	-34	-33	-32	-30	-30
Reservoir	-1,952	-1,939	-1,927	-1,916	-1,904	-1,874	-1,864
Wells	-3,609	-3,609	-3,609	-3,609	-3,609	-3,609	-3,609
Flowing	0	0	0	0	0	0	0
Storage	3,607	3,086	2,801	2,536	2,292	9,524	1,562
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Denton County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,126	2,141	2,115	2,071	2,026	1,982	1,948
Leakage (Above)	3,005	3,008	3,089	3,147	3,187	3,187	3,214
Leakage (Below)	-2,858	-4,207	-4,737	-4,998	-5,144	-5,202	-5,287
Recharge	41,390	41,390	41,390	41,390	41,390	23,347	41,390
Perennial	-21,649	-20,844	-20,535	-20,352	-20,234	-18,366	-19,868
Ephemeral	-22,868	-21,792	-21,188	-20,747	-20,404	-19,118	-19,447
Evapotransipration	-743	-743	-742	-742	-742	-724	-738
Springs	-36	-35	-35	-34	-33	-30	-30
Reservoir	539	449	366	293	226	182	127
Wells	-1,647	-1,647	-1,647	-1,647	-1,647	-1,647	-1,647
Flowing	0	0	0	0	0	0	0
Storage	2,796	2,340	1,983	1,680	1,435	16,449	398
Total	56	59	61	61	61	61	60

NTGCD Run 10 - Denton County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	3,789	4,848	4,907	4,886	4,853	4,812	4,789
Leakage (Above)	2,858	4,207	4,737	4,998	5,144	5,202	5,287
Leakage (Below)	-156	-267	-414	-503	-559	-596	-622
Recharge	2,029	2,029	2,029	2,029	2,029	1,203	2,029
Perennial	-2,607	-2,005	-1,712	-1,531	-1,406	-920	-1,205
Ephemeral	-88	-77	-70	-63	-57	-49	-46
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-10,526	-10,526	-10,526	-10,526	-10,526	-10,526	-10,526
Flowing	0	0	0	0	0	0	0
Storage	4,703	1,791	1,049	711	524	874	296
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Denton County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,864	2,755	3,090	3,222	3,280	3,307	3,324
Leakage (Above)	156	267	414	503	559	596	622
Leakage (Below)	-1,419	-2,268	-2,310	-2,309	-2,308	-2,308	-2,310
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,726	-1,726	-1,726	-1,726	-1,726	-1,726	-1,726
Flowing	0	0	0	0	0	0	0
Storage	1,125	973	532	311	195	132	90
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Denton County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	3,450	4,895	5,208	5,346	5,419	5,462	5,491
Leakage (Above)	1,419	2,268	2,310	2,309	2,308	2,308	2,310
Leakage (Below)	-210	-373	-505	-564	-600	-625	-643
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-7,187	-7,187	-7,187	-7,187	-7,187	-7,187	-7,187
Flowing	0	0	0	0	0	0	0
Storage	2,528	396	173	96	60	42	29
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Denton County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,312	2,372	2,641	2,727	2,766	2,787	2,801
Leakage (Above)	210	373	505	564	600	625	643
Leakage (Below)	-1,579	-2,351	-2,367	-2,373	-2,383	-2,393	-2,401
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,098	-1,098	-1,098	-1,098	-1,098	-1,098	-1,098
Flowing	0	0	0	0	0	0	0
Storage	1,155	705	320	180	115	79	56
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Denton County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	3,788	6,566	6,920	7,024	7,066	7,087	7,099
Leakage (Above)	1,579	2,351	2,367	2,373	2,383	2,393	2,401
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-9,552	-9,552	-9,552	-9,552	-9,552	-9,552	-9,552
Flowing	0	0	0	0	0	0	0
Storage	4,185	634	264	154	103	72	52
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Eastland County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Eastland County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Eastland County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Eastland County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Eastland County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-505	-493	-488	-485	-483	-481	-480
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-276	-260	-268	-283	-303	-344	-375
Recharge	792	792	792	792	792	449	792
Perennial	0	0	0	0	0	0	0
Ephemeral	-374	-349	-334	-320	-308	-296	-291
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-125	-125	-125	-125	-125	-125	-125
Flowing	0	0	0	0	0	0	0
Storage	510	457	445	442	447	817	500
Total	22	22	21	21	21	21	20

NTGCD Run 10 - Eastland County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-84	-77	-76	-77	-77	-79	-79
Leakage (Above)	276	260	268	283	303	344	375
Leakage (Below)	-657	-657	-664	-672	-675	-663	-665
Recharge	307	307	307	307	307	175	307
Perennial	0	0	0	0	0	0	0
Ephemeral	-60	-58	-56	-54	-52	-48	-46
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-266	-266	-266	-266	-266	-266	-266
Flowing	0	0	0	0	0	0	0
Storage	465	474	471	463	445	523	360
Total	-19	-17	-16	-16	-15	-14	-14

NTGCD Run 10 - Eastland County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	942	935	932	928	923	912	904
Leakage (Above)	657	657	664	672	675	663	665
Leakage (Below)	0	0	0	0	0	0	0
Recharge	6,127	6,127	6,127	6,127	6,127	3,451	6,127
Perennial	0	0	0	0	0	0	0
Ephemeral	-6,783	-6,532	-6,378	-6,249	-6,136	-5,954	-5,895
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-5,360	-5,360	-5,360	-5,360	-5,360	-5,360	-5,360
Flowing	0	0	0	0	0	0	0
Storage	4,397	4,152	3,995	3,862	3,752	6,269	3,542
Total	-21	-21	-21	-20	-19	-19	-18

NTGCD Run 10 - Ellis County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,037	841	765	726	710	707	713
Leakage (Above)	1,024	989	999	1,021	1,047	1,073	1,096
Leakage (Below)	147	173	162	147	135	127	122
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,074	-2,074	-2,074	-2,074	-2,074	-2,074	-2,074
Flowing	0	0	0	0	0	0	0
Storage	-135	71	148	180	182	167	143
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Ellis County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	763	628	564	558	571	588	605
Leakage (Above)	-147	-173	-162	-147	-135	-127	-122
Leakage (Below)	-230	-204	-209	-217	-225	-231	-235
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-303	-303	-303	-303	-303	-303	-303
Flowing	0	0	0	0	0	0	0
Storage	-82	53	110	110	92	73	56
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Ellis County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	307	216	158	151	159	171	181
Leakage (Above)	230	204	209	217	225	231	235
Leakage (Below)	16	-1	-9	-13	-14	-15	-15
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-442	-442	-442	-442	-442	-442	-442
Flowing	0	0	0	0	0	0	0
Storage	-111	23	84	87	72	56	42
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Ellis County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	30	-25	-33	-15	2	15	25
Leakage (Above)	-16	1	9	13	14	15	15
Leakage (Below)	-3	-9	-14	-16	-17	-17	-17
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-50	-50	-50	-50	-50	-50	-50
Flowing	0	0	0	0	0	0	0
Storage	39	83	88	69	51	37	27
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Ellis County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	43	15	35	63	83	97	106
Leakage (Above)	3	9	14	16	17	17	17
Leakage (Below)	-98	-105	-114	-123	-130	-135	-138
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	52	81	66	44	30	21	15
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Ellis County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	84	9	15	43	67	84	95
Leakage (Above)	98	105	114	123	130	135	138
Leakage (Below)	-284	-301	-293	-282	-275	-271	-269
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-7	-7	-7	-7	-7	-7	-7
Flowing	0	0	0	0	0	0	0
Storage	109	193	171	122	85	59	42
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Ellis County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	4,768	4,280	4,403	4,506	4,580	4,631	4,668
Leakage (Above)	284	301	293	282	275	271	269
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-5,029	-5,029	-5,029	-5,029	-5,029	-5,029	-5,029
Flowing	0	0	0	0	0	0	0
Storage	-23	449	333	241	174	127	93
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Erath County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Erath County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-30	-30	-30	-30	-30	-29	-29
Recharge	28	28	28	28	28	14	28
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	2	2	2	2	2	15	2
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Erath County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-229	-228	-228	-229	-230	-230	-230
Leakage (Above)	30	30	30	30	30	29	29
Leakage (Below)	-1,255	-1,278	-1,293	-1,306	-1,317	-1,325	-1,334
Recharge	1,874	1,874	1,874	1,874	1,874	967	1,874
Perennial	0	0	0	0	0	0	0
Ephemeral	-574	-537	-521	-510	-501	-479	-477
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-61	-61	-61	-61	-61	-61	-61
Flowing	0	0	0	0	0	0	0
Storage	260	245	246	248	250	1,145	244
Total	45	45	45	45	46	45	46

NTGCD Run 10 - Erath County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,244	-1,246	-1,246	-1,246	-1,246	-1,248	-1,245
Leakage (Above)	1,255	1,278	1,293	1,306	1,317	1,325	1,334
Leakage (Below)	-9,674	-10,175	-10,335	-10,442	-10,521	-10,588	-10,638
Recharge	8,333	8,333	8,333	8,333	8,333	4,410	8,333
Perennial	-1,219	-758	-570	-419	-287	84	-24
Ephemeral	-1,037	-967	-916	-878	-844	-802	-776
Evapotransipration	-13	-13	-13	-12	-12	-12	-12
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,078	-1,078	-1,078	-1,078	-1,078	-1,078	-1,078
Flowing	0	0	0	0	0	0	0
Storage	4,696	4,646	4,552	4,456	4,359	7,928	4,126
Total	19	19	19	19	19	19	19

NTGCD Run 10 - Erath County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-6,183	-6,185	-6,153	-6,104	-6,046	-5,978	-5,913
Leakage (Above)	9,674	10,175	10,335	10,442	10,521	10,588	10,638
Leakage (Below)	-15,732	-16,480	-16,575	-16,672	-16,716	-16,699	-16,654
Recharge	12,297	12,297	12,297	12,297	12,297	6,764	12,297
Perennial	-804	-700	-660	-629	-603	-551	-553
Ephemeral	-2,346	-2,141	-1,957	-1,811	-1,682	-1,554	-1,463
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-7,369	-7,369	-7,369	-7,369	-7,369	-7,369	-7,369
Flowing	0	0	0	0	0	0	0
Storage	10,516	10,449	10,123	9,886	9,639	14,839	9,059
Total	54	44	42	41	40	40	41

NTGCD Run 10 - Erath County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-956	-909	-889	-868	-845	-815	-784
Leakage (Above)	15,732	16,480	16,575	16,672	16,716	16,699	16,654
Leakage (Below)	-16,088	-16,465	-16,365	-16,232	-16,121	-16,015	-15,947
Recharge	1,279	1,279	1,279	1,279	1,279	717	1,279
Perennial	58	61	62	64	64	67	66
Ephemeral	-1,020	-991	-970	-954	-942	-920	-912
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-870	-870	-870	-870	-870	-870	-870
Flowing	0	0	0	0	0	0	0
Storage	1,763	1,307	1,071	803	615	1,036	411
Total	-102	-107	-107	-107	-104	-101	-103

NTGCD Run 10 - Erath County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,424	-2,418	-2,264	-2,133	-1,997	-1,849	-1,706
Leakage (Above)	16,088	16,465	16,365	16,232	16,121	16,015	15,947
Leakage (Below)	0	0	0	0	0	0	0
Recharge	2,816	2,816	2,816	2,816	2,816	1,575	2,816
Perennial	-2,864	-2,764	-2,718	-2,685	-2,659	-2,596	-2,608
Ephemeral	-3,909	-3,813	-3,746	-3,694	-3,648	-3,571	-3,543
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-11,237	-11,237	-11,237	-11,237	-11,237	-11,237	-11,237
Flowing	0	0	0	0	0	0	0
Storage	1,531	951	785	700	604	1,663	332
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	0	-1	-1	-1	-1	-1	0
Leakage (Above)	199	460	614	702	757	793	817
Leakage (Below)	-212	-479	-628	-713	-766	-800	-823
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	13	19	15	12	9	8	7
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	341	490	615	683	722	746	763
Leakage (Above)	212	479	628	713	766	800	823
Leakage (Below)	-669	-1,150	-1,346	-1,458	-1,528	-1,574	-1,605
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	116	181	103	62	40	27	18
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1	2	3	4	5	5	5
Leakage (Above)	669	1,150	1,346	1,458	1,528	1,574	1,605
Leakage (Below)	-687	-1,187	-1,374	-1,478	-1,543	-1,585	-1,614
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	17	35	24	15	10	6	4
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	362	495	588	636	662	678	689
Leakage (Above)	687	1,187	1,374	1,478	1,543	1,585	1,614
Leakage (Below)	-1,068	-1,777	-2,014	-2,144	-2,224	-2,276	-2,311
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1	-1	-1	-1	-1	-1	-1
Flowing	0	0	0	0	0	0	0
Storage	20	96	53	32	20	14	9
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-66	-39	-28	-22	-18	-16	-14
Leakage (Above)	1,068	1,777	2,014	2,144	2,224	2,276	2,311
Leakage (Below)	-1,036	-1,759	-1,997	-2,129	-2,210	-2,263	-2,299
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	34	21	12	7	4	3	2
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-36	-95	-51	-22	-6	3	8
Leakage (Above)	1,036	1,759	1,997	2,129	2,210	2,263	2,299
Leakage (Below)	-1,137	-1,898	-2,087	-2,189	-2,254	-2,298	-2,328
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	137	235	141	82	50	32	21
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Falls County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,282	-1,406	-1,149	-1,051	-1,009	-990	-980
Leakage (Above)	1,137	1,898	2,087	2,189	2,254	2,298	2,328
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,435	-1,435	-1,435	-1,435	-1,435	-1,435	-1,435
Flowing	0	0	0	0	0	0	0
Storage	1,580	943	497	297	191	127	87
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Fannin County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-6,947	-6,922	-6,846	-6,795	-6,716	-6,469	-6,470
Leakage (Above)	-313	-273	-239	-210	-186	-157	-145
Leakage (Below)	-893	-860	-830	-798	-759	-702	-662
Recharge	28,791	28,791	28,791	28,791	28,791	23,974	28,791
Perennial	-10,849	-10,735	-10,595	-10,474	-10,366	-9,727	-10,073
Ephemeral	-6,625	-6,477	-6,336	-6,213	-6,103	-5,837	-5,835
Evapotransipration	-2,321	-2,313	-2,303	-2,295	-2,288	-2,249	-2,270
Springs	0	0	0	0	0	0	0
Reservoir	87	87	87	87	87	87	87
Wells	-4,924	-4,924	-4,924	-4,924	-4,924	-4,924	-4,924
Flowing	0	0	0	0	0	0	0
Storage	3,995	3,625	3,196	2,831	2,464	6,003	1,500
Total	0	0	0	0	0	-1	-1

NTGCD Run 10 - Fannin County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,106	-1,091	-1,066	-1,028	-982	-902	-873
Leakage (Above)	893	860	830	798	759	702	662
Leakage (Below)	-30	-60	-80	-92	-99	-104	-107
Recharge	764	764	764	764	764	602	764
Perennial	-438	-424	-409	-394	-378	-350	-341
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	-64	-62	-61	-59	-58	-54	-55
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-162	-162	-162	-162	-162	-162	-162
Flowing	0	0	0	0	0	0	0
Storage	125	159	168	157	141	253	97
Total	-18	-17	-17	-16	-16	-15	-14

NTGCD Run 10 - Fannin County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	874	1,370	1,583	1,709	1,788	1,840	1,875
Leakage (Above)	30	60	80	92	99	104	107
Leakage (Below)	0	14	20	20	19	17	16
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,088	-2,088	-2,088	-2,088	-2,088	-2,088	-2,088
Flowing	0	0	0	0	0	0	0
Storage	1,184	644	404	267	181	127	90
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Fannin County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-141	-199	-215	-192	-153	-115	-82
Leakage (Above)	0	-14	-20	-20	-19	-17	-16
Leakage (Below)	-9	-19	-22	-20	-18	-16	-15
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	150	232	257	233	191	148	112
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Fannin County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-67	-132	-99	-77	-60	-48	-39
Leakage (Above)	9	19	22	20	18	16	15
Leakage (Below)	1	13	13	11	9	7	6
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	57	99	64	46	34	25	18
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Fannin County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-59	-179	-150	-102	-63	-35	-14
Leakage (Above)	-1	-13	-13	-11	-9	-7	-6
Leakage (Below)	-19	-37	-41	-42	-42	-43	-43
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	79	229	205	154	114	84	63
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Fannin County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-106	-314	-251	-198	-159	-130	-108
Leakage (Above)	19	37	41	42	42	43	43
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	86	278	210	157	117	87	65
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Grayson County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	402	158	87	51	-1	-57	-106
Leakage (Above)	300	438	521	580	625	667	692
Leakage (Below)	-1,505	-1,445	-1,440	-1,433	-1,420	-1,403	-1,389
Recharge	34,912	34,912	34,912	34,912	34,912	24,960	34,912
Perennial	0	0	0	0	0	0	0
Ephemeral	-29,943	-29,238	-28,559	-27,985	-27,492	-25,954	-26,218
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-1,629	-1,605	-1,587	-1,573	-1,562	-1,543	-1,537
Wells	-7,526	-7,526	-7,526	-7,526	-7,526	-7,526	-7,526
Flowing	-882	-865	-852	-842	-835	-821	-817
Storage	5,891	5,190	4,462	3,832	3,314	11,690	2,002
Total	19	18	17	16	14	13	12

NTGCD Run 10 - Grayson County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-956	-892	-828	-793	-776	-713	-754
Leakage (Above)	1,505	1,445	1,440	1,433	1,420	1,403	1,389
Leakage (Below)	-1,871	-2,304	-2,540	-2,681	-2,770	-2,812	-2,867
Recharge	23,559	23,559	23,559	23,559	23,559	18,418	23,559
Perennial	-6,690	-6,631	-6,570	-6,526	-6,495	-6,263	-6,403
Ephemeral	-6,961	-6,910	-6,884	-6,876	-6,873	-6,658	-6,782
Evapotransipration	-12	-12	-12	-12	-12	-11	-11
Springs	0	0	0	0	0	0	0
Reservoir	-2,803	-2,960	-3,097	-3,219	-3,328	-3,405	-3,494
Wells	-2,862	-2,862	-2,862	-2,862	-2,862	-2,862	-2,862
Flowing	0	0	0	0	0	0	0
Storage	-2,880	-2,402	-2,173	-1,989	-1,829	2,938	-1,738
Total	29	32	33	34	36	36	37

NTGCD Run 10 - Grayson County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,051	2,211	2,280	2,295	2,289	2,274	2,263
Leakage (Above)	1,871	2,304	2,540	2,681	2,770	2,812	2,867
Leakage (Below)	-61	-68	-115	-157	-190	-215	-234
Recharge	622	622	622	622	622	474	622
Perennial	-1,432	-1,374	-1,318	-1,279	-1,254	-1,211	-1,221
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-278	-288	-295	-301	-306	-307	-311
Wells	-4,109	-4,109	-4,109	-4,109	-4,109	-4,109	-4,109
Flowing	0	0	0	0	0	0	0
Storage	1,312	651	322	160	78	172	9
Total	-25	-51	-74	-89	-100	-111	-114

NTGCD Run 10 - Grayson County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	932	979	1,092	1,193	1,266	1,315	1,347
Leakage (Above)	61	68	115	157	190	215	234
Leakage (Below)	-373	-641	-678	-676	-669	-664	-661
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,053	-1,053	-1,053	-1,053	-1,053	-1,053	-1,053
Flowing	0	0	0	0	0	0	0
Storage	432	647	524	378	266	187	132
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Grayson County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,733	2,204	2,341	2,413	2,458	2,487	2,507
Leakage (Above)	373	641	678	676	669	664	661
Leakage (Below)	30	30	-16	-39	-52	-61	-68
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,123	-3,123	-3,123	-3,123	-3,123	-3,123	-3,123
Flowing	0	0	0	0	0	0	0
Storage	987	247	120	73	48	34	24
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Grayson County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,004	1,377	1,525	1,592	1,628	1,650	1,665
Leakage (Above)	-30	-30	16	39	52	61	68
Leakage (Below)	-278	-552	-575	-580	-585	-590	-595
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,184	-1,184	-1,184	-1,184	-1,184	-1,184	-1,184
Flowing	0	0	0	0	0	0	0
Storage	487	389	217	133	89	63	45
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Grayson County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	247	333	494	556	586	602	613
Leakage (Above)	278	552	575	580	585	590	595
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,247	-1,247	-1,247	-1,247	-1,247	-1,247	-1,247
Flowing	0	0	0	0	0	0	0
Storage	722	362	178	111	77	55	40
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hamilton County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hamilton County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-816	-846	-846	-846	-845	-842	-840
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-2,116	-2,154	-2,173	-2,186	-2,195	-2,201	-2,206
Recharge	3,211	3,211	3,211	3,211	3,211	1,814	3,211
Perennial	578	579	580	580	581	586	582
Ephemeral	-1,080	-983	-943	-917	-897	-853	-853
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-219	-219	-219	-219	-219	-219	-219
Flowing	0	0	0	0	0	0	0
Storage	612	585	564	551	539	1,891	500
Total	171	174	175	175	176	176	175

NTGCD Run 10 - Hamilton County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-23	-24	-24	-24	-24	-24	-23
Leakage (Above)	2,116	2,154	2,173	2,186	2,195	2,201	2,206
Leakage (Below)	-2,415	-2,467	-2,489	-2,501	-2,508	-2,509	-2,511
Recharge	386	386	386	386	386	214	386
Perennial	-152	-152	-152	-152	-152	-151	-152
Ephemeral	-4	-3	-3	-2	-2	-1	-1
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	96	110	112	110	107	273	99
Total	3	4	4	4	4	4	4

NTGCD Run 10 - Hamilton County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,533	-2,591	-2,600	-2,599	-2,596	-2,588	-2,584
Leakage (Above)	2,415	2,467	2,489	2,501	2,508	2,509	2,511
Leakage (Below)	-8,320	-9,235	-9,463	-9,557	-9,606	-9,624	-9,644
Recharge	17,213	17,213	17,213	17,213	17,213	9,816	17,213
Perennial	-13,242	-12,206	-11,850	-11,612	-11,428	-10,502	-11,043
Ephemeral	-439	-412	-393	-378	-366	-350	-342
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-218	-218	-218	-218	-218	-218	-218
Flowing	0	0	0	0	0	0	0
Storage	4,922	4,778	4,617	4,445	4,288	10,751	3,901
Total	-201	-203	-204	-205	-205	-205	-205

NTGCD Run 10 - Hamilton County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,438	-1,751	-1,849	-1,900	-1,931	-1,956	-1,973
Leakage (Above)	8,320	9,235	9,463	9,557	9,606	9,624	9,644
Leakage (Below)	-2,627	-3,148	-3,294	-3,355	-3,390	-3,409	-3,427
Recharge	1,076	1,076	1,076	1,076	1,076	629	1,076
Perennial	-4,094	-3,867	-3,784	-3,728	-3,685	-3,539	-3,600
Ephemeral	-238	-229	-220	-212	-205	-195	-189
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,672	-1,672	-1,672	-1,672	-1,672	-1,672	-1,672
Flowing	0	0	0	0	0	0	0
Storage	674	356	281	234	201	518	141
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hamilton County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-229	-267	-278	-283	-286	-288	-290
Leakage (Above)	2,627	3,148	3,294	3,355	3,390	3,409	3,427
Leakage (Below)	-2,352	-2,757	-2,875	-2,927	-2,956	-2,974	-2,988
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-151	-151	-151	-151	-151	-151	-151
Flowing	0	0	0	0	0	0	0
Storage	104	27	10	6	4	4	2
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hamilton County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,127	-2,418	-2,507	-2,551	-2,577	-2,594	-2,606
Leakage (Above)	2,352	2,757	2,875	2,927	2,956	2,974	2,988
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-385	-385	-385	-385	-385	-385	-385
Flowing	0	0	0	0	0	0	0
Storage	161	46	17	10	6	6	3
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hill County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-297	-303	-318	-333	-348	-362	-374
Leakage (Above)	960	961	987	1,021	1,055	1,086	1,111
Leakage (Below)	-842	-810	-827	-843	-853	-858	-860
Recharge	717	717	717	717	717	395	717
Perennial	-214	-196	-189	-184	-179	-140	-170
Ephemeral	-93	-70	-62	-55	-52	-44	-46
Evapotransipration	-10	-6	-5	-5	-5	-3	-4
Springs	0	0	0	0	0	0	0
Reservoir	-12	-10	-8	-6	-4	-2	0
Wells	-587	-587	-587	-587	-587	-587	-587
Flowing	0	0	0	0	0	0	0
Storage	378	304	291	274	256	515	212
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hill County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	744	701	645	601	569	551	536
Leakage (Above)	842	810	827	843	853	858	860
Leakage (Below)	-1,047	-1,060	-1,128	-1,186	-1,228	-1,258	-1,282
Recharge	14,107	14,107	14,107	14,107	14,107	7,785	14,107
Perennial	-10,013	-8,939	-8,633	-8,434	-8,281	-7,533	-7,967
Ephemeral	-6,683	-6,345	-6,213	-6,136	-6,087	-5,912	-5,957
Evapotransipration	-762	-761	-767	-773	-779	-776	-785
Springs	0	0	0	0	0	0	0
Reservoir	-110	-122	-133	-143	-152	-152	-159
Wells	-255	-255	-255	-255	-255	-255	-255
Flowing	0	0	0	0	0	0	0
Storage	3,116	1,805	1,492	1,317	1,192	6,633	841
Total	-60	-59	-59	-59	-59	-59	-59

NTGCD Run 10 - Hill County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-304	-182	-182	-189	-197	-203	-208
Leakage (Above)	1,047	1,060	1,128	1,186	1,228	1,258	1,282
Leakage (Below)	-394	-535	-619	-667	-698	-718	-732
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-352	-352	-352	-352	-352	-352	-352
Flowing	0	0	0	0	0	0	0
Storage	4	9	25	23	18	15	11
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hill County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	63	68	75	78	78	76	75
Leakage (Above)	394	535	619	667	698	718	732
Leakage (Below)	-418	-565	-632	-666	-685	-697	-705
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-115	-115	-115	-115	-115	-115	-115
Flowing	0	0	0	0	0	0	0
Storage	75	77	54	36	25	18	12
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hill County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	365	444	519	568	598	617	630
Leakage (Above)	418	565	632	666	685	697	705
Leakage (Below)	-714	-922	-1,013	-1,062	-1,092	-1,112	-1,126
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-225	-225	-225	-225	-225	-225	-225
Flowing	0	0	0	0	0	0	0
Storage	157	139	87	53	34	24	16
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hill County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	107	89	109	119	124	127	129
Leakage (Above)	714	922	1,013	1,062	1,092	1,112	1,126
Leakage (Below)	-1,038	-1,211	-1,225	-1,225	-1,227	-1,230	-1,232
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-53	-53	-53	-53	-53	-53	-53
Flowing	0	0	0	0	0	0	0
Storage	269	253	156	98	64	43	30
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hill County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,332	1,540	1,761	1,868	1,926	1,961	1,983
Leakage (Above)	1,038	1,211	1,225	1,225	1,227	1,230	1,232
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,274	-3,274	-3,274	-3,274	-3,274	-3,274	-3,274
Flowing	0	0	0	0	0	0	0
Storage	904	523	288	181	121	83	59
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hood County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hood County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hood County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	97	127	135	138	140	141	142
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-993	-1,024	-1,044	-1,058	-1,067	-1,078	-1,074
Recharge	860	860	860	860	860	449	860
Perennial	0	0	0	0	0	0	0
Ephemeral	-419	-389	-371	-355	-341	-317	-309
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-159	-159	-159	-159	-159	-159	-159
Flowing	0	0	0	0	0	0	0
Storage	545	516	510	505	497	894	471
Total	-69	-69	-69	-69	-69	-69	-69

NTGCD Run 10 - Hood County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-703	-663	-656	-638	-621	-605	-575
Leakage (Above)	993	1,024	1,044	1,058	1,067	1,078	1,074
Leakage (Below)	-7,114	-7,251	-7,347	-7,402	-7,431	-7,437	-7,441
Recharge	5,756	5,756	5,756	5,756	5,756	3,111	5,756
Perennial	-4,320	-3,730	-3,444	-3,221	-3,038	-2,593	-2,720
Ephemeral	-331	-275	-235	-200	-164	-126	-106
Evapotransipration	-62	-60	-60	-59	-58	-55	-53
Springs	0	0	0	0	0	0	0
Reservoir	248	291	324	350	372	393	409
Wells	-756	-756	-756	-756	-756	-756	-756
Flowing	0	0	0	0	0	0	0
Storage	6,229	5,605	5,315	5,052	4,813	6,932	4,352
Total	-59	-59	-60	-60	-60	-60	-59

NTGCD Run 10 - Hood County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	904	721	542	421	334	263	208
Leakage (Above)	7,114	7,251	7,347	7,402	7,431	7,437	7,441
Leakage (Below)	-5,878	-6,311	-6,436	-6,495	-6,524	-6,528	-6,535
Recharge	3,141	3,141	3,141	3,141	3,141	1,719	3,141
Perennial	71	415	614	769	896	1,140	1,119
Ephemeral	-1,663	-1,479	-1,341	-1,228	-1,135	-1,040	-976
Evapotransipration	-61	-63	-65	-64	-61	-54	-49
Springs	0	0	0	0	0	0	0
Reservoir	-121	-127	-126	-123	-118	-110	-102
Wells	-5,937	-5,937	-5,937	-5,937	-5,937	-5,937	-5,937
Flowing	0	0	0	0	0	0	0
Storage	2,424	2,384	2,256	2,109	1,969	3,107	1,687
Total	-5	-4	-3	-3	-3	-2	-2

NTGCD Run 10 - Hood County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	357	340	315	300	289	277	275
Leakage (Above)	5,878	6,311	6,436	6,495	6,524	6,528	6,535
Leakage (Below)	-5,704	-6,037	-6,135	-6,180	-6,202	-6,210	-6,215
Recharge	554	554	554	554	554	303	554
Perennial	-1,132	-1,059	-1,018	-986	-959	-894	-903
Ephemeral	-7	-6	-5	-5	-4	-3	-3
Evapotransipration	-184	-181	-179	-178	-176	-173	-173
Springs	0	0	0	0	0	0	0
Reservoir	-20	-20	-19	-19	-18	-17	-17
Wells	-289	-289	-289	-289	-289	-289	-289
Flowing	0	0	0	0	0	0	0
Storage	503	344	299	267	241	439	196
Total	-45	-43	-42	-41	-41	-40	-39

NTGCD Run 10 - Hood County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-987	-1,123	-1,225	-1,276	-1,304	-1,309	-1,323
Leakage (Above)	5,704	6,037	6,135	6,180	6,202	6,210	6,215
Leakage (Below)	0	0	0	0	0	0	0
Recharge	2,634	2,634	2,634	2,634	2,634	1,452	2,634
Perennial	20	29	35	38	42	49	48
Ephemeral	-2,933	-2,871	-2,821	-2,775	-2,733	-2,664	-2,636
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-55	-55	-54	-53	-52	-50	-48
Wells	-5,302	-5,302	-5,302	-5,302	-5,302	-5,302	-5,302
Flowing	0	0	0	0	0	0	0
Storage	1,016	746	694	649	608	1,707	505
Total	96	95	95	95	94	94	94

NTGCD Run 10 - Hunt County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-104	-154	-147	-136	-131	-130	-132
Leakage (Above)	697	927	1,171	1,363	1,508	1,616	1,696
Leakage (Below)	-552	-895	-986	-1,015	-1,025	-1,029	-1,028
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-763	-763	-763	-763	-763	-763	-763
Flowing	0	0	0	0	0	0	0
Storage	722	885	725	551	411	305	227
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hunt County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	215	369	496	571	617	648	669
Leakage (Above)	552	895	986	1,015	1,025	1,029	1,028
Leakage (Below)	-828	-1,439	-1,639	-1,710	-1,737	-1,747	-1,750
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	62	175	156	124	94	71	53
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hunt County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-745	-1,027	-1,108	-1,139	-1,148	-1,148	-1,145
Leakage (Above)	828	1,439	1,639	1,710	1,737	1,747	1,750
Leakage (Below)	-464	-688	-737	-720	-696	-677	-661
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3	-3	-3	-3	-3	-3	-3
Flowing	0	0	0	0	0	0	0
Storage	382	278	209	152	110	80	59
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hunt County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	88	171	225	244	250	252	253
Leakage (Above)	464	688	737	720	696	677	661
Leakage (Below)	-624	-1,062	-1,143	-1,107	-1,055	-1,011	-975
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	72	203	182	143	109	81	60
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hunt County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	13	-81	-74	-52	-32	-16	-4
Leakage (Above)	624	1,062	1,143	1,107	1,055	1,011	975
Leakage (Below)	-662	-1,042	-1,114	-1,088	-1,048	-1,013	-985
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	25	61	46	34	25	19	14
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hunt County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	147	243	276	309	343	372	395
Leakage (Above)	662	1,042	1,114	1,088	1,048	1,013	985
Leakage (Below)	-877	-1,493	-1,566	-1,529	-1,489	-1,457	-1,434
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	69	207	175	132	97	72	53
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Hunt County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,016	-1,862	-1,855	-1,747	-1,651	-1,578	-1,523
Leakage (Above)	877	1,493	1,566	1,529	1,489	1,457	1,434
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	139	370	289	218	162	120	89
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Johnson County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-656	-651	-651	-656	-663	-667	-675
Leakage (Above)	1,030	1,000	1,014	1,032	1,050	1,072	1,084
Leakage (Below)	-1,105	-1,022	-1,039	-1,068	-1,096	-1,122	-1,140
Recharge	4,709	4,709	4,709	4,709	4,709	2,485	4,709
Perennial	38	48	51	54	56	70	60
Ephemeral	-4,444	-3,857	-3,643	-3,493	-3,373	-3,105	-3,129
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,981	-1,981	-1,981	-1,981	-1,981	-1,981	-1,981
Flowing	0	0	0	0	0	0	0
Storage	2,415	1,761	1,547	1,409	1,305	3,256	1,079
Total	7	7	7	7	7	7	7

NTGCD Run 10 - Johnson County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,882	-2,920	-2,927	-2,944	-2,960	-2,969	-2,977
Leakage (Above)	1,105	1,022	1,039	1,068	1,096	1,122	1,140
Leakage (Below)	-4,767	-4,214	-4,234	-4,279	-4,313	-4,336	-4,354
Recharge	17,488	17,488	17,488	17,488	17,488	9,023	17,488
Perennial	-145	-125	-122	-120	-119	-104	-117
Ephemeral	-15,345	-14,345	-13,842	-13,474	-13,168	-12,558	-12,499
Evapotransipration	0	0	0	0	0	0	0
Springs	-22	-20	-20	-19	-19	-18	-18
Reservoir	122	124	125	127	128	129	130
Wells	-2,554	-2,554	-2,554	-2,554	-2,554	-2,554	-2,554
Flowing	0	0	0	0	0	0	0
Storage	7,093	5,636	5,140	4,800	4,514	12,356	3,854
Total	92	92	92	92	93	92	93

NTGCD Run 10 - Johnson County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-129	-649	-676	-686	-693	-679	-695
Leakage (Above)	4,767	4,214	4,234	4,279	4,313	4,336	4,354
Leakage (Below)	-1,524	-1,729	-1,787	-1,815	-1,830	-1,832	-1,833
Recharge	600	600	600	600	600	312	600
Perennial	-140	-104	-97	-93	-91	-71	-86
Ephemeral	-54	-52	-48	-45	-43	-39	-38
Evapotransipration	-10	-8	-7	-7	-6	-5	-5
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,442	-2,442	-2,442	-2,442	-2,442	-2,442	-2,442
Flowing	0	0	0	0	0	0	0
Storage	-994	245	298	283	265	494	219
Total	74	74	74	74	74	74	73

NTGCD Run 10 - Johnson County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-961	-1,075	-1,062	-1,055	-1,047	-1,017	-1,041
Leakage (Above)	1,524	1,729	1,787	1,815	1,830	1,832	1,833
Leakage (Below)	-562	-752	-849	-899	-928	-945	-959
Recharge	434	434	434	434	434	228	434
Perennial	822	1,031	1,126	1,192	1,241	1,360	1,317
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,633	-1,633	-1,633	-1,633	-1,633	-1,633	-1,633
Flowing	0	0	0	0	0	0	0
Storage	373	263	194	143	100	174	47
Total	-2	-2	-2	-2	-2	-1	-2

NTGCD Run 10 - Johnson County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,095	1,987	2,063	2,117	2,151	2,174	2,189
Leakage (Above)	562	752	849	899	928	945	959
Leakage (Below)	-1,369	-1,634	-1,755	-1,824	-1,868	-1,896	-1,917
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,251	-1,251	-1,251	-1,251	-1,251	-1,251	-1,251
Flowing	0	0	0	0	0	0	0
Storage	-37	147	96	60	40	29	20
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Johnson County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	621	584	572	560	551	544	540
Leakage (Above)	1,369	1,634	1,755	1,824	1,868	1,896	1,917
Leakage (Below)	-2,180	-2,376	-2,425	-2,443	-2,455	-2,465	-2,472
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-6	-6	-6	-6	-6	-6	-6
Flowing	0	0	0	0	0	0	0
Storage	196	165	104	65	44	30	22
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Johnson County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,683	1,475	1,518	1,547	1,561	1,568	1,572
Leakage (Above)	2,180	2,376	2,425	2,443	2,455	2,465	2,472
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-4,071	-4,071	-4,071	-4,071	-4,071	-4,071	-4,071
Flowing	0	0	0	0	0	0	0
Storage	209	220	128	81	54	38	27
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	81	79	107	135	156	170	178
Leakage (Above)	736	897	1,104	1,279	1,414	1,517	1,593
Leakage (Below)	-904	-1,327	-1,593	-1,751	-1,845	-1,903	-1,938
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	87	351	383	337	274	216	167
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	315	367	427	470	501	523	539
Leakage (Above)	904	1,327	1,593	1,751	1,845	1,903	1,938
Leakage (Below)	-1,252	-1,824	-2,153	-2,332	-2,432	-2,490	-2,525
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	32	130	133	110	86	65	48
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	89	78	58	48	45	45	46
Leakage (Above)	1,252	1,824	2,153	2,332	2,432	2,490	2,525
Leakage (Below)	-1,321	-1,977	-2,289	-2,435	-2,508	-2,546	-2,567
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-47	-47	-47	-47	-47	-47	-47
Flowing	0	0	0	0	0	0	0
Storage	27	122	125	101	77	58	43
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	150	159	167	177	188	198	206
Leakage (Above)	1,321	1,977	2,289	2,435	2,508	2,546	2,567
Leakage (Below)	-1,497	-2,246	-2,564	-2,698	-2,761	-2,793	-2,810
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	26	110	108	86	66	49	36
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	45	-18	-35	-36	-33	-29	-25
Leakage (Above)	1,497	2,246	2,564	2,698	2,761	2,793	2,810
Leakage (Below)	-1,553	-2,271	-2,563	-2,687	-2,747	-2,778	-2,794
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	11	43	34	26	19	14	10
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-4	-34	-53	-57	-56	-54	-51
Leakage (Above)	1,553	2,271	2,563	2,687	2,747	2,778	2,794
Leakage (Below)	-1,568	-2,317	-2,590	-2,692	-2,737	-2,758	-2,768
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	19	81	80	62	46	34	25
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Kaufman County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,712	-2,711	-2,938	-2,966	-2,944	-2,913	-2,883
Leakage (Above)	1,568	2,317	2,590	2,692	2,737	2,758	2,768
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	144	394	348	274	207	155	115
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lamar County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-3,388	-3,458	-3,469	-3,470	-3,466	-3,346	-3,416
Leakage (Above)	-133	-127	-119	-111	-104	-95	-91
Leakage (Below)	-509	-518	-526	-534	-541	-526	-543
Recharge	18,900	18,900	18,900	18,900	18,900	16,096	18,900
Perennial	-10,926	-10,972	-10,928	-10,892	-10,864	-10,260	-10,727
Ephemeral	-3,439	-3,400	-3,372	-3,353	-3,340	-3,215	-3,273
Evapotransipration	-760	-760	-758	-756	-755	-734	-749
Springs	-14	-13	-13	-13	-12	-11	-12
Reservoir	0	0	0	0	0	0	0
Wells	-49	-49	-49	-49	-49	-49	-49
Flowing	0	0	0	0	0	0	0
Storage	315	394	331	275	228	2,135	-44
Total	-4	-3	-3	-4	-4	-5	-4

NTGCD Run 10 - Lamar County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-869	-889	-899	-898	-893	-877	-876
Leakage (Above)	509	518	526	534	541	526	543
Leakage (Below)	0	-12	-25	-34	-40	-44	-47
Recharge	296	296	296	296	296	254	296
Perennial	108	103	106	108	110	154	118
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	-68	-68	-68	-68	-68	-65	-67
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	23	52	64	62	53	52	33
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lamar County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-32	-142	-123	-97	-71	-49	-30
Leakage (Above)	0	12	25	34	40	44	47
Leakage (Below)	-7	-20	-34	-45	-52	-57	-61
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-8	-8	-8	-8	-8	-8	-8
Flowing	0	0	0	0	0	0	0
Storage	48	159	141	116	91	70	53
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lamar County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-17	-32	-37	-35	-28	-22	-16
Leakage (Above)	7	20	34	45	52	57	61
Leakage (Below)	-12	-27	-42	-53	-59	-64	-67
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	22	38	45	43	36	28	22
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lamar County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	8	-9	-5	4	12	19	25
Leakage (Above)	12	27	42	53	59	64	67
Leakage (Below)	-31	-48	-66	-80	-90	-98	-103
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	10	29	28	24	19	15	11
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lamar County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-24	-72	-82	-73	-59	-48	-38
Leakage (Above)	31	48	66	80	90	98	103
Leakage (Below)	-40	-57	-74	-85	-92	-98	-102
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	33	82	90	77	61	47	36
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lamar County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-79	-165	-183	-177	-166	-155	-145
Leakage (Above)	40	57	74	85	92	98	102
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	39	107	109	93	74	57	44
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lampasas County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lampasas County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lampasas County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Lampasas County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	1,570	1,568	1,567	1,566	1,565	1,563	1,564
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-3,563	-3,613	-3,617	-3,612	-3,603	-3,587	-3,576
Recharge	3,816	3,816	3,816	3,816	3,816	2,233	3,816
Perennial	-2,145	-2,074	-2,047	-2,029	-2,015	-1,931	-1,984
Ephemeral	-201	-197	-192	-189	-186	-182	-180
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-68	-68	-68	-68	-68	-68	-68
Flowing	0	0	0	0	0	0	0
Storage	597	573	547	521	497	1,977	433
Total	6	6	6	6	6	6	6

NTGCD Run 10 - Lampasas County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	709	684	675	670	666	661	656
Leakage (Above)	3,563	3,613	3,617	3,612	3,603	3,587	3,576
Leakage (Below)	1,026	864	789	745	715	691	671
Recharge	6,203	6,203	6,203	6,203	6,203	3,598	6,203
Perennial	-10,092	-9,778	-9,652	-9,568	-9,503	-9,147	-9,354
Ephemeral	-1,810	-1,776	-1,745	-1,715	-1,689	-1,647	-1,627
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-713	-713	-713	-713	-713	-713	-713
Flowing	0	0	0	0	0	0	0
Storage	1,105	894	816	757	709	2,961	579
Total	-9	-9	-9	-9	-9	-9	-9

NTGCD Run 10 - Lampasas County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	52	38	34	32	31	30	29
Leakage (Above)	-1,026	-864	-789	-745	-715	-691	-671
Leakage (Below)	462	231	164	136	121	111	107
Recharge	1,752	1,752	1,752	1,752	1,752	1,003	1,752
Perennial	0	0	0	0	0	0	0
Ephemeral	-1,623	-1,594	-1,574	-1,559	-1,547	-1,526	-1,522
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-30	-30	-30	-30	-30	-30	-30
Flowing	0	0	0	0	0	0	0
Storage	405	459	435	406	380	1,094	326
Total	-8	-8	-8	-9	-9	-9	-9

NTGCD Run 10 - Lampasas County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	759	531	463	429	406	388	376
Leakage (Above)	-462	-231	-164	-136	-121	-111	-107
Leakage (Below)	0	0	0	0	0	0	0
Recharge	3,512	3,512	3,512	3,512	3,512	1,955	3,512
Perennial	0	0	0	0	0	0	0
Ephemeral	-3,132	-3,092	-3,062	-3,036	-3,015	-2,966	-2,954
Evapotransipration	0	0	0	0	0	0	0
Springs	-259	-258	-257	-256	-255	-253	-253
Reservoir	0	0	0	0	0	0	0
Wells	-857	-857	-857	-857	-857	-857	-857
Flowing	0	0	0	0	0	0	0
Storage	439	396	365	345	329	1,845	282
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	4	14	19	22	23	24	25
Leakage (Above)	950	1,403	1,674	1,838	1,944	2,015	2,065
Leakage (Below)	-1,035	-1,510	-1,759	-1,908	-2,003	-2,066	-2,110
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	80	94	66	48	35	27	20
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	499	733	839	895	929	951	966
Leakage (Above)	1,035	1,510	1,759	1,908	2,003	2,066	2,110
Leakage (Below)	-1,649	-2,369	-2,672	-2,850	-2,963	-3,039	-3,091
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	115	126	74	47	31	21	15
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	4	7	9	10	11	12	12
Leakage (Above)	1,649	2,369	2,672	2,850	2,963	3,039	3,091
Leakage (Below)	-1,683	-2,410	-2,704	-2,876	-2,985	-3,058	-3,108
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	29	34	24	16	11	8	6
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	371	552	608	636	651	661	667
Leakage (Above)	1,683	2,410	2,704	2,876	2,985	3,058	3,108
Leakage (Below)	-2,113	-3,031	-3,353	-3,537	-3,653	-3,731	-3,783
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	60	69	40	25	17	12	8
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-23	1	5	8	10	12	13
Leakage (Above)	2,113	3,031	3,353	3,537	3,653	3,731	3,783
Leakage (Below)	-2,091	-3,047	-3,368	-3,551	-3,667	-3,745	-3,798
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	1	16	10	6	4	3	2
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-18	-25	-31	-35	-37	-38	-38
Leakage (Above)	2,091	3,047	3,368	3,551	3,667	3,745	3,798
Leakage (Below)	-2,159	-3,128	-3,403	-3,558	-3,658	-3,725	-3,772
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	85	106	67	42	27	18	12
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Limestone County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,667	-3,510	-3,621	-3,694	-3,748	-3,787	-3,816
Leakage (Above)	2,159	3,128	3,403	3,558	3,658	3,725	3,772
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	508	381	218	136	90	62	44
Total	0	0	0	0	0	0	0

NTGCD Run 10 - McLennan County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	6	6	6	5	5	4	4
Leakage (Above)	148	174	211	235	252	265	273
Leakage (Below)	-158	-191	-226	-248	-262	-273	-280
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	4	11	9	7	5	4	3
Total	0	0	0	0	0	0	0

NTGCD Run 10 - McLennan County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,038	1,770	1,596	1,488	1,415	1,360	1,321
Leakage (Above)	158	191	226	248	262	273	280
Leakage (Below)	-552	-543	-637	-691	-725	-746	-762
Recharge	16,583	16,583	16,583	16,583	16,583	10,326	16,583
Perennial	-20,954	-19,298	-18,689	-18,296	-18,012	-16,738	-17,485
Ephemeral	-2,565	-2,297	-2,176	-2,093	-2,028	-1,901	-1,890
Evapotransipration	-224	-205	-196	-188	-183	-174	-174
Springs	0	0	0	0	0	0	0
Reservoir	334	374	406	433	455	477	492
Wells	-1	-1	-1	-1	-1	-1	-1
Flowing	0	0	0	0	0	0	0
Storage	5,086	3,326	2,784	2,412	2,126	7,015	1,525
Total	-96	-100	-103	-106	-108	-110	-111

NTGCD Run 10 - McLennan County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	144	129	134	136	137	137	138
Leakage (Above)	552	543	637	691	725	746	762
Leakage (Below)	-495	-704	-795	-843	-872	-891	-904
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	-201	32	23	15	10	7	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - McLennan County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	932	869	909	921	924	924	924
Leakage (Above)	495	704	795	843	872	891	904
Leakage (Below)	-1,256	-1,674	-1,759	-1,796	-1,817	-1,830	-1,838
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	-171	101	54	33	21	15	10
Total	0	0	0	0	0	0	0

NTGCD Run 10 - McLennan County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	3,118	3,548	3,667	3,721	3,751	3,769	3,781
Leakage (Above)	1,256	1,674	1,759	1,796	1,817	1,830	1,838
Leakage (Below)	-202	-668	-796	-856	-892	-914	-929
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-4,701	-4,701	-4,701	-4,701	-4,701	-4,701	-4,701
Flowing	0	0	0	0	0	0	0
Storage	528	146	72	40	25	17	11
Total	0	0	0	0	0	0	0

NTGCD Run 10 - McLennan County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	693	1,026	1,079	1,096	1,103	1,107	1,110
Leakage (Above)	202	668	796	856	892	914	929
Leakage (Below)	-1,621	-2,056	-2,052	-2,052	-2,056	-2,061	-2,065
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	726	363	177	100	62	40	27
Total	0	0	0	0	0	0	0

NTGCD Run 10 - McLennan County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	9,656	13,226	13,585	13,715	13,776	13,809	13,829
Leakage (Above)	1,621	2,056	2,052	2,052	2,056	2,061	2,065
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-15,948	-15,948	-15,948	-15,948	-15,948	-15,948	-15,948
Flowing	0	0	0	0	0	0	0
Storage	4,671	665	310	181	115	77	53
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	-148	162	388	530	624	687	730
Leakage (Below)	141	-176	-399	-539	-631	-693	-735
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	7	14	11	9	7	6	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	157	261	362	427	470	494	514
Leakage (Above)	-141	176	399	539	631	693	735
Leakage (Below)	-79	-599	-865	-1,034	-1,146	-1,220	-1,270
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	64	162	104	68	45	33	21
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	0	0	1	1	1	1	1
Leakage (Above)	79	599	865	1,034	1,146	1,220	1,270
Leakage (Below)	-88	-620	-881	-1,045	-1,154	-1,225	-1,275
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	8	21	15	10	7	5	3
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	352	521	640	716	765	797	819
Leakage (Above)	88	620	881	1,045	1,154	1,225	1,275
Leakage (Below)	-490	-1,240	-1,584	-1,802	-1,946	-2,041	-2,106
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	49	98	63	41	27	19	13
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	5	5	8	9	11	11	12
Leakage (Above)	490	1,240	1,584	1,802	1,946	2,041	2,106
Leakage (Below)	-498	-1,257	-1,601	-1,817	-1,960	-2,055	-2,120
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	4	12	9	6	4	3	2
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1	-9	-14	-14	-13	-13	-12
Leakage (Above)	498	1,257	1,601	1,817	1,960	2,055	2,120
Leakage (Below)	-550	-1,381	-1,680	-1,865	-1,989	-2,071	-2,128
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	51	133	93	62	42	28	20
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Milam County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,545	-2,537	-2,412	-2,343	-2,308	-2,289	-2,277
Leakage (Above)	550	1,381	1,680	1,865	1,989	2,071	2,128
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	995	1,156	732	479	320	218	149
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Mills County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Mills County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-140	-140	-140	-140	-140	-140	-139
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-1,859	-1,888	-1,891	-1,892	-1,893	-1,894	-1,894
Recharge	1,167	1,167	1,167	1,167	1,167	669	1,167
Perennial	1,001	1,012	1,019	1,024	1,028	1,065	1,039
Ephemeral	-63	-61	-60	-59	-58	-56	-57
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	113	129	123	118	114	571	101
Total	218	219	219	218	217	216	215

NTGCD Run 10 - Mills County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-22	-22	-22	-22	-22	-22	-22
Leakage (Above)	1,859	1,888	1,891	1,892	1,893	1,894	1,894
Leakage (Below)	-2,129	-2,115	-2,114	-2,113	-2,113	-2,112	-2,112
Recharge	86	86	86	86	86	49	86
Perennial	256	257	257	257	258	260	258
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-84	-84	-84	-84	-84	-84	-84
Flowing	0	0	0	0	0	0	0
Storage	66	21	17	14	13	45	10
Total	32	31	31	31	31	30	30

NTGCD Run 10 - Mills County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,838	-1,835	-1,832	-1,830	-1,828	-1,823	-1,822
Leakage (Above)	2,129	2,115	2,114	2,113	2,113	2,112	2,112
Leakage (Below)	-3,668	-3,725	-3,727	-3,728	-3,728	-3,725	-3,727
Recharge	4,746	4,746	4,746	4,746	4,746	2,691	4,746
Perennial	330	332	333	333	333	336	334
Ephemeral	-2,175	-2,137	-2,108	-2,085	-2,066	-2,030	-2,019
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-189	-189	-189	-189	-189	-189	-189
Flowing	0	0	0	0	0	0	0
Storage	648	674	645	622	601	2,611	546
Total	-17	-18	-18	-17	-17	-17	-17

NTGCD Run 10 - Mills County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,823	-1,809	-1,803	-1,799	-1,795	-1,791	-1,787
Leakage (Above)	3,668	3,725	3,727	3,728	3,728	3,725	3,727
Leakage (Below)	-4,130	-4,321	-4,343	-4,348	-4,347	-4,336	-4,331
Recharge	3,718	3,718	3,718	3,718	3,718	2,070	3,718
Perennial	0	0	0	0	0	0	0
Ephemeral	-1,672	-1,639	-1,614	-1,594	-1,577	-1,551	-1,539
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-607	-607	-607	-607	-607	-607	-607
Flowing	0	0	0	0	0	0	0
Storage	880	967	956	937	914	2,521	852
Total	34	34	34	34	33	33	32

NTGCD Run 10 - Mills County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-131	-113	-111	-110	-109	-108	-107
Leakage (Above)	4,130	4,321	4,343	4,348	4,347	4,336	4,331
Leakage (Below)	-3,923	-3,987	-3,957	-3,934	-3,918	-3,900	-3,888
Recharge	499	499	499	499	499	277	499
Perennial	0	0	0	0	0	0	0
Ephemeral	-879	-854	-837	-822	-809	-792	-783
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-202	-202	-202	-202	-202	-202	-202
Flowing	0	0	0	0	0	0	0
Storage	527	355	283	239	209	407	167
Total	22	19	19	18	18	18	18

NTGCD Run 10 - Mills County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-327	-273	-274	-274	-274	-273	-273
Leakage (Above)	3,923	3,987	3,957	3,934	3,918	3,900	3,888
Leakage (Below)	0	0	0	0	0	0	0
Recharge	1,404	1,404	1,404	1,404	1,404	777	1,404
Perennial	0	0	0	0	0	0	0
Ephemeral	-4,145	-4,101	-4,059	-4,020	-3,982	-3,924	-3,894
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,469	-1,469	-1,469	-1,469	-1,469	-1,469	-1,469
Flowing	0	0	0	0	0	0	0
Storage	612	448	439	422	401	987	342
Total	-2	-2	-2	-2	-2	-2	-2

NTGCD Run 10 - Montague County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Montague County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Montague County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-316	-314	-314	-313	-313	-312	-311
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-925	-939	-948	-953	-957	-958	-959
Recharge	1,369	1,369	1,369	1,369	1,369	829	1,369
Perennial	0	0	0	0	0	0	0
Ephemeral	-181	-177	-173	-170	-167	-158	-157
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-12	-12	-12	-12	-12	-12	-12
Flowing	0	0	0	0	0	0	0
Storage	87	96	100	102	102	634	93
Total	22	22	22	22	22	22	22

NTGCD Run 10 - Montague County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,819	-1,807	-1,797	-1,789	-1,782	-1,762	-1,766
Leakage (Above)	925	939	948	953	957	958	959
Leakage (Below)	-4,614	-4,953	-5,048	-5,091	-5,115	-5,121	-5,132
Recharge	11,373	11,373	11,373	11,373	11,373	7,269	11,373
Perennial	-3,993	-3,816	-3,722	-3,656	-3,606	-3,137	-3,473
Ephemeral	-2,545	-2,446	-2,371	-2,311	-2,261	-2,148	-2,134
Evapotransipration	-533	-528	-526	-524	-523	-516	-520
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-21	-21	-21	-21	-21	-21	-21
Flowing	0	0	0	0	0	0	0
Storage	1,226	1,255	1,160	1,062	973	4,472	708
Total	-3	-3	-4	-4	-5	-6	-6

NTGCD Run 10 - Montague County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,496	-1,567	-1,600	-1,618	-1,628	-1,632	-1,639
Leakage (Above)	4,614	4,953	5,048	5,091	5,115	5,121	5,132
Leakage (Below)	-4,418	-5,102	-5,272	-5,337	-5,366	-5,362	-5,371
Recharge	6,537	6,537	6,537	6,537	6,537	4,191	6,537
Perennial	-1,005	-892	-842	-812	-790	-659	-739
Ephemeral	-3,471	-3,289	-3,136	-3,013	-2,913	-2,759	-2,716
Evapotransipration	-995	-980	-974	-970	-967	-957	-962
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-803	-803	-803	-803	-803	-803	-803
Flowing	0	0	0	0	0	0	0
Storage	1,080	1,191	1,091	975	866	2,911	612
Total	43	48	50	51	51	51	51

NTGCD Run 10 - Montague County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,692	-1,922	-2,036	-2,090	-2,122	-2,142	-2,157
Leakage (Above)	4,418	5,102	5,272	5,337	5,366	5,362	5,371
Leakage (Below)	-4,122	-4,785	-4,830	-4,824	-4,809	-4,787	-4,769
Recharge	4,132	4,132	4,132	4,132	4,132	2,694	4,132
Perennial	-486	-294	-234	-200	-178	-114	-142
Ephemeral	-3,504	-3,173	-2,943	-2,777	-2,654	-2,490	-2,441
Evapotransipration	-95	-88	-86	-84	-83	-81	-82
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-363	-363	-363	-363	-363	-363	-363
Flowing	0	0	0	0	0	0	0
Storage	1,711	1,390	1,088	869	711	1,921	451
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Montague County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,575	-2,830	-2,929	-2,973	-2,998	-3,012	-3,024
Leakage (Above)	4,122	4,785	4,830	4,824	4,809	4,787	4,769
Leakage (Below)	0	0	0	0	0	0	0
Recharge	9,402	9,402	9,402	9,402	9,402	6,154	9,402
Perennial	-1,680	-1,621	-1,584	-1,556	-1,533	-1,368	-1,469
Ephemeral	-7,888	-7,720	-7,593	-7,493	-7,411	-7,190	-7,176
Evapotransipration	-15	-15	-15	-15	-15	-15	-15
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,679	-2,679	-2,679	-2,679	-2,679	-2,679	-2,679
Flowing	0	0	0	0	0	0	0
Storage	1,384	750	640	561	496	3,393	262
Total	71	71	71	71	71	70	70

NTGCD Run 10 - Navarro County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	129	173	218	253	277	293	303
Leakage (Above)	820	1,057	1,304	1,496	1,639	1,744	1,820
Leakage (Below)	-991	-1,396	-1,684	-1,865	-1,981	-2,058	-2,109
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-132	-132	-132	-132	-132	-132	-132
Flowing	0	0	0	0	0	0	0
Storage	173	297	294	247	197	153	117
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Navarro County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	443	504	580	636	675	701	720
Leakage (Above)	991	1,396	1,684	1,865	1,981	2,058	2,109
Leakage (Below)	-1,525	-2,057	-2,405	-2,610	-2,737	-2,819	-2,873
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	91	158	141	109	81	60	44
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Navarro County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	10	23	28	30	31	32	33
Leakage (Above)	1,525	2,057	2,405	2,610	2,737	2,819	2,873
Leakage (Below)	-1,574	-2,130	-2,483	-2,684	-2,804	-2,880	-2,928
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	39	50	51	45	36	28	21
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Navarro County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	256	254	272	291	307	320	330
Leakage (Above)	1,574	2,130	2,483	2,684	2,804	2,880	2,928
Leakage (Below)	-1,877	-2,463	-2,823	-3,025	-3,148	-3,226	-3,277
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	48	80	67	50	37	27	19
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Navarro County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	4	10	10	13	15	17	19
Leakage (Above)	1,877	2,463	2,823	3,025	3,148	3,226	3,277
Leakage (Below)	-1,897	-2,493	-2,850	-3,051	-3,172	-3,250	-3,301
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	16	20	18	13	9	7	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Navarro County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-37	-56	-68	-72	-73	-73	-72
Leakage (Above)	1,897	2,493	2,850	3,051	3,172	3,250	3,301
Leakage (Below)	-1,927	-2,545	-2,880	-3,052	-3,152	-3,215	-3,256
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	67	108	98	73	52	37	27
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Navarro County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,185	-2,965	-3,211	-3,295	-3,329	-3,343	-3,350
Leakage (Above)	1,927	2,545	2,880	3,052	3,152	3,215	3,256
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	258	419	331	243	177	128	94
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Parker County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Parker County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-123	-120	-116	-111	-106	-100	-95
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-579	-562	-566	-572	-578	-584	-588
Recharge	554	554	554	554	554	276	554
Perennial	0	0	0	0	0	0	0
Ephemeral	-40	-38	-36	-34	-32	-29	-27
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	188	166	164	164	163	436	155
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Parker County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,648	-2,592	-2,594	-2,594	-2,592	-2,587	-2,582
Leakage (Above)	579	562	566	572	578	584	588
Leakage (Below)	-4,038	-4,141	-4,264	-4,351	-4,425	-4,474	-4,511
Recharge	11,001	11,001	11,001	11,001	11,001	5,620	11,001
Perennial	-2,209	-2,112	-2,027	-1,947	-1,872	-1,661	-1,709
Ephemeral	-4,571	-4,223	-3,999	-3,818	-3,665	-3,401	-3,363
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,198	-3,198	-3,198	-3,198	-3,198	-3,198	-3,198
Flowing	0	0	0	0	0	0	0
Storage	5,172	4,791	4,603	4,422	4,258	9,202	3,858
Total	89	89	88	87	86	85	84

NTGCD Run 10 - Parker County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,332	-1,412	-1,480	-1,521	-1,547	-1,565	-1,577
Leakage (Above)	4,038	4,141	4,264	4,351	4,425	4,474	4,511
Leakage (Below)	-11,073	-11,425	-11,789	-11,974	-12,079	-12,136	-12,176
Recharge	9,709	9,709	9,709	9,709	9,709	5,009	9,709
Perennial	-1,270	-695	-286	36	286	821	702
Ephemeral	-2,588	-2,233	-1,975	-1,807	-1,684	-1,517	-1,454
Evapotransipration	-106	-102	-99	-96	-93	-90	-89
Springs	0	0	0	0	0	0	0
Reservoir	80	95	104	110	114	117	119
Wells	-4,047	-4,047	-4,047	-4,047	-4,047	-4,047	-4,047
Flowing	0	0	0	0	0	0	0
Storage	6,620	5,999	5,629	5,269	4,947	8,963	4,331
Total	31	31	31	31	31	30	30

NTGCD Run 10 - Parker County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,880	-3,099	-3,215	-3,281	-3,321	-3,344	-3,365
Leakage (Above)	11,073	11,425	11,789	11,974	12,079	12,136	12,176
Leakage (Below)	-9,300	-9,453	-9,688	-9,791	-9,841	-9,847	-9,857
Recharge	2,511	2,511	2,511	2,511	2,511	1,294	2,511
Perennial	-306	-292	-283	-276	-271	-252	-259
Ephemeral	-1,135	-1,079	-1,034	-996	-965	-923	-904
Evapotransipration	-1	-1	-1	-1	-1	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-955	-955	-955	-955	-955	-955	-955
Flowing	0	0	0	0	0	0	0
Storage	1,004	955	888	827	775	1,905	667
Total	11	11	12	12	12	13	13

NTGCD Run 10 - Parker County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,049	-1,259	-1,339	-1,382	-1,407	-1,423	-1,435
Leakage (Above)	9,300	9,453	9,688	9,791	9,841	9,847	9,857
Leakage (Below)	-7,902	-8,159	-8,350	-8,433	-8,474	-8,481	-8,486
Recharge	1,501	1,501	1,501	1,501	1,501	783	1,501
Perennial	-1,233	-1,140	-1,105	-1,081	-1,061	-965	-1,021
Ephemeral	-429	-382	-352	-332	-316	-290	-282
Evapotransipration	-122	-118	-117	-116	-115	-113	-114
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-302	-302	-302	-302	-302	-302	-302
Flowing	0	0	0	0	0	0	0
Storage	235	403	372	350	329	939	277
Total	-2	-3	-4	-4	-4	-5	-5

NTGCD Run 10 - Parker County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,700	-2,274	-2,472	-2,581	-2,651	-2,702	-2,736
Leakage (Above)	7,902	8,159	8,350	8,433	8,474	8,481	8,486
Leakage (Below)	0	0	0	0	0	0	0
Recharge	4,932	4,932	4,932	4,932	4,932	2,592	4,932
Perennial	-2,397	-2,344	-2,329	-2,316	-2,303	-2,181	-2,263
Ephemeral	-5,961	-5,845	-5,769	-5,709	-5,657	-5,522	-5,511
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-3,378	-3,378	-3,378	-3,378	-3,378	-3,378	-3,378
Flowing	0	0	0	0	0	0	0
Storage	601	750	666	618	584	2,710	469
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Red River County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,461	-1,444	-1,433	-1,427	-1,424	-1,396	-1,411
Leakage (Above)	-418	-400	-373	-342	-315	-289	-270
Leakage (Below)	-1,181	-1,185	-1,213	-1,244	-1,272	-1,284	-1,302
Recharge	19,533	19,533	19,533	19,533	19,533	16,850	19,533
Perennial	-2,877	-2,845	-2,826	-2,813	-2,805	-2,631	-2,771
Ephemeral	-13,641	-13,375	-13,236	-13,158	-13,112	-12,723	-12,897
Evapotransipration	-855	-852	-850	-849	-849	-833	-846
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2	-2	-2	-2	-2	-2	-2
Flowing	0	0	0	0	0	0	0
Storage	819	488	317	221	162	2,223	-117
Total	-82	-83	-83	-83	-83	-86	-83

NTGCD Run 10 - Red River County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,278	-1,262	-1,257	-1,254	-1,251	-1,224	-1,236
Leakage (Above)	1,181	1,185	1,213	1,244	1,272	1,284	1,302
Leakage (Below)	192	165	122	83	53	30	13
Recharge	3,424	3,424	3,424	3,424	3,424	3,023	3,424
Perennial	-2,886	-2,834	-2,818	-2,809	-2,803	-2,665	-2,779
Ephemeral	-402	-391	-385	-383	-381	-364	-374
Evapotransipration	-367	-364	-363	-362	-362	-356	-361
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	121	62	49	41	34	257	-4
Total	-15	-15	-15	-15	-15	-14	-15

NTGCD Run 10 - Red River County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	253	236	229	236	249	261	274
Leakage (Above)	-192	-165	-122	-83	-53	-30	-13
Leakage (Below)	124	74	14	-36	-74	-101	-121
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-177	-177	-177	-177	-177	-177	-177
Flowing	0	0	0	0	0	0	0
Storage	-8	32	56	60	54	47	37
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Red River County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	36	32	31	34	39	43	47
Leakage (Above)	-124	-74	-14	36	74	101	121
Leakage (Below)	86	37	-24	-78	-119	-149	-172
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	3	5	7	7	6	5	4
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Red River County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	55	52	51	54	58	62	66
Leakage (Above)	-86	-37	24	78	119	149	172
Leakage (Below)	25	-24	-88	-145	-188	-221	-246
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	5	10	13	13	11	10	7
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Red River County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	19	-2	-25	-40	-47	-51	-53
Leakage (Above)	-25	24	88	145	188	221	246
Leakage (Below)	-10	-52	-104	-145	-176	-199	-216
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	16	30	40	40	35	29	23
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Red River County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-28	-88	-150	-190	-216	-231	-241
Leakage (Above)	10	52	104	145	176	199	216
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	17	36	46	45	39	32	25
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-28	-89	-111	-102	-85	-68	-53
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	28	89	111	102	85	67	53
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-4	-23	-24	-19	-13	-8	-5
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-3	-4	-5	-6	-6	-7	-7
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	7	27	29	25	20	15	11
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-11	-65	-59	-46	-35	-28	-23
Leakage (Above)	3	4	5	6	6	7	7
Leakage (Below)	1	1	1	1	1	1	1
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	7	60	53	39	28	20	15
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-4	-25	-23	-18	-12	-8	-6
Leakage (Above)	-1	-1	-1	-1	-1	-1	-1
Leakage (Below)	0	-1	-1	-1	-1	-1	-1
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	5	26	25	20	15	11	8
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-8	-24	-16	-11	-9	-7	-5
Leakage (Above)	0	1	1	1	1	1	1
Leakage (Below)	0	1	1	1	1	1	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	8	22	14	9	7	5	4
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-2	-25	-22	-14	-8	-4	-1
Leakage (Above)	0	-1	-1	-1	-1	-1	0
Leakage (Below)	-6	-11	-10	-9	-8	-8	-7
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	7	38	33	23	17	12	9
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Rockwall County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-79	-112	-82	-62	-48	-37	-29
Leakage (Above)	6	11	10	9	8	8	7
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	73	100	72	54	40	29	22
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Somervell County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Somervell County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	144	144	144	145	146	146	147
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-188	-185	-184	-184	-184	-184	-184
Recharge	30	30	30	30	30	16	30
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	13	11	9	9	8	22	7
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Somervell County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-47	-30	-31	-32	-32	-32	-31
Leakage (Above)	188	185	184	184	184	184	184
Leakage (Below)	-1,306	-1,322	-1,331	-1,335	-1,337	-1,337	-1,336
Recharge	1,098	1,098	1,098	1,098	1,098	575	1,098
Perennial	0	0	0	0	0	0	0
Ephemeral	-151	-136	-131	-127	-124	-114	-115
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-13	-13	-13	-13	-13	-13	-13
Flowing	0	0	0	0	0	0	0
Storage	221	208	213	215	214	728	203
Total	-10	-10	-10	-10	-10	-10	-10

NTGCD Run 10 - Somervell County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,569	1,468	1,386	1,322	1,272	1,224	1,195
Leakage (Above)	1,306	1,322	1,331	1,335	1,337	1,337	1,336
Leakage (Below)	-1,984	-2,335	-2,480	-2,557	-2,602	-2,624	-2,646
Recharge	4,550	4,550	4,550	4,550	4,550	2,435	4,550
Perennial	-8,229	-7,046	-6,591	-6,281	-6,051	-5,387	-5,685
Ephemeral	-833	-744	-693	-653	-618	-573	-554
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	297	297	297	297	297	297	297
Wells	-146	-146	-146	-146	-146	-146	-146
Flowing	0	0	0	0	0	0	0
Storage	3,437	2,600	2,313	2,098	1,925	3,402	1,619
Total	-33	-33	-34	-34	-34	-35	-35

NTGCD Run 10 - Somervell County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,051	1,909	1,834	1,791	1,761	1,740	1,722
Leakage (Above)	1,984	2,335	2,480	2,557	2,602	2,624	2,646
Leakage (Below)	-720	-1,035	-1,139	-1,194	-1,227	-1,249	-1,266
Recharge	308	308	308	308	308	164	308
Perennial	-1,935	-1,681	-1,564	-1,488	-1,435	-1,343	-1,353
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2,127	-2,127	-2,127	-2,127	-2,127	-2,127	-2,127
Flowing	0	0	0	0	0	0	0
Storage	440	292	208	154	118	191	70
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Somervell County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-10	-32	-42	-48	-52	-54	-56
Leakage (Above)	720	1,035	1,139	1,194	1,227	1,249	1,266
Leakage (Below)	-745	-985	-1,071	-1,117	-1,146	-1,165	-1,179
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-32	-32	-32	-32	-32	-32	-32
Flowing	0	0	0	0	0	0	0
Storage	68	13	7	4	3	2	1
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Somervell County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-38	-149	-222	-263	-288	-306	-319
Leakage (Above)	745	985	1,071	1,117	1,146	1,165	1,179
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-863	-863	-863	-863	-863	-863	-863
Flowing	0	0	0	0	0	0	0
Storage	156	28	14	8	6	4	3
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Tarrant County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-902	-1,066	-1,116	-1,154	-1,190	-1,233	-1,256
Leakage (Above)	466	501	516	528	540	552	561
Leakage (Below)	-606	-612	-645	-677	-705	-724	-739
Recharge	7,729	7,729	7,729	7,729	7,729	3,812	7,729
Perennial	-4,219	-4,004	-3,891	-3,817	-3,763	-3,471	-3,644
Ephemeral	-3,797	-3,512	-3,349	-3,224	-3,117	-2,848	-2,874
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	134	138	141	142	143	146	147
Wells	-1,139	-1,139	-1,139	-1,139	-1,139	-1,139	-1,139
Flowing	0	0	0	0	0	0	0
Storage	2,336	1,965	1,755	1,612	1,503	4,904	1,216
Total	1	0	0	0	0	0	0

NTGCD Run 10 - Tarrant County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-490	-477	-520	-573	-620	-660	-690
Leakage (Above)	606	612	645	677	705	724	739
Leakage (Below)	-3,375	-3,704	-3,872	-3,959	-4,008	-4,041	-4,043
Recharge	24,997	24,997	24,997	24,997	24,997	12,398	24,997
Perennial	-11,884	-11,424	-11,242	-11,122	-11,034	-10,069	-10,789
Ephemeral	-14,398	-13,644	-13,201	-12,866	-12,591	-11,918	-11,920
Evapotransipration	-91	-86	-83	-79	-75	-70	-68
Springs	-15	-8	-7	-7	-6	-5	-5
Reservoir	39	52	64	74	83	95	102
Wells	-1,333	-1,333	-1,333	-1,333	-1,333	-1,333	-1,333
Flowing	0	0	0	0	0	0	0
Storage	5,887	4,958	4,497	4,136	3,829	14,824	2,958
Total	-59	-57	-55	-54	-54	-53	-52

NTGCD Run 10 - Tarrant County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,011	1,842	1,706	1,601	1,522	1,454	1,404
Leakage (Above)	3,375	3,704	3,872	3,959	4,008	4,041	4,043
Leakage (Below)	-245	-382	-497	-565	-609	-638	-660
Recharge	5,033	5,033	5,033	5,033	5,033	2,554	5,033
Perennial	-2,054	-1,778	-1,590	-1,438	-1,308	-1,079	-1,063
Ephemeral	-2,969	-2,850	-2,733	-2,618	-2,501	-2,338	-2,248
Evapotransipration	-210	-203	-196	-189	-181	-171	-165
Springs	-73	-69	-66	-64	-62	-59	-57
Reservoir	1,255	1,270	1,287	1,306	1,324	1,343	1,360
Wells	-9,681	-9,681	-9,681	-9,681	-9,681	-9,681	-9,681
Flowing	0	0	0	0	0	0	0
Storage	3,635	3,197	2,952	2,747	2,549	4,669	2,131
Total	77	82	88	91	93	95	96

NTGCD Run 10 - Tarrant County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,237	1,373	1,439	1,459	1,466	1,466	1,466
Leakage (Above)	245	382	497	565	609	638	660
Leakage (Below)	-613	-961	-1,095	-1,157	-1,192	-1,213	-1,228
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-916	-916	-916	-916	-916	-916	-916
Flowing	0	0	0	0	0	0	0
Storage	47	122	75	48	33	25	17
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Tarrant County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,313	1,473	1,644	1,732	1,784	1,817	1,841
Leakage (Above)	613	961	1,095	1,157	1,192	1,213	1,228
Leakage (Below)	-1,711	-2,104	-2,266	-2,353	-2,408	-2,445	-2,471
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-628	-628	-628	-628	-628	-628	-628
Flowing	0	0	0	0	0	0	0
Storage	413	298	155	92	60	43	30
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Tarrant County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	965	1,207	1,260	1,263	1,259	1,256	1,254
Leakage (Above)	1,711	2,104	2,266	2,353	2,408	2,445	2,471
Leakage (Below)	-3,066	-3,594	-3,630	-3,640	-3,649	-3,657	-3,665
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-101	-101	-101	-101	-101	-101	-101
Flowing	0	0	0	0	0	0	0
Storage	491	384	206	125	83	58	41
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Tarrant County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	2,381	2,606	2,774	2,842	2,872	2,887	2,896
Leakage (Above)	3,066	3,594	3,630	3,640	3,649	3,657	3,665
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-6,601	-6,601	-6,601	-6,601	-6,601	-6,601	-6,601
Flowing	0	0	0	0	0	0	0
Storage	1,154	401	196	120	80	57	41
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Taylor County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Taylor County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Taylor County - Paluxy Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Taylor County - Glen Rose Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Taylor County - Hensell Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Taylor County - Pearsall Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	1	1	1	1	1	1
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-2	-2	-2	-2	-2	-2	-2
Recharge	9	9	9	9	9	5	9
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-2	-2	-2	-2	-2	-2	-2
Flowing	0	0	0	0	0	0	0
Storage	1	1	1	1	1	4	1
Total	7	7	7	7	7	7	7

NTGCD Run 10 - Taylor County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-354	-353	-352	-351	-351	-350	-350
Leakage (Above)	2	2	2	2	2	2	2
Leakage (Below)	0	0	0	0	0	0	0
Recharge	660	660	660	660	660	408	660
Perennial	0	0	0	0	0	0	0
Ephemeral	-335	-333	-332	-332	-331	-328	-328
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-12	-12	-12	-12	-12	-12	-12
Flowing	0	0	0	0	0	0	0
Storage	39	36	34	33	32	280	28
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Travis County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1	1	1	2	1	2	2
Leakage (Above)	550	963	1,126	1,220	1,275	1,342	1,344
Leakage (Below)	-605	-1,008	-1,179	-1,276	-1,319	-1,356	-1,347
Recharge	2	2	2	2	2	1	2
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-2	-2	-1	-1	-1	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	55	44	52	56	43	14	1
Total	1	2	2	2	2	2	2

NTGCD Run 10 - Travis County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	4,428	5,840	6,595	6,306	6,077	5,964	5,874
Leakage (Above)	605	1,008	1,179	1,276	1,319	1,356	1,347
Leakage (Below)	-44	-55	-40	-35	-34	-26	-32
Recharge	2,130	2,130	2,130	2,130	2,130	1,119	2,130
Perennial	113	360	1,053	1,704	2,071	2,572	2,531
Ephemeral	-267	-230	-205	-168	-155	-142	-139
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-14	-13	-12	-11	-9	-7	-4
Wells	-10,865	-10,865	-10,865	-10,865	-10,865	-10,865	-10,865
Flowing	0	0	0	0	0	0	0
Storage	6,097	3,952	2,225	1,649	1,381	1,865	941
Total	2,183	2,127	2,060	1,985	1,915	1,836	1,782

NTGCD Run 10 - Travis County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	31	43	47	46	45	44	43
Leakage (Above)	44	55	40	35	34	26	32
Leakage (Below)	-167	-129	-114	-106	-103	-96	-98
Recharge	18	18	18	18	18	10	18
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-8	-8	-8	-8	-9	-9	-9
Wells	-13	-13	-13	-13	-13	-13	-13
Flowing	0	0	0	0	0	0	0
Storage	65	6	3	2	2	13	2
Total	-29	-28	-27	-27	-26	-25	-25

NTGCD Run 10 - Travis County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	436	447	436	427	420	418	415
Leakage (Above)	167	129	114	106	103	96	98
Leakage (Below)	-2,741	-2,826	-2,862	-2,891	-2,917	-2,926	-2,952
Recharge	3,689	3,689	3,689	3,689	3,689	1,918	3,689
Perennial	-439	-424	-400	-370	-347	-310	-307
Ephemeral	-1,765	-1,680	-1,610	-1,551	-1,501	-1,443	-1,414
Evapotransipration	-76	-89	-102	-112	-121	-128	-136
Springs	0	0	0	0	0	0	0
Reservoir	-315	-327	-338	-347	-355	-360	-366
Wells	-973	-973	-973	-973	-973	-973	-973
Flowing	0	0	0	0	0	0	0
Storage	-247	-217	-179	-145	-111	1,649	-67
Total	-2,265	-2,272	-2,224	-2,167	-2,114	-2,060	-2,014

NTGCD Run 10 - Travis County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	519	511	505	500	496	493	491
Leakage (Above)	2,741	2,826	2,862	2,891	2,917	2,926	2,952
Leakage (Below)	-783	-876	-937	-985	-1,025	-1,056	-1,083
Recharge	1,021	1,021	1,021	1,021	1,021	530	1,021
Perennial	0	0	0	0	0	0	0
Ephemeral	-195	-193	-190	-188	-186	-180	-179
Evapotransipration	-238	-275	-308	-337	-363	-385	-407
Springs	0	0	0	0	0	0	0
Reservoir	-372	-415	-456	-494	-529	-558	-588
Wells	-1,144	-1,144	-1,144	-1,144	-1,144	-1,144	-1,144
Flowing	-15	-13	-11	-9	-8	-7	-6
Storage	-1,498	-1,386	-1,271	-1,169	-1,080	-506	-938
Total	36	55	71	85	98	113	119

NTGCD Run 10 - Travis County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	67	67	65	63	61	60	60
Leakage (Above)	783	876	937	985	1,025	1,056	1,083
Leakage (Below)	-715	-937	-1,050	-1,126	-1,179	-1,213	-1,234
Recharge	200	200	200	200	200	105	200
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-77	-76	-73	-70	-66	-62	-59
Wells	-189	-189	-189	-189	-189	-189	-189
Flowing	0	0	0	0	0	0	0
Storage	-56	72	123	150	160	256	151
Total	14	14	14	13	13	13	12

NTGCD Run 10 - Travis County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	1,566	1,077	991	1,019	1,069	1,114	1,153
Leakage (Above)	715	937	1,050	1,126	1,179	1,213	1,234
Leakage (Below)	0	0	0	0	0	0	0
Recharge	150	150	150	150	150	78	150
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-106	-103	-98	-93	-87	-81	-75
Wells	-2,799	-2,799	-2,799	-2,799	-2,799	-2,799	-2,799
Flowing	0	0	0	0	0	0	0
Storage	473	733	702	592	485	472	334
Total	-1	-5	-4	-4	-3	-2	-2

NTGCD Run 10 - Williamson County - Woodbine Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1	-2	-2	-2	-2	-2	-2
Leakage (Above)	903	1,241	1,445	1,577	1,660	1,757	1,767
Leakage (Below)	-935	-1,251	-1,451	-1,580	-1,661	-1,759	-1,766
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	34	12	9	6	4	5	3
Total	1	1	1	1	1	2	2

NTGCD Run 10 - Williamson County - Wash/Fred Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-4,961	-6,405	-7,265	-7,001	-6,786	-6,751	-6,677
Leakage (Above)	935	1,251	1,451	1,580	1,661	1,759	1,766
Leakage (Below)	320	270	250	239	231	239	224
Recharge	11,629	11,629	11,629	11,629	11,629	6,485	11,629
Perennial	1,038	3,999	6,064	7,697	8,890	10,500	10,534
Ephemeral	-3,262	-3,033	-2,864	-2,664	-2,490	-2,291	-2,235
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	-22	-23	-24	-24	-24	-23	-23
Wells	-20,816	-20,816	-20,816	-20,816	-20,816	-20,816	-20,816
Flowing	0	0	0	0	0	0	0
Storage	15,100	13,057	11,490	9,270	7,614	10,800	5,509
Total	-39	-72	-86	-90	-91	-98	-89

NTGCD Run 10 - Williamson County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-34	-46	-51	-50	-48	-48	-47
Leakage (Above)	-320	-270	-250	-239	-231	-239	-224
Leakage (Below)	74	31	3	-17	-33	-41	-54
Recharge	181	181	181	181	181	97	181
Perennial	57	81	93	101	107	123	120
Ephemeral	-53	-49	-45	-42	-39	-35	-33
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	97	73	72	69	66	144	59
Total	2	2	2	2	2	2	2

NTGCD Run 10 - Williamson County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-300	-416	-510	-573	-617	-651	-674
Leakage (Above)	-74	-31	-3	17	33	41	54
Leakage (Below)	-1,747	-1,937	-2,002	-2,046	-2,079	-2,101	-2,120
Recharge	7,324	7,324	7,324	7,324	7,324	3,945	7,324
Perennial	-6,491	-6,147	-5,989	-5,870	-5,772	-5,318	-5,562
Ephemeral	-383	-365	-348	-333	-318	-298	-285
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-689	-689	-689	-689	-689	-689	-689
Flowing	0	0	0	0	0	0	0
Storage	2,156	2,048	1,997	1,946	1,892	4,842	1,722
Total	-204	-213	-219	-223	-226	-228	-230

NTGCD Run 10 - Williamson County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-127	-129	-125	-122	-118	-116	-114
Leakage (Above)	1,747	1,937	2,002	2,046	2,079	2,101	2,120
Leakage (Below)	-881	-1,049	-1,121	-1,169	-1,204	-1,229	-1,248
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-752	-752	-752	-752	-752	-752	-752
Flowing	-31	-23	-17	-15	-14	-13	-12
Storage	44	15	13	11	9	8	5
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Williamson County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1	-4	-3	0	3	6	8
Leakage (Above)	881	1,049	1,121	1,169	1,204	1,229	1,248
Leakage (Below)	-772	-940	-1,003	-1,044	-1,070	-1,086	-1,096
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-199	-199	-199	-199	-199	-199	-199
Flowing	0	0	0	0	0	0	0
Storage	90	94	84	73	61	50	39
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Williamson County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	226	116	282	425	538	615	677
Leakage (Above)	772	940	1,003	1,044	1,070	1,086	1,096
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-1,934	-1,934	-1,934	-1,934	-1,934	-1,934	-1,934
Flowing	0	0	0	0	0	0	0
Storage	937	878	649	465	327	233	161
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Wise County - Woodbine Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	0	0	0	0	0	0	0
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	0	0	0	0	0	0	0
Recharge	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0
Ephemeral	0	0	0	0	0	0	0
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	0	0	0	0	0	0	0
Flowing	0	0	0	0	0	0	0
Storage	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

NTGCD Run 10 - Wise County - Wash/Fred Aquifer							
Component	2010	2020	2030	2040	2050	2060	2070
Lateral Flow	-734	-737	-740	-741	-742	-741	-741
Leakage (Above)	0	0	0	0	0	0	0
Leakage (Below)	-2,396	-2,519	-2,582	-2,611	-2,624	-2,637	-2,621
Recharge	5,555	5,555	5,555	5,555	5,555	3,137	5,555
Perennial	-72	-69	-67	-66	-65	-60	-63
Ephemeral	-3,307	-3,020	-2,886	-2,799	-2,729	-2,513	-2,563
Evapotransipration	0	0	0	0	0	0	0
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-603	-603	-603	-603	-603	-603	-603
Flowing	0	0	0	0	0	0	0
Storage	1,619	1,454	1,385	1,328	1,270	3,481	1,101
Total	61	62	62	63	63	64	64

NTGCD Run 10 - Wise County - Paluxy Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-2,124	-2,447	-2,497	-2,494	-2,477	-2,436	-2,418
Leakage (Above)	2,396	2,519	2,582	2,611	2,624	2,637	2,621
Leakage (Below)	-6,534	-6,937	-7,164	-7,264	-7,300	-7,274	-7,253
Recharge	11,096	11,096	11,096	11,096	11,096	6,173	11,096
Perennial	-1,459	-1,292	-1,197	-1,138	-1,097	-887	-1,026
Ephemeral	-4,749	-4,396	-4,163	-3,997	-3,859	-3,580	-3,554
Evapotransipration	-611	-601	-595	-591	-589	-579	-584
Springs	0	0	0	0	0	0	0
Reservoir	15	15	15	15	15	15	15
Wells	-1,811	-1,811	-1,811	-1,811	-1,811	-1,811	-1,811
Flowing	0	0	0	0	0	0	0
Storage	3,722	3,790	3,669	3,510	3,335	7,681	2,855
Total	-58	-62	-63	-63	-62	-61	-59

NTGCD Run 10 - Wise County - Glen Rose Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,370	-1,888	-2,132	-2,253	-2,322	-2,360	-2,391
Leakage (Above)	6,534	6,937	7,164	7,264	7,300	7,274	7,253
Leakage (Below)	-7,501	-8,823	-9,306	-9,523	-9,641	-9,695	-9,740
Recharge	11,703	11,703	11,703	11,703	11,703	6,548	11,703
Perennial	-7,191	-6,438	-5,999	-5,695	-5,459	-4,641	-5,014
Ephemeral	-3,978	-3,612	-3,335	-3,121	-2,948	-2,677	-2,612
Evapotransipration	-799	-773	-759	-750	-743	-725	-731
Springs	-32	-28	-26	-25	-24	-23	-23
Reservoir	55	55	55	55	55	55	55
Wells	-898	-898	-898	-898	-898	-898	-898
Flowing	0	0	0	0	0	0	0
Storage	3,399	3,683	3,447	3,153	2,885	7,048	2,300
Total	-77	-82	-88	-91	-93	-95	-96

NTGCD Run 10 - Wise County - Hensell Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-695	-1,628	-1,949	-2,110	-2,204	-2,269	-2,309
Leakage (Above)	7,501	8,823	9,306	9,523	9,641	9,695	9,740
Leakage (Below)	-6,808	-7,865	-8,210	-8,318	-8,348	-8,309	-8,304
Recharge	7,573	7,573	7,573	7,573	7,573	4,100	7,573
Perennial	-314	-33	115	208	274	481	387
Ephemeral	-7,428	-7,044	-6,746	-6,509	-6,320	-6,011	-5,947
Evapotransipration	-1,290	-1,264	-1,250	-1,241	-1,235	-1,217	-1,223
Springs	-42	-39	-36	-34	-31	-28	-27
Reservoir	0	0	0	0	0	0	0
Wells	-1,367	-1,367	-1,367	-1,367	-1,367	-1,367	-1,367
Flowing	0	0	0	0	0	0	0
Storage	2,856	2,828	2,551	2,261	2,004	4,914	1,464
Total	-15	-14	-14	-14	-13	-13	-13

NTGCD Run 10 - Wise County - Pearsall Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-529	-994	-1,164	-1,248	-1,297	-1,330	-1,353
Leakage (Above)	6,808	7,865	8,210	8,318	8,348	8,309	8,304
Leakage (Below)	-5,247	-6,324	-6,494	-6,519	-6,512	-6,486	-6,466
Recharge	3,855	3,855	3,855	3,855	3,855	2,111	3,855
Perennial	-1,474	-1,134	-980	-886	-819	-650	-701
Ephemeral	-4,664	-4,355	-4,097	-3,898	-3,746	-3,525	-3,467
Evapotransipration	-85	-81	-79	-78	-77	-75	-75
Springs	0	0	0	0	0	0	0
Reservoir	0	0	0	0	0	0	0
Wells	-797	-797	-797	-797	-797	-797	-797
Flowing	0	0	0	0	0	0	0
Storage	2,124	1,957	1,537	1,245	1,037	2,435	693
Total	-8	-8	-8	-8	-8	-8	-8

NTGCD Run 10 - Wise County - Hosston Aquifer							
Component	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**	**2070**
Lateral Flow	-1,013	-2,073	-2,365	-2,517	-2,616	-2,686	-2,738
Leakage (Above)	5,247	6,324	6,494	6,519	6,512	6,486	6,466
Leakage (Below)	0	0	0	0	0	0	0
Recharge	8,275	8,275	8,275	8,275	8,275	4,673	8,275
Perennial	-901	-818	-773	-740	-716	-611	-664
Ephemeral	-8,811	-8,443	-8,133	-7,877	-7,667	-7,325	-7,240
Evapotransipration	-114	-109	-106	-104	-102	-98	-99
Springs	-37	-36	-36	-35	-35	-34	-34
Reservoir	0	0	0	0	0	0	0
Wells	-4,887	-4,887	-4,887	-4,887	-4,887	-4,887	-4,887
Flowing	0	0	0	0	0	0	0
Storage	2,227	1,754	1,516	1,352	1,222	4,468	906
Total	-13	-13	-13	-13	-13	-13	-13

ATTACHMENT F

GAM Run 08-10mag

by Roberto Anaya, P.G.
Texas Water Development Board
Groundwater Availability Modeling Section
(512) 936-2415
April 3, 2008

REQUESTOR:

Ms. Cheryl Maxwell of the Clearwater Underground Water Conservation District acting on behalf of the groundwater conservation districts in Groundwater Management Area 8.

DESCRIPTION OF REQUEST:

In a letter dated December 26, 2007, Ms. Cheryl Maxwell provided the TWDB with the desired future conditions for the Edwards (Balcones Fault Zone), Blossom, Brazos River Alluvium, Nacatoch, and Woodbine aquifers in Groundwater Management Area 8 and requested that TWDB estimate managed available groundwater values. This groundwater availability modeling run presents the managed available groundwater for the northern segment of the Edwards (Balcones Fault Zone) Aquifer in Groundwater Management Area 8.

DESIRED FUTURE CONDITIONS:

Desired future conditions for the northern segment of the Edwards (Balcones Fault Zone) Aquifer submitted to TWDB by the groundwater conservation districts in Groundwater Management Area 8:

- Maintain at least 100 acre-feet per month of stream/spring flow in Salado Creek during a repeat of the drought of record in Bell County.
- Maintain at least 42 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record in Travis County.
- Maintain at least 60 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record in Williamson County.

EXECUTIVE SUMMARY:

TWDB staff ran the groundwater availability model for the northern segment of the Edwards (Balcones Fault Zone) Aquifer to determine the managed available groundwater based on the desired future conditions for the Edwards (Balcones Fault Zone) Aquifer (Williams, 2007) adopted by the groundwater conservation districts in Groundwater Management Area 8.

Table 1. Managed available groundwater for the northern segment of the Edwards (Balcones Fault Zone) Aquifer by geographic subdivisions (See Figure 1).

MapRef	Aquifer	County	RWPA	River Basin	GCD	GMA	GeoArea	Year	MAG (Acre-feet per year)
1	EBFZ_N	Bell	G	Brazos	Clearwater	8	n/a	n/a	6,469
2	EBFZ_N	Williamson	G	Brazos	None	8	n/a	n/a	3,351
3	EBFZ_N	Williamson	G	Colorado	None	8	n/a	n/a	101
4	EBFZ_N	Williamson	K	Brazos	None	8	n/a	n/a	6
5	EBFZ_N	Williamson	K	Colorado	None	8	n/a	n/a	4
6	EBFZ_N	Travis	K	Brazos	None	8	n/a	n/a	275
7	EBFZ_N	Travis	K	Colorado	None	8	n/a	n/a	4,962
									15,168

Clearwater = Clearwater Underground Water Conservation District.

EBFZ_N = Northern segment of the Edwards (Balcones Fault Zone) Aquifer.

GCD = Groundwater conservation district.

GeoArea = Geographic areas defined by unique desired future conditions as specified by a groundwater management area.

GMA = Groundwater management area.

MAG = Managed available groundwater in units of acre-feet per year.

MapRef = Key identifier for managed available groundwater referenced to geographic subdivisions (See Figure 1).

RWPA = Regional water planning area.

Figure 1: Geographic subdivisions of managed available groundwater for the northern segment of the Edwards (Balcones Fault Zone) Aquifer. See Table 1 for descriptions of the geographic subdivisions.

The results show 15,168 acre-feet per year of managed available groundwater for the northern segment of the Edwards (Balcones Fault Zone) Aquifer in Groundwater Management Area 8. Under the jurisdiction of the Clearwater Underground Water Conservation District, Bell County has 6,469 acre-feet per year of managed available groundwater. The managed available groundwater estimates for Williamson and Travis counties are 3,462 and 5,237 acre-feet per year, respectively.

METHODS:

To address the request, we:

- ran the model for 141 years, starting with a 100-year initial stress period (pre-1980) followed by 21 years of historical monthly stress periods (1980 to 2000), then 10 years of predictive annual stress periods (2001 to 2010), and ending with 10 years of predictive monthly stress periods (2011 to 2020) to represent a simulated repeat of the 1950s' drought of record (Please see the discussion at end of this section about these stress periods);

- used pumpage and recharge distributions provided to us by staff at TCB Inc. and uniformly adjusted pumpage in Williamson County to meet the desired future conditions as outlined above;

- extracted projected discharge for drain cells representing Salado Creek in Bell County and drain cells representing aggregated springs and streams in Williamson and Travis counties, respectively, for each of the stress periods from 2011 through 2020 to verify that the desired future conditions were met (Please see the discussion at end of this section);

- determined which stress period reflected the worst case monthly scenario for Salado Springs during a repeat of the 1950s' drought of record;

- generated managed available groundwater for all three desired future conditions based on the lowest monthly springflow volume for Salado Springs during a simulated repeat of the 1950s' drought of record; and

- calculated managed available groundwater for each possible geographic subdivision (Figure 1) within Groundwater Management Area 8 based on a geographic information systems overlay analysis of counties, groundwater conservation districts, regional water planning areas, major river basins, and the boundary extents of Groundwater Management Area 8 and the northern segment of the Edwards (Balcones Fault Zone) Aquifer.

The initial 100-year stress period is for the model to reach equilibrium to known or observed conditions just prior to 1980. The 21 years of historical monthly stress periods from 1980 to 2000 represent the aquifer in a transient state for which the model was calibrated. The end of the 21 years of historical monthly stress periods also provides the initial conditions for starting the predictive portion of the model simulation. The next 10 years of annual stress periods represent

the first phase of the predictive model simulation under normal recharge conditions and with predictive pumpage rate estimates for the period from 2001 to 2010. This 10-year period allows the modeled aquifer to reach equilibrium with predictive pumpage rates before being stressed by the simulated drought of record recharge. The final 10 years of monthly stress periods from 2011 to 2020 represent the simulated repeat of the 1950s' drought of record recharge with the predictive pumpage rate estimates.

Initial distributed pumpage and recharge rates were developed by staff of TCB Inc. at the request of Ms. Cheryl Maxwell of the Clearwater Underground Water Conservation District acting on behalf of the groundwater districts in Groundwater Management Area 8. The recharge rates represent the 1950s' drought of record conditions. The pumpage rates represent predictive estimates of pumpage for Travis and Williamson counties and drought management pumpage rates for Bell County. These initial pumpage rates were used to develop the desired future conditions based on a previous groundwater availability modeling run (Anaya, 2007).

Because the submitted desired future condition for Williamson County was not possible with the pumping distribution in the previous groundwater availability modeling run (Anaya, 2007), TWDB staff uniformly adjusted the pumpage rates for Williamson County to achieve the desired future conditions.

PARAMETERS AND ASSUMPTIONS:

- TWDB staff assumed that the managed available groundwater for all three desired future conditions be based on the modeling stress period with the lowest monthly springflow volume for Salado Springs during a simulated repeat of the 1950s' drought of record.

- TWDB staff also assumed that the desired future conditions for the minimum aggregated stream/spring flows in Bell, Travis, and Williamson counties must be maintained for each and every month throughout the entire 1950s' drought of record simulation period.

- TWDB staff used version 1.01 of the groundwater availability model for the northern segment of the Edwards (Balcones Fault Zone) Aquifer.

- See Jones (2003) for a more detailed discussion of assumptions and limitations of the groundwater availability model for the northern segment of the Edwards (Balcones Fault Zone) Aquifer.

- The model consists of one layer representing the northern segment of the Edwards (Balcones Fault Zone) Aquifer and assumes no hydraulic communication with the underlying Trinity Aquifer.

- The model utilizes the Drain package of MODFLOW to simulate discharge from springs and perennial streams with the assumption that the perennial streams are always gaining water from the aquifer.

- The root mean square error (a measure of the difference between simulated and actual water levels during model calibration) in the groundwater availability model is 32 feet for the 1980 steady-state calibration period (Jones, 2003).

- TWDB staff used distributed pumpage and recharge rates (Anaya, 2007) provided by staff of TCB Inc. under contract to the groundwater conservation districts in Groundwater Management Area 8. For more detailed information regarding the methodology for distributing initial pumpage and recharge rates for this model run, please contact Ms. Cheryl Maxwell at the Clearwater Underground Water Conservation District at 254-933-0120.

- TWDB staff uniformly adjusted the pumpage rates in Williamson County for the stress periods from 2001 through 2020 to achieve the stated desired future condition for the Williamson County portion of the northern segment of the Edwards (Balcones Fault Zone) Aquifer in Groundwater Management Area 8.

RESULTS:

Discharge from the model drain cells representing Salado Creek in Bell County and aggregated natural springs and streams in Williamson and Travis counties were verified to meet the desired future conditions developed by groundwater conservation districts for the northern segment of the Edwards (Balcones Fault Zone) Aquifer in Groundwater Management Area 8.

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

The results show 15,168 acre-feet per year of managed available groundwater for the northern segment of the Edwards (Balcones Fault Zone) Aquifer in Groundwater Management Area 8. Under the jurisdiction of the Clearwater Underground Water Conservation District, Bell County has 6,469 acre-feet per year of managed available groundwater. Williamson and Travis counties have 3,462 and 5,237 acre-feet per year of managed available groundwater, respectively (Table 1 and Figure 1).

The geographically subdivided managed available groundwater values for this modeling run resulted in small separate areas along the Williamson and Travis county boundary. The reason for these areas is because the Williamson and Travis county boundary is located close to the Colorado River and Brazos River basin boundary but does not coincide with it. In addition, the regional water planning area boundary is also located near the county and river basin boundaries and it too does not coincide exactly with the other boundaries.

Note that estimates of managed available groundwater are based on the best available scientific tools that can be used to evaluate managed available groundwater and that these estimates can be a function of assumptions made on the magnitude and distribution of pumping in the aquifer.

Therefore, it is important for groundwater conservation districts to monitor whether or not they are achieving their desired future conditions and to work with the TWDB to refine managed available groundwater given the reality of how the aquifer responds to the actual magnitude and distribution of pumping now and in the future.

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The seal appearing on this document was authorized by Roberto Anaya, P.G., on April 3, 2008.

ATTACHMENT G

Draft Numerical Model Report: Minor Aquifers of the Llano Uplift Region of Texas (Marble Falls, Ellenburger-San Saba, and Hickory)

Report By:
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February 16, 2016

This document is released for the purpose of interim review under the authority of Jianyou (Jerry) Shi, P.G. 11113, Radu Boghici, P.G. 482, and William Hutchison, P.E. 96287, P.G. 286, on January 31, 2016.
Materials and findings are subject to change and should not be applied for public use until the work is finalized.

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Executive Summary

The Texas Water Development Board (TWDB) has completed the construction and calibration of the numerical groundwater flow model for the minor aquifers in the Llano Uplift region. The minor aquifers defined by TWDB in the Llano Uplift region are (from oldest to youngest) the Hickory, Ellenburger-San Saba, and Marble Falls aquifers. These minor aquifers occur in nineteen counties: Blanco, Brown, Burnet, Coleman, Concho, Gillespie, Hays, Kendall, Kerr, Kimble, Lampasas, Llano, Mason, McCulloch, Menard, Mills, San Saba, Travis, and Williamson.

The completion of the groundwater availability model for the minor aquifers in the Llano Uplift region partially fulfills the mandate by the Texas State legislature that TWDB obtain or develop groundwater availability models for all major and minor aquifers in Texas. Groundwater availability models are the primary tools for stakeholders to evaluate and manage their groundwater resources in major and minor aquifers. These stakeholders include, but are not limited to, the regional water planning groups, groundwater conservation districts, other state/local government agencies, research institutions, private citizens, and private industries.

The development of a groundwater availability model involves two fundamental parts: a conceptual groundwater flow model and a numerical groundwater flow model. A conceptual model is a simplified version of the “real world” and lays the foundation for the development of a numerical model. The draft conceptual model report for the minor aquifers located in the Llano Uplift region was released by TWDB for comments in 2014. A numerical model uses information from the conceptual model to approximately reproduce the historic conditions and to predict potential future conditions, such as aquifer response under certain climatic or/and groundwater withdrawal conditions.

The computer code used to implement the numerical model is MODFLOW-USG. The model consists of eight layers corresponding to eight hydrogeologic units in the Llano Uplift region (from top to bottom): 1) the Cretaceous aquifers and younger units, 2) units below the Cretaceous aquifers but above the Marble Falls Aquifer, 3) the Marble Falls Aquifer, 4) units below Marble Falls Aquifer but above the Ellenburger-San Saba Aquifer, 5) the Ellenburger-San Saba Aquifer, 6) units below Ellenburger-San Saba Aquifer but above the Hickory Aquifer, 7) the Hickory Aquifer, and 8) parts of the Precambrian formations.

The numerical model is composed of uniform quarter-mile square grid cells and 31 stress periods. Stress Period 1 (steady state) represents a pseudo steady-state condition by the end of 1980, which provides initial heads for the following transient periods 2 through 31 that represent the time period 1981 through 2010. The numerical model was primarily calibrated to water levels measured in the minor aquifers between 1980 and 2010. The numerical model was also qualitatively compared with historical stream gain/loss data. The calibration results indicated that the numerical model reproduced the regional historical groundwater flow quite well.

For the Marble Falls Aquifer, major inflows were associated with recharge from precipitation entering through the outcrop area and cross-formational flow from younger units in the subcrop area. Most outflow from the aquifer was associated with leakage to reservoirs and streams, groundwater pumping, and cross-formational flow to older units.

Major inflow for the Ellenburger-San Saba Aquifer was associated with recharge from precipitation entering through the outcrop area. Groundwater flowed out of the aquifer mainly by leakage to reservoirs and streams, cross-formational flow to older units, and groundwater pumping.

Groundwater flows into the Hickory Aquifer from cross-formational flow from younger units and recharge due to precipitation entering through the outcrop area. The major outflow components included groundwater pumping, leakage to surface water bodies, and cross formational flow to the Ellenburger-San Saba Aquifer from the underlying Precambrian unit(s).

The amount of groundwater storage of aquifers fluctuated between 1981 and 2010 and, in general, declined slightly over the same time period. Groundwater discharge to surface water also showed a similar declining trend.

Results of sensitivity analysis indicate that the simulated water levels, groundwater leakage to surface water bodies, spring flow, and lateral flow between inside and outside of the modeled area are most sensitive to groundwater recharge due to infiltration of precipitation. Groundwater pumping and surface water also have moderate impacts on the lateral flow along the boundary of the modeled area.

Although this model is well calibrated to the measured water levels and compares well with the results of available stream gain/loss studies, there are always limitations. The main limitations of

this model are associated with the uncertainty related to insufficient data for defining aquifer properties for the minor aquifers, delineating the downdip extent of the aquifers, and the complex heterogeneity associated with these aquifers. The uncertainty associated with the limitations of the model construction and calibration carries over into any predictive model simulations. In addition, each model grid represents an average condition of varied topography, geologic contacts, hydraulic, and hydrogeologic properties across the grid. As a result, modeled heads at valleys tend to be higher than measured heads, while modeled heads at ridges tend to be lower than measured heads. It is therefore recommended that results using this numerical flow model for predictive simulations should be used along with field monitoring and mainly for the evaluation of regional groundwater flow, as opposed to using the model for conducting localized, site-specific evaluations.

1.0 Introduction and Purpose of Model

1.1 Introduction

The Texas Water Development Board (TWDB) has designated nine major and twenty-one minor aquifers in Texas (Figures 1.0.1 and 1.0.2). Major aquifers supply large quantities of water over large areas and minor aquifer supply relatively small quantities of water over large areas or supply large quantities of water over small areas. The characteristics of these aquifers are discussed by George and others (2011).

Senate Bill 2 passed by the Texas Senate in 2001 mandated that the TWDB, in coordination with groundwater conservation districts and regional water planning groups, obtain or develop groundwater availability models for all major and minor aquifers in Texas. As a result, the TWDB has developed or adopted groundwater availability models for all the major aquifers and the majority of the minor aquifers in Texas. These groundwater availability models provide the most effective tools for stakeholders assessing groundwater availability and the effects of water management strategies during different climatic conditions.

Two major aquifers, the Edwards-Trinity (Plateau) and the Trinity, occur in the Llano Uplift region. The Llano Uplift region also has three minor aquifers: Hickory, Ellenburger-San Saba, and Marble Falls (Figure 1.0.3). These minor aquifers occur in nineteen counties: Blanco, Brown, Burnet, Coleman, Concho, Gillespie, Hays, Kendall, Kerr, Kimble, Lampasas, Llano, Mason, McCulloch, Menard, Mills, San Saba, Travis, and Williamson. According to the water use survey conducted by the TWDB in 2013, the major groundwater uses in the Llano Uplift region were for municipal, irrigation, mining, livestock, and manufacturing purposes. The 2012 State Water Plan indicated a total groundwater use of approximately 84,000-acre-feet per year, with approximately 343,000 acre-feet per year available from the three minor aquifers in the Llano Uplift region.

TWDB and its contractors have developed several models that cover the Edwards-Trinity (Plateau) and Trinity aquifers in the study area. The Hill Country portion of the Trinity Aquifer in the Llano Uplift region was included in the groundwater flow models by Mace and others (2000) and Jones and others (2009). The groundwater flow in Trinity Aquifer to the north and east of the Llano Uplift region was simulated in a groundwater availability model by INTERA

and others (2014). The Edwards-Trinity (Plateau) Aquifer was covered in the groundwater flow models by Anaya and Jones (2009) and Hutchison and others (2011).

The development of a groundwater availability model involves two fundamental parts: a conceptual groundwater flow model and a numerical groundwater flow model. A conceptual model is a simplified version of the "real world" and lays the foundation for the development of a numerical model. The draft conceptual model report for the minor aquifers located in the Llano Uplift region was released by TWDB for comments in 2014. Through a computer code, a numerical model uses information from the conceptual model to approximately reproduce the historic conditions and can be used to predict potential future conditions, such as aquifer response under certain climatic or/and groundwater withdrawal conditions. Though the development of a groundwater availability model involves a conceptual model and a numerical model, the groundwater availability model refers to the numerical flow model when discussing its application for groundwater resources management. Thus, "groundwater availability model" and "numerical groundwater flow model" may be used interchangeably throughout this report.

This report documents the construction and calibration of the numerical groundwater flow model for the Hickory, Ellenburger-San Saba, and Marble Falls aquifers in the Llano Uplift region. Table 1.0.1 outlines the stratigraphy and hydrogeologic classification of the geologic units in the study area. The conceptual block diagrams of steady state and transient conditions from the conceptual model is provided as reference (Figure 1.0.4). Unlike the conceptual model report, this numerical model report is targeted primarily to those with experience constructing and/or using groundwater flow models.

1.2 Purpose of the Model

The Texas Water Code mandates that TWDB shall prepare, develop, formulate, and adopt a comprehensive State Water Plan that shall incorporate regional water plans and provides for the development, management, and conservation of water resources in preparation for and in response to drought conditions.

Numerical groundwater flow models help the citizens of Texas to evaluate the groundwater availability in an aquifer to ensure adequacy of supplies, or recognition of inadequacy of supplies, throughout a 50-year planning horizon. As a result, a groundwater availability model

can assist groundwater conservation districts in managing their groundwater resources and can help the regional water planning groups to plan for future water supplies.

Specifically, this numerical groundwater flow model for the minor aquifers in the Llano-Uplift region will help:

- The groundwater conservation districts within a groundwater management area to determine modeled available groundwater based on desired future conditions, as required by House Bill 1763 (79th Texas Legislative Session, 2005). The model may provide insight on how much groundwater is available from each of the minor aquifers under average, wet, or drought climatic conditions, assuming various pumping scenarios.
- A groundwater conservation district to quantify groundwater recharge, natural discharge, lateral flow, and cross-formation flow for each of the minor aquifers in their management plan, as required by Texas State Water Code, Section 36.1071, Subsection (h).
- The groundwater conservation districts within a groundwater management area to evaluate the total estimated recoverable storage for each of the minor aquifers, as required by Texas Water Code, § 36.108 (d).

Figure 1.0.1 Location of major aquifers in Texas (revised from TWDB, 2016a).

Figure 1.0.2 Location of minor aquifers in Texas (revised from TWDB, 2016b).

Figure 1.0.3 Location of minor aquifers in Llano Uplift region (based on TWDB (2016b)).

Table 1.0.1. Stratigraphy and hydrogeologic classification of geologic units in study area.

Geologic Units												Hydrogeologic Units
Era	System	North and East Study Area					South and West Study Area					
		Group	Formation			Member	Formation			Member		
Cenozoic	Quaternary	Loose sediments at river valley bottoms										
Mesozoic	Cretaceous	Washita	Buda, Del Rio									Cretaceous Aquifer
			Georgetown									
							Segovia	Edwards Group				
			Kiamichi									
		Fredericksburg	Edwards				Fort Terrett					
			Comanche Peak									
			Walnut									
		Trinity	Antlers	Paluxy			Paluxy					
				Glen Rose			Glen Rose					
				Travis Peak	Hensell		Travis Peak	Hensell				
					Cow Creek/Hammett			Cow Creek/Hammett				
					Sycamore/Hosston			Sycamore/Hosston				
	Jurassic	Absent										
	Triassic	Absent										
Paleozoic	Permian	Wichita Albany	Undivided				Absent					
		Cisco	Undivided				Absent					
	Pennsylvanian						Undivided					Confining Layer
		Canyon	Undivided				Undivided					
		Strawn	Undivided				Undivided					
		Bend	Smithwick			Undivided	Smithwick			Undivided		
			Marble Falls			Undivided	Marble Falls			Undivided		Marble Falls Aquifer
	Mississippian		Barnett				Barnett					Confining Layer
			Chappel				Chappel					
	Devonian	Exists in collapses only										
	Silurian	Absent										
	Ordovician	Burnam	Exists in collapses only									
		Ellenburger	Honeycut			Undivided	Honeycut			Undivided		Ellenburger-San Saba Aquifer
			Gorman			Undivided	Gorman			Undivided		
			Tanyard			Staendebach	Tanyard			Staendebach		
						Threadgill				Threadgill		
	Cambrian	Moore Hollow	Wilberns			San Saba	Wilberns			San Saba		
						Point Peak				Point Peak		Confining Layer
						Morgan Creek				Morgan Creek		
						Welge				Welge		Welge-Lion Mountain Aquifer
			Riley			Lion Mountain	Riley			Lion Mountain		
						Cap Mountain				Cap Mountain		Confining Layer
						Hickory				Hickory		Hickory Aquifer
Precambrian Formations												Confining/Buffer Layer

A

B

Figure 1.0.4. Block diagram of steady-state (A) and transient conditions (B) from conceptual model report by Shi and others (2014).

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2.0 Model Overview and Packages

The computer code selected for this numerical groundwater model is MODFLOW-USG (Panday and others, 2013), an enhanced version of previous MODFLOW codes, that supports both structured and unstructured grids. When the previous MODFLOW codes simulate an aquifer using a numerical layer, the lateral groundwater flow is expected within the numerical layer even if the aquifer may be totally disconnected, which is common in the Llano Uplift region due to faulting. MODFLOW-USG addresses this issue by connecting different hydrostratigraphic units which are actually in contact using an unstructured grid, so that groundwater flow can be correctly simulated within aquifers and between aquifers and confining units. MODFLOW-USG (Version 1.0) and other MODFLOW codes are available for public use from the U. S. Geological Survey (http://water.usgs.gov/ogw/modflow/).

A development or beta version MODFLOW-USG from the primary author, Dr. Sorab Panday, was used for the groundwater availability model for the minor aquifers in the Llano Uplift region. The beta version MODFLOW-USG executable code and all model input files are available to the public.

To help users view and edit model inputs, all model input packages have been incorporated into the Groundwater Vistas (Version 6.1), a commercial graphic user interface. The graphic user interface can also be used to extract model outputs. Because this numerical model was developed outside of the graphical user interface, TWDB does not guarantee the same results if a model run is performed from the graphic user interface. TWDB will deliver all the MODFLOW-USG input packages in a file that can be opened by the Groundwater Vistas (Version 6.1 or later) program. The input packages for this MODFLOW-USG model include the geometry and properties of the aquifers and confining units. They also contain the boundary conditions that influence the groundwater flow and a numerical solver to solve the flow equation. The input packages and their corresponding filenames are shown in Table 2.0.1. The output files written by MODFLOW-USG contain water budget (CBB), water levels (HDS), drawdown (DDN), and a listing of the characteristics of the run (LIST) (Table 2.0.2). MODFLOW-USG code initiates the model run by calling a name file, llano-uplift.nam, which includes the input packages and output files.

In this report, model grid, cell, and node are used interchangeably and each represents a finite difference volume of the simulated aquifer or confining units.

Table 2.0.1 Summary of model input packages and filenames.

File Type Abbreviation	File Type	Input File Name
BAS6	Basic Package	llano-uplift.bas
DISU	Unstructured Discretization File	llano-uplift.dis
DRN	Drain Package	llano-uplift.drn
GHB	General Head Package	llano-uplift.ghb
LPF	Layer-Property Flow Package	llano-uplift.lpf
OC	Output Control Option	llano-uplift.oc
RCH	Recharge Package	llano-uplift.rch
RIV	River Package	llano-uplift.riv
SMS	Sparse Matrix Solver Package	llano-uplift.sms
WEL	Well Package	llano-uplift.wel

Table 2.0.2 Summary of model output packages and filenames.

File Type	Output File Name
Binary flow file	llano-uplift.cbb
Binary drawdown file	llano-uplift.ddn
Binary head file	llano-uplift.hds
List file	llano-uplift.lst

2.1 Basic Package

The MODFLOW-USG basic package, llano-uplift.bas, specifies 1) which model cells are active or inactive, 2) the starting water levels at active model cells, and 3) a head value assigned to inactive cells.

The groundwater flow model contains eight numerical layers representing different hydrogeologic units ranging from current alluvium deposit to Precambrian rocks (Table 2.1.1). Please note that the aquifer layers (1, 3, 5 and 7) are colored blue in Table 2.1.1., and the aquitard layers are not colored.

In the IBOUND section of the Basic package, inactive model cells are assigned zero and active cells are represented by positive, two-digit integers. The first digit represents the model layer and the second digit represents whether the model cell is an outcrop (i.e., 1) or subcrop (i.e., 2). For example, a cell with an IBOUND value of 51 indicates that the cell is located in the outcrop area of the Ellenburger-San Saba Aquifer (Layer 5), while an integer 72 means that the model cell is in the subcrop area of the Hickory Aquifer (Layer 7). The model cells outside the study area but within the model domain were all designated as inactive. The active and inactive model cells for each model layer are shown in figures 2.1.1 through 2.1.8. To facilitate model convergence, some active model cells located along the edge or in isolated small islands were turned into inactive cells.

Table 2.1.1 Model stratigraphy and layering.

System	Group/Formation/Member	Aquifer/Confining Unit	Model Layer
Quaternary	Unclassified Alluvium	Alluvium Aquifer	1
Cretaceous	Edwards Group	Edwards – Trinity Aquifers	
	Trinity Group		
Permian and Pennsylvanian	Wichita Albany Group	Confining Units	2
	Cisco Group		
	Canyon Group		
	Strawn Group		
	Smithwick Formation		
	Marble Falls Formation	Marble Falls Aquifer	3
Mississippian	Barnett Formation	Confining Units	4
	Chappel Formation		
Ordovician	Ellenburger Group	Ellenburger-San Saba Aquifer	5
Cambrian	San Saba Member		
	Point Peak Member	Confining Units	6
	Morgan Creek Member		
	Welge Member		
	Lion Mountain		
	Cap Mountain		
	Hickory	Hickory Aquifer	7
Precambrian	Unclassified Rocks	Confining Units	8

Figure 2.1.1 Layer 1 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.2 Layer 2 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.3 Layer 3 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.4 Layer 4 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.5 Layer 5 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.6 Layer 6 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.7 Layer 7 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

Figure 2.1.8 Layer 8 active and inactive model cells. Integers in legend are MODFLOW-USG IBOUND values.

2.2 Discretization Package

The MODFLOW-USG discretization package defines the model spatial and temporal resolution. The largest difference between MODFLOW-USG and previous MODFLOW codes lies in the discretization package. Unlike previous MODFLOW codes, MODFLOW-USG is not necessarily bound to the traditional layer concept and model cell coordinate system. In MODFLOW-USG, each model cell is represented by an integer or node number. To accommodate the unstructured grid, the MODFLOW-USG discretization package, llano-uplift.dis, defines model cell dimension and connection such as top elevation, bottom elevation, horizontal area, number of connection to other cells and itself, node number of a cell and node numbers of connected cells, connection direction, connection length, and connection interface.

Though MODFLOW-USG does not need a continuous numerical layer to simulate a discontinuous hydrogeological unit, a continuous layer concept was still used in this numerical model as in the previous MODFLOW codes. Each numerical layer contains 478 rows and 556 columns of uniform 1,320 feet by 1,320 feet cells. However, model cells located in areas where a geologic layer pinches out or is located outside the study area have been turned to inactive and assigned a thickness of zero. A minimum thickness of 50 feet was enforced for active model cells. In addition, model cells which belong to different numerical layers but in actual contact were connected using the unstructured concept in the discretization package.

The model grid was rotated 45 degrees clockwise to make the model columns parallel to the dominant faults oriented northeast to southwest. The model rows are thus parallel to northwest to southeast. Both row and column have a spacing of 1,320 feet. The coordinate of the lower left corner of the grid is at groundwater availability model coordinate system 4,738,600 feet easting and 19,556,600 feet northing. Because of the close spacing, only the grid orientation is presented in Figure 2.2.1. Figures 2.2.2 and 2.2.3 show representative cross sections of the model grid with their locations presented in Figure 2.2.1.

The MODFLOW-USG discretization package uses stress periods to define the temporal resolution at the end of the package. The model includes one steady-state stress period followed by 30 transient annual stress periods. The steady-state stress period represents pseudo steady-state conditions in 1980. The goal of this stress period is to produce a set of initial groundwater levels or hydraulic heads in the model cells that provide the transient simulation with reasonable

starting conditions. Each transient stress period was 365 days long representing calendar years 1981 through 2010. Each stress period consists a single time step.

Figure 2.2.1 Orientation of model grid and locations of cross sections. Model rows are parallel to cross section A-A'. Model columns are parallel to cross section B-B'.

Figure 2.2.2 Northwest-southeast cross section A-A' along model row 239 (50x vertical exaggeration). Location of cross section is shown in Figure 2.2.1.

Figure 2.2.3 Southwest-northeast cross section B-B' along model column 278 (50x vertical exaggeration). Location of cross section is shown in Figure 2.2.1.

2.3 Layer-Property Flow Package

The Layer-Property Flow package, llano-uplift.lpf, defines the hydraulic properties of the model cells and how certain parameters are defined and simulated. In this package, all cell property values were assigned on a cell-by-cell basis. In addition, the storage coefficient (also known as storativity) instead of specific storage was used to define the storage properties of the model cells. To minimize numerical instability, the vertical conductance was calculated using cell thickness and the vertical flow correction under dewatered conditions was turned off.

Model layers 1 and 2 were simulated as convertible (Type 4) with transmissivity calculated using upstream water table depth to help model convergence. The rest of the model layers were treated as confined to improve numerical stability. In this numerical model, horizontal hydraulic conductivity values were assumed isotropic. However, the vertical hydraulic conductivity may be different from the horizontal conductivity and was calculated using vertical anisotropy which was also defined in the package.

During the model calibration, pilot points were used to adjust the hydraulic conductivity and storativity of the aquifers. The pilot points were placed at locations where estimated hydraulic conductivity values were available from hydraulic testing in the field as well as other key locations. Initially, the hydraulic conductivity values at these pilot point locations were constrained to vary within a factor of two from the tested values. The hydraulic conductivity values at pilot points in other key locations were constrained within the minimum and maximum of the tested values for that aquifer. However, during the calibration, it was found out that the interpolated hydraulic conductivity fields from the pilot points showed strong irregularity most likely due to the uneven distribution of the pilot points with tested hydraulic conductivity values and the dramatic change in these values. As a result, a Gaussian filter was used to smooth the values.

After several calibration trials, it was discovered that the use of pilot points did not significantly improve the model calibration. As a result, a traditional trial-and-error approach was applied to adjust the hydraulic property values (hydraulic conductivity, vertical anisotropy, storativity, and specific yield) of the aquifers and confining layers.

Figure 2.3.1 shows the horizontal hydraulic conductivity values for layer 1 ranging from 0.02 to 902 feet per day with a geometric mean of 1.03 feet per day. These values are consistent with the

values presented in the conceptual model ranging from 0.02 to 885 feet per day with a geometric mean of 1.7 feet per day. The distribution of the vertical anisotropy (the ratio of horizontal to vertical hydraulic conductivity values) for layer 1 is presented in Figure 2.3.2. The range of the vertical anisotropy values range from approximately 10 to 100. These values reflect the presence of the shaly Glen Rose Formation which impedes vertical flow that often results in groundwater seepage along the top of the shale. The storativity and specific yield (required for a convertible layer) were assigned uniform values of 0.00002 and 0.02, respectively, for model layer 1. These values are also consistent with this type of limestone/shale depositional environment.

Figure 2.3.3 shows the horizontal hydraulic conductivity values for layer 2— ranging from 0.01 to 0.3 feet per day with a geometric mean of 0.08 feet per day. The distribution of vertical anisotropy for layer 2 is presented in Figure 2.3.4. The vertical anisotropy values range from approximately 19 to 1,000. These hydraulic conductivity and vertical anisotropy values are consistent with the abundance of shale and marl in the Permian rocks. The storativity and specific yield (required for a convertible layer) were assigned uniform values of 0.000002 and 0.002, respectively, for model layer 2. These values are also consistent with relatively low permeability rocks.

Figure 2.3.5 shows the horizontal hydraulic conductivity values for layer 3 ranging from 4.3 to 26.3 feet per day with a geometric mean of 6.2 feet per day. There are only two hydraulic conductivity values available from field test data, 6.29 and 197.2 feet per day, both from Burnet County. As discussed in the conceptual model report, the geometric mean of 35.2 feet per day based on these two values was likely overestimated. Thus, the geometric mean from the calibrated model appears more reasonable. The vertical anisotropy for layer 3 was assigned a uniform value of 12.9. The storativity of model layer 3 was assigned 0.03 at the outcrop area and 0.00002 at the subcrop area (Figure 2.3.6).

The model layer 4 was assigned a horizontal hydraulic conductivity of 0.25 feet per day and vertical anisotropy of 8.3. Figure 2.3.7 shows the storativity of model layer 4: 0.003 at the outcrop and 0.000002 at the subcrop.

Figure 2.3.8 shows the horizontal hydraulic conductivity values for layer 5 ranging from 0.3 to 132.6 feet per day with a geometric mean of 4.9 feet per day, which is higher than the geometric mean of 2.8 feet per day presented in the conceptual model report. The vertical anisotropy for

model layer 5 was assigned a uniform value of 7.6. Figure 2.3.9 shows the storativity of model layer 4 with 0.03 at the outcrop and 0.00002 at the subcrop.

Uniform values of 0.3 feet per day and 10.3 were used to represent the horizontal hydraulic conductivity and vertical anisotropy of model layer 6, respectively. Figure 2.3.10 shows the storativity for the same layer with 0.005 at the outcrop and 0.000004 at the subcrop.

Figure 2.3.11 shows the horizontal hydraulic conductivity values for layer 7 ranging from 1.7 to 192.0 feet per day with a geometric mean of 5.6 feet per day. These values are higher than the values presented in the conceptual model, which ranged from 0.03 to 155.5 feet per day with a geometric mean of 3.1 feet per day. The vertical anisotropy for layer 7 was 10.4 except in a small outcrop area in Llano County where the anisotropy was assigned a value of 1.0 (Figure 2.3.12). This small area is coincident with densely distributed faults. The storativity for model layer 7 is shown in Figure 2.3.13 with lower values at subcrop area (0.00006 and 0.00012) and higher values at outcrop area (0.09 to 0.3).

The model layer 8 was assigned a uniform horizontal hydraulic conductivity of 0.1 feet per day. Due to the lack of layering, the Precambrian igneous and metamorphic rocks (model layer 8) were assigned a vertical anisotropy value of one. Figure 2.3.14 shows the storativity of the model layer with 0.001 at the outcrop and 0.000001 at the subcrop.

Figure 2.3.1 Horizontal hydraulic conductivity of model layer 1 (active cells only).

Figure 2.3.2 Vertical anisotropy of model layer 1 (active cells only).

Figure 2.3.3 Horizontal hydraulic conductivity of model layer 2 (active cells only).

Figure 2.3.4 Vertical anisotropy of model layer 2 (active cells only).

Figure 2.3.5 Horizontal hydraulic conductivity of model layer 3 (active cells only).

Figure 2.3.6 Storativity of model layer 3 (active cells only).

Figure 2.3.7 Storativity of model layer 4 (active cells only).

Figure 2.3.8 Horizontal hydraulic conductivity of model layer 5 (active cells only).

Figure 2.3.9 Storativity of model layer 5 (active cells only).

Figure 2.3.10 Storativity of model layer 6 (active cells only).

Figure 2.3.11 Horizontal hydraulic conductivity of model layer 7 (active cells only).

Figure 2.3.12 Vertical anisotropy of model layer 7 (active cells only).

Figure 2.3.13 Storativity of model layer 7 (active cells only).

Figure 2.3.14 Storativity of model layer 8 (active cells only).

2.4 Well Package

The MODFLOW-USG well package, llano-uplift.wel, defines the groundwater withdrawal from model cells during the calibration period. The groundwater withdrawal information was mainly based on the annual historical water use survey by TWDB which includes six categories: municipal, manufacturing, steam-electric generation, irrigation, mining, and livestock.

Pumping locations and aquifer associations for the municipal and manufacturing groundwater uses were determined using the TWDB groundwater database and specific well locations. Distribution of mining and livestock pumping was based on land cover data from the National Land Cover Dataset (Fry and others, 2011). Distribution of irrigation pumping was based on the irrigation farmland distribution (U.S. Department of Agriculture, 2014) and the locations of specific irrigation wells. The distribution of mining, livestock, and irrigation to aquifers was based on well information from the TWDB groundwater database. We assumed the same ratio of well completion per aquifer per use category from the database. In addition, the irrigation pumping was only applied to areas more than 0.5 miles away from a river.

Domestic groundwater use is not included in the TWDB water use survey. The domestic groundwater use was estimated solely based on population in the rural areas where a public water system is not available. The census data were from four years: 1980, 1990, 2000, and 2010. Linear interpolation was used for years without census data. The groundwater consumption per person was assumed at around 100 gallons per day. The distribution of domestic use was based on assumed screen length of domestic wells (from 50 to 300 feet below ground surface). The pumping rate for each intercepted aquifer was linearly proportional to the screened aquifer thickness.

During model calibration, groundwater pumping was adjusted. The average pumping rates (1981 through 2010) for the Cretaceous (layer 1), Permian (layer 2), Marble Falls (layer 3), Ellenburger-San Saba (layer 5), Point Peak/Morgan Creek/Welge/Lion Mountain/Cap Mountain (layer 6), and Hickory units are shown in Figures 2.4.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5, and 2.4.6, respectively. The pumping from model layer 1 was expected to be mainly from the Trinity and Edwards aquifers. Because the whole model layer 1 was an outcrop, the pumping was more evenly distributed (Figure 2.4.1). Note that only one pumping location existed in Concho County for the Permian unit (Figure 2.4.2). The pumping for model layer 6 was expected to be mainly

from the Lion Mountain and Welge sandstones, but pumping wells were sparse and, generally, pumping rates were low (Figure 2.4.5). For the Marble Falls Aquifer (Figure 2.4.3), Ellenburger-San Saba Aquifer (Figure 2.4.4), and Hickory Aquifer (Figure 2.4.6), pumping occurred mainly in the outcrop area, but relatively high pumping was found in subcrop where public well fields or irrigation wells were located. The total simulated annual pumping (1980 through 2010) in the study area ranges from approximately 60,000 to 180,000 acre-feet per year (Figure 2.4.7).

Figure 2.4.1 Simulated average pumping (1981 through 2010) for Cretaceous aquifers (layer 1).

Figure 2.4.2 Simulated average pumping (1981 through 2010) for Permian unit (layer 2).

Figure 2.4.3 Simulated average pumping (1981 through 2010) for Marble Falls Aquifer (layer 3).

Figure 2.4.4 Simulated average pumping (1981 through 2010) for Ellenburger-San Saba Aquifer (layer 5).

Figure 2.4.5 Simulated average pumping (1981 through 2010) for Point Peak/Morgan Creek/Welge/Lion Mountain/Cap Mountain units (layer 6).

Figure 2.4.6 Simulated average pumping (1981 through 2010) for Hickory Aquifer (layer 7).

Figure 2.4.7 Simulated total pumping in study area between 1980 and 2010.

2.5 Drain Package

The MODFLOW-USG drain package, llano-uplift.drn, was used to simulate groundwater discharge to springs. A total of 287 springs were simulated in the model: 126 in model layer 1, 39 in model layer 3, 89 in model layer 5, and 33 in model layer 7. The spring location and aquifer association was taken from the TWDB groundwater database (TWDB, 2014a). The drain level at each spring was estimated from the U. S. Geological Survey's Digital Elevation Model. The drain conductance was initially estimated based on the horizontal hydraulic conductivity of the model cell where the drain was located. During the model calibration, the drain conductance was slightly adjusted because it did not impact the simulated water levels. The drain level and conductance for each spring were assumed to remain the same during the transient simulation period (1980 through 2010). In addition, because spring flux measurements were sparse and remained largely uncertain, using springs for calibration targets was not explored. The simulated spring locations are shown in Figures 2.5.1, 2.5.2, 2.5.3, and 2.5.4, respectively, for model layers 1, 3, 5, and 7.

Figure 2.5.1 Location of simulated springs in model layer 1.

Figure 2.5.2 Location of simulated springs in model layer 3.

Figure 2.5.3 Location of simulated springs in model layer 5.

Figure 2.5.4 Location of simulated springs in model layer 7.

2.6 Recharge Package

The MODFLOW-USG recharge package, llano-uplift.rch, was used to simulate the effective groundwater recharge due to infiltration of precipitation in the whole study area. The initial recharge rates were estimated from the Parameter-elevation Regressions on Independent Slopes Model (PRISM) precipitation raster data.

During the model calibration, the recharge rates were adjusted accordingly based on surficial geology. Table 2.6.1 shows the average calibrated recharge rates at outcrops for different years within the study area. Higher rates were used at the outcrop areas of aquifers (layers 1, 3, 5, and 7) and lower rates were assigned to the outcrop areas of confining units and the Precambrian rocks (layers 2, 4, 6, and 8). The average recharge rate for the entire study area was about 0.79 inches per year. Details of spatial variation of the calibrated groundwater recharge are also presented in Figures 2.6.1 and 2.6.2, respectively, for 1991and 2006. Though the minimum and maximum calibrated recharge rates were about the same between the two selected years, the average from 1991 (0.86 inches per year) was about 16 percent higher than 2006 (0.74 inches per year).

The total simulated recharge per year within the study area was approximately 2 to 5 percent of the total precipitation (Table 2.6.2), which is consistent with the conceptual model. The calibrated groundwater recharge was also positively related to the precipitation with a correlation coefficient of 0.74 (Figure 2.6.3).

Table 2.6.1 Simulated effective groundwater recharge rates at outcrop areas (inch per year).

Year	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7	Layer 8	Entire Study Area
1980	0.71	0.35	2.63	0.13	2.33	1.59	1.29	0.17	0.84
1981	0.61	0.21	2.13	0.25	3.18	0.89	1.00	0.20	0.80
1982	0.64	0.21	2.33	0.19	2.90	0.96	1.02	0.20	0.80
1983	0.67	0.21	2.34	0.19	2.59	0.71	2.01	0.20	0.80
1984	0.54	0.15	1.32	0.14	3.30	0.88	0.80	0.52	0.77
1985	0.60	0.15	0.94	0.13	3.30	0.45	0.69	0.53	0.78
1986	0.72	0.32	2.32	0.17	2.75	0.49	1.86	0.19	0.85
1987	0.76	0.23	0.93	0.19	3.01	0.44	0.90	0.13	0.81
1988	0.70	0.30	1.15	0.34	2.45	1.11	1.67	0.14	0.79
1989	0.53	0.24	0.94	0.13	3.47	0.87	1.26	0.13	0.76
1990	0.81	0.26	1.82	0.34	2.26	0.96	1.06	0.23	0.83
1991	0.90	0.29	1.28	0.14	2.37	0.46	1.30	0.15	0.86
1992	0.61	0.26	1.24	0.14	3.57	0.46	0.77	0.24	0.81
1993	0.54	0.29	0.25	0.07	3.35	0.07	1.27	0.21	0.73
1994	0.70	0.36	2.00	0.11	3.08	0.13	1.58	0.14	0.84
1995	0.53	0.27	1.48	0.45	3.26	1.04	0.69	0.12	0.75
1996	0.56	0.31	0.99	0.48	3.11	1.17	1.00	0.11	0.76
1997	0.76	0.40	1.44	0.32	2.95	1.32	1.04	0.14	0.89
1998	0.65	0.26	1.80	0.10	2.83	1.13	0.89	0.13	0.79
1999	0.36	0.24	2.50	0.11	3.42	0.65	0.73	0.13	0.68
2000	0.60	0.26	2.63	0.12	3.17	1.11	0.96	0.16	0.82
2001	0.64	0.28	1.60	0.10	2.84	1.16	1.05	0.12	0.78
2002	0.64	0.32	1.72	0.10	3.21	1.27	1.30	0.13	0.84
2003	0.44	0.24	1.32	0.09	3.56	0.81	0.74	0.11	0.71
2004	0.67	0.43	1.91	0.11	3.29	1.52	0.87	0.14	0.89
2005	0.41	0.24	1.04	0.35	3.60	0.66	0.63	0.10	0.68
2006	0.50	0.24	2.09	0.16	3.35	0.48	0.70	0.17	0.74
2007	0.59	0.29	2.55	0.38	3.56	0.50	0.74	0.20	0.83
2008	0.53	0.32	1.06	0.14	3.35	1.17	1.30	0.14	0.78
2009	0.70	0.30	0.99	0.14	2.91	1.12	1.18	0.14	0.82
2010	0.71	0.21	1.42	0.17	2.59	1.04	1.53	0.18	0.80
Minimum	0.36	0.15	0.25	0.07	2.26	0.07	0.63	0.10	0.68
Maximum	0.90	0.43	2.63	0.48	3.60	1.59	2.01	0.53	0.89
Average	0.62	0.27	1.62	0.19	3.06	0.86	1.09	0.18	0.79

Figure 2.6.1 Calibrated groundwater recharge for 1991.

Figure 2.6.2 Calibrated groundwater recharge for 2006.

Table 2.6.2 Comparison between simulated groundwater recharge and precipitation from Parameter-elevation Regressions on Independent Slopes Model (PRISM).

Year	Precipitation (acre-feet per year)	Simulated Recharge (acre-feet per year)	Simulated Recharge/Precipitation
1980	16,405,510	509,286	3.10%
1981	20,089,799	485,899	2.42%
1982	14,924,638	485,382	3.25%
1983	14,744,818	486,999	3.30%
1984	15,319,961	470,286	3.07%
1985	17,059,871	474,678	2.78%
1986	22,001,038	515,473	2.34%
1987	19,372,919	493,455	2.55%
1988	12,135,603	480,758	3.96%
1989	14,339,071	460,942	3.21%
1990	19,537,220	504,792	2.58%
1991	23,797,579	521,994	2.19%
1992	22,455,263	489,595	2.18%
1993	15,135,064	441,900	2.92%
1994	18,975,801	510,644	2.69%
1995	16,931,936	456,432	2.70%
1996	16,347,538	461,297	2.82%
1997	22,761,041	538,351	2.37%
1998	19,576,095	479,286	2.45%
1999	11,565,835	411,552	3.56%
2000	18,940,906	497,886	2.63%
2001	18,295,443	476,609	2.61%
2002	20,572,832	512,355	2.49%
2003	14,749,432	431,453	2.93%
2004	23,818,098	540,361	2.27%
2005	13,113,603	415,723	3.17%
2006	12,932,961	446,881	3.46%
2007	25,702,359	503,528	1.96%
2008	9,578,060	472,730	4.94%
2009	18,827,923	497,793	2.64%
2010	16,522,835	486,727	2.95%
Minimum	9,578,060	411,552	1.96%
Maximum	25,702,359	540,361	4.94%
Average	17,670,851	482,614	2.85%

Figure 2.6.3 Correlation between simulated groundwater recharge and precipitation.

2.7 River Package

The MODFLOW-USG river package, llano-uplift.riv, was used to simulate the interaction of the aquifers with perennial streams and reservoirs in the study area.

All rivers were assumed under steady state with a width of 50 feet and water depth of three feet. The riverbed elevation was assigned the minimum digital elevation model value. The lake and reservoir levels were from field measurements or estimated from the U. S. Geological Survey's topographic map. Thus, the lakes and reservoirs with field measurements were under transient state. This transient state included variation of lake and reservoir levels and coverage. As a result, a lake/reservoir cell in the river package may not exist in certain stress periods. The lake bottom was estimated from lake levels and rating curves. If no rating curve was available, then the lake depth was calculated using conservation area, capacity, and pool elevation which were downloaded from https://www.tshaonline.org/handbook/online/articles/roogh. During the calculation a minimum lake depth of one foot was enforced.

The conductance of the river, lake, and reservoir cells were estimated from the assumed river width, lake coverage, and initial hydraulic conductivity value at the model cell. During the model calibration, the conductance was slightly adjusted since the model was not very sensitive to the change of conductance. Figure 2.7.1 shows the location of the simulated rivers and lakes and reservoirs with their respective layers colored.

Figure 2.7.1 Location of simulated rivers, lakes, and reservoirs.

2.8 General Head Package

The MODFLOW-USG general head package, llano-uplift.ghb, was used to simulate groundwater flow in the Cretaceous or younger units (layer 1) across the study area boundary. The head value at each general head boundary cell was estimated from the average historical measured water levels. The initial conductance of the boundary was calculated from the initial horizontal hydraulic conductivity, saturated thickness, and a buffer distance of two miles. During the model calibration, conductance values were adjusted. The location of the general head boundary is shown in Figure 2.8.1.

Figure 2.8.1 Location of general head boundary in model layer 1 (active cells only).

2.9 Sparse Matrix Solver Package

The MODFLOW-USG sparse matrix solver package, llano-uplift.sms, was used to solve the flow equation. This solver differs from previous MODFLOW solvers in that the new solver is able to solve an unsymmetrical matrix. To help model convergence, the χMD solver (Ibaraki, 2005) with the Newton-Raphson iteration and backtracking was chosen to solve the matrix. The maximum head convergence criteria of outer and inner iterations were set at one foot and 0.0001 feet, respectively. The errors for the volumetric flow balance for each stress period and accumulative volumetric flow balance were all far less than one percent.

2.10 Output Control File

The MODFLOW Output Control file specifies when, during the simulation, water level, drawdown, and water budget information are saved. The Output Control file was set up to save these results at the end of each stress period.

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3.0 Model Calibration and Results

Calibration of a groundwater flow model involves adjusting model input parameters, within a reasonable range, to match simulated values to measured or target values.

The primary targets for the calibration were water levels measured at wells (i.e. head targets). The calibration involved 2,250 head targets from 600 wells screened in the Marble Falls, Ellenburger-San Saba, and Hickory aquifers (Figure 3.0.1). The model was also qualitatively evaluated against a calculated river gain/loss value from Slade and others (2002). Since the original river gain/loss study by Slade and others (2002) was conducted on different sections of stream channels, the values were normalized by dividing the stream segment lengths. An average of the normalized values was used to calculate the total river gain/loss by multiplying the total stream length. Streams within the Colorado and Guadalupe river basins were included in the river gain/loss comparison (Figure 3.0.2). Due to higher uncertainty associated with low flow rates, the streams of the Brazos River basin in the study area were not selected.

Figure 3.0.1 Location of hydraulic head targets in Marble Falls, Ellenburger-San Saba, and Hickory aquifers.

Figure 3.0.2 **Normalized stream gain (+) or loss (-) of Colorado and Guadalupe river basins in study area (calculated from Slade and others (2002)).**

3.1 Calibration Procedure

During the model calibration, the following parameters were adjusted: hydraulic properties (horizontal hydraulic conductivity, vertical anisotropy, specific yield, and storativity), drain conductance, conductance of river, lake, and reservoir, conductance of general head boundary, recharge, and pumping. The model was calibrated using a combination of parameter estimation program PEST (Watermark Numerical Computing, 2004) and trial-and-error.

To avoid non-uniqueness, a step-by-step approach was applied to ensure that the number of adjusted parameters were less than the number of targets. In addition, each parameter was adjusted within its reasonable range (based on available data and professional judgement). Details of the input parameters for the calibrated model can be found in the sections of layer-property flow package (hydraulic properties), drain package, river package, general head package, recharge package, and well package.

3.2 Model Simulated Versus Measured Heads

The overall head calibration for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers is shown in Figure 3.2.1. Figures 3.2.2, 3.2.3, and 3.2.4 show the head calibration for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers, respectively. The head residual (simulated head minus measured head) statistic summary indicates that the model is well calibrated to the measured head with head residual standard deviations over ranges of measured heads being less than 10 percent which is the TWDB groundwater flow model criterion. Details of measured and simulated heads are included in Table A1 of Appendix A.

Distribution of average head residuals (1980 through 2010) for each minor aquifer is presented in Figures 3.2.5 (Marble Falls), 3.2.6 (Ellenburger-San Saba), and 3.2.7 (Hickory), respectively. In general, positive and negative residuals for all three aquifers are evenly distributed across the study area except Burnet County where the simulated heads were lower than the measured heads in the subcrop area.

Simulated water levels for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers by the end of 2010 are presented in Figures 3.2.8, 3.2.9, and 3.2.10, respectively. As shown in the figures, the highest simulated water levels were from north-central Gillespie County southwest to Kerr County. This high water level area coincides with the Llano Arch (see Figure 2.2.3 in conceptual report). From there, the groundwater flows around the Llano Uplift and converges toward the Colorado River. The lowest simulated water levels were along the Colorado River in southern Burnet County. Locally, rivers influence the groundwater flow in or close to the outcrop area where the river channels cut into the formations, such as western Mason County, to form local head depressions or discharge points (Figures 3.2.9 and 3.2.10).

Comparison of the groundwater flow pattern in model layer 1 (predominantly Cretaceous aquifers) indicates that this numerical model produced similar flow patterns to previous models (Mace and others, 2000; Jones and others, 2009; Anaya and Jones, 2009; Hutchison and others, 2011; INTERA and others, 2014).

To show temporal calibration, hydrographs were produced at wells with more than 10 water level measurements for more than a 10-year span. Some counties have no wells that meet this criterion, while others may have multiple wells from the same aquifer. Some of the hydrographs

are presented in this section with the well locations shown in Figure 3.2.11. The rest of the hydrographs are presented in Appendix B.

Figures 3.2.12 through 3.2.14 show the hydrographs at the selected wells in the Marble Falls Aquifer. The hydrographs at the selected wells in the Ellenburger-San Saba Aquifer are shown in Figures 3.2.15 through 3.2.21. The hydrographs at the selected wells in the Hickory Aquifer are shown in Figures 3.2.22 through 3.2.28. In general, the simulated water levels followed the measured values. Similar trends can also be observed in the hydrographs presented in Appendix B. Since each model grid represents an average condition of varied topography, geologic contacts, and hydrogeologic properties across the grid, the model heads tend to be higher than the measured heads in valleys and lower than measured values in ridges. As a result, the model may not accurately reproduce local sharp water level variations along valleys and ridges.

Figure 3.2.1 Simulated versus observed hydraulic head and statistic summary in Marble Falls (layer 3), Ellenburger-San Saba (layer 5), and Hickory (layer 7) aquifers.

Figure 3.2.2 Simulated versus observed hydraulic head and statistic summary in Marble Falls Aquifer.

Figure 3.2.3 Simulated versus observed hydraulic head and statistic summary in Ellenburger-San Saba Aquifer.

Figure 3.2.4 Simulated versus observed hydraulic head and statistic summary in Hickory Aquifer.

Figure 3.2.5 Distribution of average head residuals (simulated minus measured) in Marble Falls Aquifer.

Figure 3.2.6 Distribution of average head residuals (simulated minus measured) in Ellenburger-San Saba Aquifer.

Figure 3.2.7 Distribution of average head residuals (simulated minus measured) in Hickory Aquifer.

Figure 3.2.8 Simulated water-level elevations (hydraulic heads) in feet above mean sea level by end of 2010 in Marble Falls Aquifer. Contour interval is 50 feet.

Figure 3.2.9 Simulated water-level elevations (hydraulic heads) in feet above mean sea level by end of 2010 in Ellenburger-San Saba Aquifer. Contour interval is 50 feet.

Figure 3.2.10 Simulated water-level elevations (hydraulic heads) in feet above mean sea level by end of 2010 in Hickory Aquifer. Contour interval is 50 feet.

Figure 3.2.11 Wells selected with hydrograph in study area.

Figure 3.2.12 Hydrograph of water level at well 5731402 in Marble Falls Aquifer (Burnet County).

Figure 3.2.13 Hydrograph of water level at well 4163401 in Marble Falls Aquifer (Lampasas County).

Figure 3.2.14 Hydrograph of water level at well 4151404 in Marble Falls Aquifer (San Saba County).

Figure 3.2.15 Hydrograph of water level at well 5753302 in Ellenburger-San Saba Aquifer (Blanco County).

Figure 3.2.16 Hydrograph of water level at well 5715704 in Ellenburger-San Saba Aquifer (Burnet County).

Figure 3.2.17 Hydrograph of water level at well 5750515 in Ellenburger-San Saba Aquifer (Gillespie County).

Figure 3.2.18 Hydrograph of water level at well 4161303 in Ellenburger-San Saba Aquifer (Lampasas County).

Figure 3.2.19 Hydrograph of water level at well 4255801 in Ellenburger-San Saba Aquifer (McCulloch County).

Figure 3.2.20 Hydrograph of water level at well 5612304 in Ellenburger-San Saba Aquifer (Menard County).

Figure 3.2.21 Hydrograph of water level at well 4141805 in Ellenburger-San Saba Aquifer (San Saba County).

Figure 3.2.22 Hydrograph of water level at well 5745101 in Hickory Aquifer (Blanco County).

Figure 3.2.23 Hydrograph of water level at well 5648602 in Hickory Aquifer (Gillespie County).

Figure 3.2.24 Hydrograph of water level at well 5705702 in Hickory Aquifer (Llano County).

Figure 3.2.25 Hydrograph of water level at well 5606910 in Hickory Aquifer (Mason County).

Figure 3.2.26 Hydrograph of water level at well 4260503 in Hickory Aquifer (McCulloch County).

Figure 3.2.27 Hydrograph of water level at well 4260401 in Hickory Aquifer (Menard County).

Figure 3.2.28 Hydrograph of water level at well 5702301 in Hickory Aquifer (San Saba County).

3.3 Model Simulated River Gain/Loss

Based on the stream gain/loss study by Slade and others (2002), the normalized gain/loss was calculated (Figure 3.0.2). Considering the total stream length in the Colorado and Guadalupe river basins (1187.5 miles) and the average normalized stream gain (0.52 cubic feet per second per mile), the total amount of water gained by streams from groundwater discharge was calculated as 5.4×10^7 cubic feet per day or 450,000 acre-feet per year. In comparison, the groundwater flow model simulated an average gain of 280,000 acre-feet per year for the same stream segments in the Colorado and Guadalupe river basins over the period 1981 – 2010. In general, the model also indicated a declining river gain from 1981 to 2010 (Figure 3.3.1). As discussed in the conceptual model report, the gain/loss data from Slade and others (2002) were collected prior to the construction of the reservoirs/lakes in the study area. In addition, groundwater withdrawal has significantly increased since the data were collected. Thus, the stream gain was expected to be lower for the simulation period (1981 through 2010) compared to the study period. The flow model results appear to reflect the change of the groundwater-surface water flow conditions.

Figure 3.3.1 Modeled groundwater discharge to rivers, reservoirs, and lakes within Colorado and Guadalupe river basins.

3.4 Model Simulated Water Budgets

Evaluation of the simulated water budget further helps to verify if the model reproduces the regional groundwater flows consistent with the conceptual understanding of the regional geology, hydrogeology, surface water hydrology, and regional climate.

The overall water budget for this groundwater flow model includes the following components: rivers, lakes, reservoirs, general head, recharge, springs, pumpage, and storage change. Inflow and outflow components represent those contributing to the groundwater system or taking groundwater away from the system. As shown in Figure 3.4.1, the main influx to the groundwater system is recharge due to infiltration of precipitation. The outflow components are comprised of (in descending order of magnitude): leakage to rivers, lakes, and reservoirs, lateral flow through the Cretaceous and younger units to the surrounding (outside of model) area, groundwater withdrawal at wells, and discharge via springs. Over the simulation period, the flow model indicates declining groundwater recharge, leakage to rivers, lakes, and reservoirs, lateral flow to the surrounding area, and spring flow. Aquifers experience more storage loss (positive values) than gain (negative values) over the same period.

For the Marble Falls Aquifer, the main inflows are cross-formational flow from layer 1 (Cretaceous and younger units) and recharge (Figure 3.4.2). The main outflows are leakage to rivers, lakes, and reservoirs, pumping, and, to a lesser degree, cross-formational flow to layers 4 (confining unit between Marble Falls and Ellenburger-San Saba aquifers) and 5 (Ellenburger-San Saba Aquifer). Between 1981 and 2010, the storage loss for the Marble Falls Aquifer in the study area is estimated around 56,400 acre-feet.

For the Ellenburger-San Saba Aquifer, the main inflow is due to recharge from precipitation (Figure 3.4.3). Cross-formational flow from layers 7 (Hickory) and 1 (Cretaceous and younger units) contributes insignificant amounts of inflow. The main outflows are leakage to rivers, lakes, and reservoirs, cross-formational flow to layer 6 (units between Ellenburger-San Saba and Hickory aquifers), and pumping. Between 1981 and 2010, the storage loss for the Ellenburger-San Saba Aquifer in the study area is estimated around 22,700 acre-feet.

For the Hickory Aquifer, the main inflow component is cross-formational flow from layer 6 (units between Ellenburger-San Saba and Hickory aquifers) and recharge (Figure 3.4.4). The main outflows are pumping, and cross-formational flow to layers 5 (Ellenburger-San Saba

Aquifer) and 8 (Precambrian units). Between 1981 and 2010, the storage loss for the Hickory Aquifer in the study area is estimated around 35,700 acre-feet.

Figure 3.4.1 Overall modeled water budget in study area.

Figure 3.4.2 Modeled water budget for Marble Falls Aquifer in study area.

Figure 3.4.3 Modeled water budget for Ellenburger-San Saba Aquifer in study area.

Figure 3.4.4 Modeled water budget for Hickory Aquifer in study area.

3.5 Correlation between Pumpage and Recharge

In general, pumpage is negatively correlated to precipitation, i.e. groundwater withdrawal at wells is usually higher in dry years than in wet years. Since groundwater recharge is positively related to precipitation, pumpage may then be negatively correlated to the groundwater recharge. To evaluate this, the simulated total pumping rates versus total groundwater recharge rates in the study area are plotted on Figure 3.5.1, which shows a weak negative correlation (-0.25).

Figure 3.5.1 Correlation between groundwater withdrawal at wells and recharge from precipitation.

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4.0 Sensitivity Analysis

A sensitivity analysis is performed to analyze how sensitive the groundwater flow model is to certain input parameters. The most sensitive parameters are usually the targets of further refinement or investigation. In addition, special attention should be paid to the most sensitive parameters when a calibrated model is used for predictive simulations.

The following model input parameters were investigated for their sensitivity: drain conductance, general head conductance, conductance of river, lake, and reservoir, recharge, pumping, and hydraulic properties (horizontal hydraulic conductivity, vertical anisotropy, and storativity) of the Marble Falls, Ellenburger-San Saba, and Hickory aquifers. The sensitivity analysis involves independently decreasing and increasing these parameters by a factor of 0.5 and 1.5, respectively. After each model run, the simulated mean head residual based on head targets and flux for river leakage, spring flow, and general head were compared with the calibrated model using the following equations:

1) Head:

$$MHRD = MR_{sen} - MR_{cal} \tag{4.0.1}$$

where

MHRD = mean head residual difference

MR_{sen} = simulated mean head residual from sensitivity analysis

MR_{cal} = simulated mean head residual from calibrated model

2) Flux:

$$RMFC = MF_{sen}/MF_{cal} \tag{4.0.2}$$

where

RMFC = relative mean flux change for a flow component

MF_{sen} = mean flux (1981 to 2010) of a flow component from sensitivity analysis

MF_{cal} = mean flux (1981 to 2010) of a flow component from calibrated model

The relative mean flux change is used for the flux sensitivity analysis because of high flux values from the calibrated model.

4.1 Sensitivity Analysis Results

Figure 4.1.1 shows the sensitivity in hydraulic heads to changes of the input parameters described in Section 4.0. The simulated head is most sensitive to groundwater recharge and pumping. Increasing recharge or decreasing pumping results in higher simulated head. A moderate negative correlation can also be seen between the simulated groundwater level and the horizontal hydraulic conductivity of the Ellenburger-San Saba Aquifer or Hickory Aquifer. The model is not very sensitive to other parameters.

Groundwater leakage to river, lake, and reservoir is most sensitive and positively correlated to groundwater recharge (Figure 4.1.2). Variations of pumping or conductance of river, lake, and reservoir conductance may have some negative impacts on the groundwater leakage to the surface water bodies, but the impacts are expected to be insignificant. The negative impacts of the conductance of river, lake, and reservoir on the groundwater discharge to surface water are likely caused by the losing stream segments being more sensitive than gaining stream segments to the change of conductance. The groundwater leakage to surface water bodies is not sensitive to other model parameters.

Spring flow is highly correlated to recharge (Figure 4.1.3). Specifically, increasing recharge is expected to significantly increase spring flow. The horizontal hydraulic conductivity of the minor aquifers and pumping also have some impacts on the spring flow, but the negative correlation is not strong.

The general head boundary in the model simulated the lateral groundwater flow between inside and outside of the study area within the Cretaceous and younger units (layer 1). The sensitivity analysis indicates that the general head flux is sensitive to the conductance of river, lake, and reservoir and recharge (Figure 4.1.4). The correlation of general head flux with the conductance of river, lake, and reservoir conductance is likely due to closeness of these two boundary cells at some locations.

Figure 4.1.1 Sensitivity of hydraulic head to model input parameters.

Figure 4.1.2 Sensitivity of groundwater leakage to rivers, lakes, and reservoirs to model input parameters.

Figure 4.1.3 Sensitivity of spring flow to model input parameters.

Figure 4.1.4 Sensitivity of general head flux to model input parameters.

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5.0 Model Limitations

Numerical groundwater flow models are approximations of aquifer systems (Anderson and Woessner, 2002). Numerical models require some assumptions and have some limitations. These limitations are usually associated with the purpose for the groundwater flow model, our extent of understanding the aquifer(s), the quantity and quality of data needed to constrain parameters in the groundwater flow model, and assumptions made during model development.

Several input parameters for the model are based on limited information. For example, there were no data regarding the hydraulic properties of the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in the far subcrop area. The distribution of the Marble Falls Aquifer in the subcrop area and the extent of the Ellenburger-San Saba and Hickory aquifers in the far subcrop area were interpolated based on very limited geophysical information. During the model calibration, special attention was paid to the validity of the model input parameters such as hydraulic conductivity, storativity, and recharge, among others, to ensure reasonable values were used to calibrate the model. However, uncertainty still exists regarding the quantity and distribution of the input parameters which, in turn, may introduce uncertainty of the model predictability.

For limestone aquifers such as Marble Falls and Ellenburger-San Saba aquifers, it is well known that aquifer properties could change dramatically over a relatively short distance. During the model construction and calibration, efforts were made to reflect these changes by using variable groundwater recharge and aquifer hydraulic properties. In addition, change of land topography could be significant between ridges and valleys. However, once the scale of aquifer heterogeneity, precipitation pattern, and land topography is smaller than a model grid, the model can only produce an average condition within the grid. As a result, TWDB does not recommend using this model for determining local scale concerns such as well spacing or the response of water levels in a single well.

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6.0 Summary and Conclusions

The TWDB has developed a MODFLOW-USG numerical groundwater flow model for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Llano Uplift region. This groundwater flow model covers all or parts of nineteen counties: Blanco, Brown, Burnet, Coleman, Concho, Gillespie, Hays, Kendall, Kerr, Kimble, Lampasas, Llano, Mason, McCulloch, Menard, Mills, San Saba, Travis, and Williamson. The study area includes parts of Groundwater Management Areas 7, 8, and 9, and all or parts of thirteen groundwater conservation districts: Blanco-Pedernales Groundwater Conservation District, Bandera County River Authority & Ground Water District, Central Texas Groundwater Conservation District, Cow Creek Groundwater Conservation District, Hays Trinity Groundwater Conservation District, Headwaters Groundwater Conservation District, Hickory Underground Water Conservation District No. 1, Hill Country Underground Water Conservation District, Kimble County Groundwater Conservation District, Lipan-Kickapoo Water Conservation District, Menard County Underground Water District, Real-Edwards Conservation and Reclamation District, and Saratoga Underground Water Conservation District.

The Llano Uplift region is complex geologically, with a mixture of igneous, metamorphic, and sedimentary rocks that have been folded and faulted. To prepare the groundwater flow model, a conceptual groundwater model was developed to simplify the complex terrace suitable for numerical model construction (Shi and others, 2014). The Llano Uplift numerical groundwater flow model model consists of eight layers: 1) the Cretaceous-age limestones and younger units, 2) units below the Cretaceous but above the Marble Falls Aquifer, 3) the Marble Falls Aquifer, 4) units below Marble Falls Aquifer but above the Ellenburger-San Saba Aquifer, 5) the Ellenburger-San Saba Aquifer, 6) units below Ellenburger-San Saba Aquifer but above the Hickory Aquifer, 7) the Hickory Aquifer, and 8) parts of the Precambrian-age formations. The Precambrian layer was added during numerical model construction and calibration to alleviate the numerical instability at certain faulted aquifer blocks.

The numerical model is composed of uniform quarter-mile square nodes and 31 stress periods. Stress Period 1 (steady state) represents a pseudo steady-state condition by the end of 1980, which provides the initial heads for the transient periods 2 through 31 (time periods 1981 through 2010). The numerical model was primarily calibrated to measured water level data from

the Marble Falls, Ellenburger-San Saba, and Hickory aquifers between 1980 and 2010. The numerical model was also qualitatively compared with historical stream gain/loss data. The calibration results indicate that the numerical model very well reproduced the regional groundwater flow pattern and was consistent with the long-term groundwater discharge to surface water bodies. The groundwater flow model meets the TWDB groundwater availability model standards.

For the Marble Falls Aquifer, recharge due to infiltration of precipitation at its outcrop area and cross- formational flow from the younger units in the subcrop area provide the major inflow. The major outflow is leakage to surface water bodies, groundwater pumping, and cross-formational flow to older units.

For the Ellenburger-San Saba Aquifer, the major inflow is recharge due to infiltration of precipitation at its outcrop area. Groundwater flows out of the aquifer mainly by leakage to surface water bodies, cross-formational flow to older units, and groundwater pumping.

For the Hickory Aquifer, the cross-formational flow from the younger units and recharge due to infiltration of precipitation at its outcrop area are the major inflow components. The major outflow is groundwater-pumping, leakage to surface water bodies, and cross-formational flow to the Ellenburger-San Saba Aquifer and the Precambrian unit.

Aquifer storage fluctuated between 1981 and 2010 and, in general, showed a slight declining trend attributable to variation of recharge and increasing groundwater withdrawal. Groundwater discharge to surface water bodies also showed a similar trend.

Sensitivity analysis indicated that the simulated water levels, groundwater leakage to surface water bodies, spring flow, and lateral flow between inside and outside of the study area are most sensitive to groundwater recharge due to precipitation. Groundwater pumping and surface water also have moderate impacts on the lateral flow between inside and outside of the study area.

Though this model was well calibrated to the measured water levels and compared well with the surface water gain/loss study, limitations still exist. The main limitation of this model is the uncertainty related to the lack of data in defining the aquifer properties, the downdip extent of the aquifers, and the complex heterogeneity of the limestone aquifers. The uncertainty of the model construction and calibration will be carried over to the model predictive simulations. As a

result, this numerical flow model should be used with field monitoring and for regional groundwater flow evaluation.

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7.0 Acknowledgements

This model could not have been develped without the stakeholder participation. This is especially true during the conceptual model model development. Many stakeholders provided valuable suggestions and field data. These suggestions and data had been evaluated and incorporated into the conceptual model and numerical model. The Llano Uplift groundwater availability model team would like to thank all of the stakeholders for your contributions.

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The study area provided one of the most challenging hydrogeological settings in Texas. Standen and Ruggiero (2007) provided the fundamental geologic framework, structure, and extent of the minor aquifers in the study area, which was the basis for further refinement during this project.

Mr. Roberto Anaya (TWDB) was very helpful with interpretating Cretaceous geology. The TWDB Groundwater Availability Model (GAM) group offered many valuable suggestions during technical review. Last but not least, we appreciate our groundwater availability modeling section manager, Ms. Cindy Ridgeway, for her leadership and continuous supports (both technically and administratively) throughout the whole process. Her advice on groundwater pumping was especially critical in developing the groundwater withdrawal package in the study area.

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Appendix A: Simulated versus Measured Heads

- Residual (feet) = Simulated Head (feet above mean sea level) – Measured Head (feet above mean sea level)
- Positive residuals indicate simulated heads higher than measured head
- Negative residuals indicate simulated heads lower than measured heads

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4149701	3	10	1,312.8	1,306.7	-6.1
4149701	3	12	1,312.6	1,306.7	-5.9
4149701	3	15	1,312.9	1,306.7	-6.1
4149701	3	17	1,313.0	1,306.7	-6.3
4149701	3	19	1,313.9	1,306.7	-7.2
4149701	3	23	1,315.3	1,306.7	-8.6
4150502	3	10	1,307.7	1,320.0	12.3
4150502	3	12	1,308.9	1,320.3	11.4
4150502	3	15	1,310.8	1,320.5	9.7
4150502	3	16	1,308.9	1,319.9	11.0
4150502	3	17	1,308.1	1,318.2	10.1
4150504	3	10	1,277.9	1,320.9	43.0
4150504	3	12	1,295.1	1,321.2	26.1
4151404	3	7	1,249.0	1,288.0	39.0
4151404	3	10	1,223.6	1,283.2	59.6
4151404	3	11	1,224.2	1,284.1	59.9
4151404	3	12	1,225.1	1,283.9	58.8
4151404	3	13	1,228.5	1,283.4	54.9
4151404	3	14	1,227.6	1,281.4	53.8
4151404	3	15	1,227.4	1,283.6	56.3
4151404	3	17	1,234.2	1,279.7	45.5
4151404	3	19	1,221.3	1,279.9	58.6
4151404	3	21	1,214.6	1,279.8	65.2
4151404	3	22	1,211.8	1,279.0	67.2
4151404	3	23	1,219.9	1,279.7	59.8
4151404	3	24	1,226.0	1,278.3	52.3
4151404	3	26	1,223.7	1,277.3	53.6
4151404	3	29	1,224.6	1,278.3	53.7
4151405	3	7	1,190.9	1,282.2	91.4
4151412	3	16	1,192.0	1,272.1	80.1
4151413	3	16	1,192.0	1,272.1	80.1
4151415	3	21	1,195.0	1,269.2	74.2
4151415	3	22	1,190.0	1,266.7	76.7
4151504	3	10	1,183.1	1,270.7	87.6
4151504	3	11	1,183.0	1,271.5	88.5
4151504	3	12	1,182.9	1,271.3	88.5
4151504	3	13	1,185.1	1,270.9	85.8
4151504	3	14	1,184.1	1,269.0	84.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4151504	3	15	1,182.1	1,271.2	89.1
4151504	3	17	1,184.4	1,265.6	81.2
4151504	3	19	1,183.4	1,265.6	82.1
4151504	3	20	1,183.4	1,265.3	81.9
4151504	3	21	1,184.0	1,265.0	80.9
4151504	3	22	1,183.5	1,264.4	80.9
4151504	3	23	1,183.5	1,265.4	81.9
4151504	3	24	1,183.1	1,264.1	81.0
4151504	3	25	1,186.3	1,264.8	78.6
4151504	3	26	1,183.4	1,263.5	80.1
4151504	3	29	1,210.2	1,263.9	53.7
4160303	3	10	1,067.3	1,104.6	37.4
4160303	3	12	1,068.9	1,105.0	36.2
4160303	3	15	1,068.0	1,105.3	37.3
4160303	3	16	1,066.5	1,105.0	38.5
4160303	3	17	1,068.0	1,104.8	36.8
4160303	3	18	1,066.8	1,105.4	38.6
4160303	3	19	1,067.4	1,105.1	37.7
4160303	3	20	1,066.3	1,105.2	38.9
4160303	3	21	1,068.0	1,104.7	36.7
4160303	3	22	1,068.8	1,104.6	35.8
4160303	3	23	1,068.8	1,104.6	35.8
4160303	3	24	1,069.0	1,104.1	35.1
4160303	3	25	1,069.7	1,105.0	35.3
4160303	3	26	1,065.9	1,104.1	38.2
4160303	3	27	1,064.9	1,104.8	39.9
4160303	3	28	1,068.2	1,105.4	37.2
4160303	3	29	1,066.3	1,105.0	38.6
4163401	3	15	1,102.4	1,132.5	30.1
4163401	3	17	1,096.1	1,128.5	32.4
4163401	3	18	1,116.9	1,131.8	15.0
4163401	3	20	1,102.5	1,124.5	22.0
4163401	3	21	1,100.8	1,125.3	24.5
4163401	3	22	1,104.9	1,127.5	22.5
4163401	3	23	1,112.9	1,128.7	15.9
4163401	3	24	1,106.0	1,124.6	18.7
4163401	3	25	1,113.7	1,128.6	14.9
4163401	3	26	1,108.1	1,124.4	16.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4163401	3	27	1,096.5	1,124.0	27.5
4255102	3	29	1,634.9	1,486.5	-148.4
5731402	3	8	810.8	761.8	-49.0
5731402	3	9	811.5	761.2	-50.3
5731402	3	10	809.2	761.1	-48.1
5731402	3	12	830.8	760.3	-70.5
5731402	3	13	811.5	760.5	-51.0
5731402	3	14	814.4	760.8	-53.6
5731402	3	16	811.7	760.4	-51.4
5731402	3	17	812.3	760.5	-51.8
5731402	3	18	814.2	761.4	-52.9
5731402	3	19	814.9	761.8	-53.1
5731402	3	20	810.9	762.1	-48.8
5731402	3	21	811.9	762.4	-49.5
5731402	3	22	817.4	762.2	-55.2
5731402	3	23	813.8	762.4	-51.4
5731402	3	24	811.2	761.8	-49.3
5731402	3	25	829.5	762.3	-67.2
5731402	3	26	810.8	761.6	-49.3
5731402	3	27	810.6	762.0	-48.5
5731402	3	28	811.4	762.7	-48.7
5731402	3	29	810.1	761.7	-48.4
5731405	3	11	752.0	740.9	-11.1
5731802	3	20	630.7	652.6	21.9
5731802	3	21	649.2	652.6	3.4
5731802	3	22	649.4	652.7	3.2
5731802	3	25	648.7	652.7	4.0
5731802	3	26	630.2	652.6	22.5
5731802	3	27	628.2	652.6	24.4
5731802	3	28	650.6	652.6	2.1
5731802	3	29	620.9	652.6	31.7
5739708	3	3	946.0	911.9	-34.1
5754608	3	3	1,059.0	1,091.7	32.7
4141703	5	8	1,360.7	1,371.4	10.7
4141805	5	9	1,350.3	1,354.2	3.9
4141805	5	10	1,346.8	1,352.0	5.2
4141805	5	12	1,345.3	1,352.5	7.2
4141805	5	13	1,359.4	1,351.9	-7.5

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4141805	5	14	1,360.1	1,350.0	-10.1
4141805	5	15	1,360.4	1,352.6	-7.8
4141805	5	16	1,360.7	1,351.9	-8.8
4141805	5	19	1,361.7	1,350.1	-11.6
4141805	5	29	1,363.6	1,349.5	-14.1
4141811	5	4	1,335.0	1,361.2	26.2
4141811	5	9	1,352.6	1,353.1	0.5
4149501	5	10	1,324.6	1,336.4	11.8
4149501	5	12	1,324.4	1,336.3	12.0
4149501	5	15	1,319.8	1,336.2	16.4
4149501	5	16	1,318.9	1,336.3	17.4
4149501	5	17	1,319.6	1,335.1	15.5
4149501	5	19	1,320.6	1,335.8	15.2
4149501	5	23	1,325.4	1,336.8	11.4
4149501	5	29	1,326.2	1,336.3	10.1
4149802	5	1	1,195.3	1,321.5	126.2
4149802	5	7	1,232.0	1,318.5	86.5
4149802	5	10	1,219.8	1,315.8	96.0
4149802	5	12	1,225.7	1,315.8	90.1
4149802	5	15	1,213.7	1,315.9	102.2
4149802	5	16	1,211.9	1,315.9	104.0
4149802	5	17	1,211.4	1,315.0	103.6
4149802	5	19	1,214.6	1,315.6	101.0
4149802	5	23	1,217.2	1,316.2	99.0
4149902	5	10	1,297.3	1,306.1	8.8
4149902	5	12	1,297.9	1,306.0	8.0
4149902	5	15	1,298.3	1,306.1	7.8
4149902	5	16	1,298.4	1,306.1	7.7
4149902	5	17	1,298.6	1,305.4	6.8
4149902	5	19	1,298.9	1,305.7	6.8
4150902	5	10	1,256.9	1,331.3	74.5
4150902	5	29	1,262.6	1,328.8	66.2
4151414	5	22	1,224.0	1,269.3	45.3
4151416	5	22	1,214.0	1,271.7	57.7
4151417	5	22	1,203.0	1,271.7	68.7
4151502	5	9	1,192.6	1,264.7	72.1
4151505	5	9	1,191.1	1,264.7	73.6
4151506	5	9	1,190.5	1,266.9	76.3

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4151506	5	10	1,184.3	1,265.2	80.9
4151506	5	12	1,191.3	1,266.0	74.7
4151506	5	17	1,196.1	1,261.4	65.4
4151506	5	18	1,194.8	1,263.0	68.1
4151506	5	19	1,193.9	1,261.6	67.6
4151506	5	20	1,190.8	1,260.9	70.2
4151506	5	21	1,187.5	1,260.9	73.4
4151506	5	22	1,194.3	1,260.7	66.4
4151506	5	23	1,189.9	1,261.7	71.8
4151506	5	24	1,156.6	1,260.2	103.6
4151506	5	25	1,206.1	1,259.7	53.7
4151506	5	26	1,193.1	1,259.6	66.6
4151506	5	29	1,187.6	1,260.2	72.6
4151602	5	1	1,300.0	1,257.9	-42.1
4151602	5	7	1,314.7	1,253.3	-61.4
4151602	5	10	1,243.2	1,250.3	7.2
4151602	5	15	1,314.9	1,249.4	-65.5
4151603	5	9	1,327.4	1,262.5	-64.9
4151701	5	7	1,250.2	1,314.7	64.5
4151701	5	10	1,213.5	1,310.4	96.9
4151701	5	11	1,214.0	1,310.4	96.4
4151701	5	12	1,211.7	1,309.7	98.0
4151701	5	13	1,245.5	1,309.5	64.0
4151701	5	14	1,226.1	1,307.9	81.9
4151701	5	15	1,227.5	1,309.4	81.9
4151701	5	17	1,229.6	1,307.5	77.9
4151701	5	18	1,228.0	1,307.5	79.6
4151701	5	19	1,224.9	1,307.4	82.5
4151701	5	20	1,234.9	1,308.0	73.1
4151701	5	21	1,225.0	1,308.0	83.0
4151701	5	22	1,221.2	1,307.1	85.9
4151701	5	23	1,224.8	1,307.2	82.4
4151701	5	24	1,217.4	1,306.5	89.1
4151701	5	25	1,255.5	1,307.0	51.5
4151701	5	26	1,216.3	1,306.2	90.0
4151701	5	29	1,201.6	1,306.7	105.1
4151901	5	10	1,332.7	1,282.2	-50.4
4152804	5	9	1,122.0	1,220.7	98.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4157504	5	10	1,370.0	1,381.3	11.3
4157602	5	1	1,386.0	1,383.0	-3.1
4158401	5	1	1,376.0	1,412.8	36.8
4158401	5	7	1,383.2	1,413.4	30.2
4158401	5	10	1,368.6	1,411.9	43.4
4158401	5	12	1,359.4	1,409.9	50.5
4158401	5	15	1,379.1	1,410.9	31.8
4158401	5	18	1,388.1	1,410.7	22.6
4158401	5	20	1,375.1	1,410.7	35.6
4158401	5	21	1,384.6	1,410.8	26.2
4158401	5	22	1,384.2	1,410.5	26.4
4158401	5	23	1,386.9	1,410.8	23.9
4158401	5	24	1,379.7	1,411.5	31.8
4158401	5	25	1,386.9	1,412.1	25.2
4158702	5	3	1,405.0	1,494.5	89.5
4159401	5	10	1,409.5	1,429.0	19.5
4161303	5	6	1,201.0	1,159.0	-42.0
4161303	5	16	1,189.3	1,160.2	-29.1
4161303	5	17	1,188.5	1,159.8	-28.8
4161303	5	18	1,198.0	1,162.3	-35.8
4161303	5	19	1,196.6	1,161.8	-34.8
4161303	5	20	1,195.3	1,160.1	-35.2
4161303	5	21	1,194.6	1,161.3	-33.3
4161303	5	22	1,195.5	1,161.6	-33.9
4161303	5	23	1,196.7	1,162.0	-34.7
4161303	5	24	1,195.4	1,159.2	-36.3
4161303	5	25	1,207.5	1,162.3	-45.2
4161303	5	26	1,192.0	1,158.8	-33.1
4161303	5	27	1,195.1	1,159.4	-35.7
4161303	5	28	1,199.1	1,161.8	-37.4
4161303	5	29	1,195.0	1,159.8	-35.2
4161402	5	15	1,139.3	1,132.0	-7.3
4161402	5	17	1,144.5	1,131.8	-12.6
4161402	5	20	1,138.1	1,133.0	-5.1
4161402	5	21	1,144.7	1,133.2	-11.5
4161402	5	24	1,138.2	1,132.9	-5.2
4161402	5	27	1,135.4	1,133.9	-1.5
4161402	5	29	1,131.9	1,134.0	2.1

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4162803	5	13	1,325.0	1,200.1	-124.9
4248801	5	1	1,425.5	1,413.1	-12.4
4248801	5	7	1,438.6	1,401.8	-36.8
4248801	5	29	1,430.5	1,393.3	-37.2
4254601	5	7	1,628.0	1,540.0	-88.0
4254704	5	5	1,452.0	1,550.1	98.1
4254901	5	12	1,623.1	1,544.2	-78.9
4254901	5	15	1,651.0	1,544.6	-106.4
4254901	5	16	1,624.9	1,544.3	-80.6
4254901	5	17	1,620.6	1,542.2	-78.4
4254901	5	20	1,617.1	1,542.1	-75.0
4254901	5	21	1,620.1	1,542.4	-77.7
4254901	5	23	1,620.3	1,543.9	-76.4
4254901	5	24	1,621.1	1,543.2	-77.9
4254901	5	25	1,622.8	1,545.4	-77.4
4255702	5	29	1,644.3	1,529.5	-114.8
4255801	5	1	1,577.0	1,531.4	-45.6
4255801	5	12	1,525.3	1,525.9	0.6
4255801	5	15	1,564.8	1,527.3	-37.5
4255801	5	17	1,557.5	1,527.0	-30.5
4255801	5	22	1,575.8	1,526.0	-49.8
4255801	5	23	1,582.8	1,526.3	-56.4
4255801	5	24	1,568.6	1,527.4	-41.2
4255801	5	25	1,580.7	1,527.9	-52.8
4256201	5	11	1,466.0	1,421.6	-44.4
4261701	5	29	1,618.1	1,599.8	-18.3
4261901	5	12	1,663.6	1,604.0	-59.6
4261901	5	15	1,659.8	1,604.0	-55.8
4261901	5	17	1,658.8	1,601.8	-57.0
4261901	5	22	1,657.4	1,603.3	-54.2
4261901	5	23	1,653.5	1,604.4	-49.1
4261901	5	24	1,653.2	1,604.2	-49.1
4261901	5	25	1,651.7	1,605.2	-46.5
4261901	5	26	1,653.7	1,604.5	-49.2
4261901	5	29	1,653.5	1,603.9	-49.6
4261904	5	29	1,640.4	1,605.2	-35.2
4262102	5	10	1,548.5	1,568.6	20.1
4262102	5	11	1,546.9	1,569.4	22.5

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4262102	5	12	1,548.4	1,570.8	22.4
4262503	5	12	1,660.0	1,585.9	-74.2
4262503	5	13	1,674.3	1,587.1	-87.1
4262503	5	15	1,662.4	1,587.4	-75.0
4262506	5	21	1,699.0	1,589.1	-109.9
4262909	5	11	1,603.7	1,581.1	-22.6
4262909	5	12	1,577.4	1,580.5	3.1
4262909	5	13	1,574.6	1,582.0	7.5
4262909	5	14	1,565.0	1,581.9	16.9
4262909	5	15	1,564.8	1,582.1	17.3
4262909	5	16	1,563.4	1,582.5	19.1
4262909	5	17	1,598.1	1,582.3	-15.8
4262909	5	21	1,603.9	1,582.7	-21.2
4262909	5	22	1,558.7	1,582.4	23.7
4262909	5	23	1,558.5	1,582.9	24.4
4262909	5	30	1,568.1	1,584.0	15.9
4262910	5	11	1,573.0	1,581.1	8.1
4262910	5	12	1,572.6	1,580.5	7.9
4262910	5	13	1,574.7	1,582.0	7.3
4262910	5	14	1,570.2	1,581.9	11.7
4262910	5	15	1,569.7	1,582.1	12.4
4262910	5	16	1,570.7	1,582.5	11.8
4262910	5	17	1,593.5	1,582.3	-11.2
4262910	5	20	1,604.7	1,582.3	-22.4
4262910	5	21	1,604.7	1,582.7	-22.0
4262910	5	22	1,569.0	1,582.4	13.4
4262910	5	23	1,570.2	1,582.9	12.7
4262910	5	24	1,569.4	1,584.1	14.7
4262910	5	30	1,581.4	1,584.0	2.6
4263708	5	7	1,493.2	1,509.0	15.8
4263709	5	7	1,505.2	1,500.7	-4.4
4264401	5	9	1,444.4	1,426.5	-17.9
5605403	5	1	1,664.0	1,656.3	-7.7
5605403	5	29	1,640.9	1,647.9	7.0
5612302	5	11	1,684.1	1,667.9	-16.2
5612302	5	12	1,677.1	1,668.9	-8.2
5612302	5	13	1,683.5	1,667.0	-16.5
5612302	5	15	1,686.7	1,664.9	-21.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5612302	5	16	1,679.5	1,663.2	-16.4
5612304	5	18	1,655.5	1,660.1	4.6
5612304	5	19	1,648.3	1,657.9	9.6
5612304	5	20	1,652.1	1,654.5	2.4
5612304	5	21	1,650.7	1,655.1	4.4
5612304	5	22	1,649.1	1,656.3	7.2
5612304	5	23	1,647.9	1,657.7	9.8
5612304	5	27	1,642.7	1,652.8	10.0
5612304	5	28	1,642.0	1,654.4	12.4
5620605	5	7	1,662.7	1,622.8	-39.9
5621801	5	5	1,426.3	1,505.4	79.2
5622802	5	5	1,359.2	1,375.1	16.0
5629104	5	1	1,549.0	1,560.7	11.7
5629105	5	2	1,675.0	1,587.4	-87.7
5629201	5	5	1,563.2	1,559.5	-3.6
5629602	5	5	1,581.8	1,604.9	23.2
5639602	5	5	1,633.3	1,713.4	80.1
5639603	5	12	1,685.0	1,751.1	66.1
5639603	5	13	1,688.7	1,750.1	61.5
5640104	5	10	1,606.0	1,610.7	4.7
5640104	5	18	1,605.4	1,610.7	5.3
5640104	5	19	1,613.2	1,610.7	-2.5
5640104	5	21	1,620.1	1,610.7	-9.5
5640104	5	30	1,606.2	1,610.7	4.4
5640104	5	31	1,602.9	1,610.7	7.8
5640105	5	10	1,620.6	1,661.6	40.9
5640106	5	18	1,602.4	1,677.5	75.2
5640106	5	19	1,604.4	1,677.3	72.9
5640106	5	30	1,612.6	1,675.6	63.0
5640106	5	31	1,606.8	1,676.0	69.3
5640201	5	8	1,621.0	1,706.0	85.0
5640201	5	18	1,631.4	1,696.9	65.5
5640201	5	30	1,630.8	1,695.5	64.7
5640201	5	31	1,632.8	1,696.1	63.3
5640402	5	5	1,726.2	1,725.5	-0.7
5640503	5	5	1,679.2	1,729.1	49.9
5656201	5	18	1,719.4	1,742.1	22.7
5656201	5	21	1,717.9	1,739.9	22.0

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5656201	5	27	1,719.7	1,740.3	20.6
5656201	5	30	1,719.8	1,740.1	20.3
5656201	5	31	1,720.1	1,740.5	20.4
5702101	5	10	1,572.2	1,561.8	-10.4
5702102	5	10	1,560.7	1,561.8	1.1
5708401	5	30	1,134.1	1,067.1	-67.0
5708401	5	31	1,126.0	1,067.5	-58.5
5715301	5	2	1,162.5	1,124.4	-38.1
5715402	5	5	1,239.0	1,136.8	-102.2
5715704	5	1	1,260.3	1,129.9	-130.4
5715704	5	8	1,269.1	1,104.6	-164.4
5715704	5	9	1,264.5	1,112.6	-151.9
5715704	5	10	1,265.4	1,107.9	-157.5
5715704	5	12	1,273.8	1,114.5	-159.3
5715704	5	13	1,272.0	1,112.4	-159.6
5715704	5	14	1,270.1	1,108.1	-162.1
5715704	5	15	1,268.9	1,109.1	-159.9
5715704	5	16	1,267.4	1,107.3	-160.1
5715704	5	17	1,270.3	1,105.9	-164.4
5715704	5	19	1,270.8	1,107.0	-163.7
5715704	5	20	1,268.9	1,108.6	-160.3
5715704	5	22	1,270.9	1,112.4	-158.4
5715704	5	23	1,271.9	1,113.9	-158.0
5715704	5	24	1,265.6	1,084.6	-181.0
5715704	5	25	1,275.7	1,108.2	-167.5
5715704	5	26	1,269.5	1,081.6	-187.8
5715704	5	27	1,267.5	1,101.5	-166.0
5715704	5	28	1,269.4	1,107.2	-162.2
5715704	5	29	1,266.0	1,106.4	-159.6
5715704	5	30	1,271.4	1,110.4	-161.0
5715902	5	30	1,168.9	1,054.7	-114.2
5715902	5	31	1,167.9	1,054.5	-113.5
5722103	5	15	1,225.0	1,250.8	25.8
5722104	5	15	1,245.0	1,238.4	-6.6
5722105	5	15	1,235.0	1,238.4	3.4
5722401	5	17	1,184.9	1,169.2	-15.7
5722401	5	18	1,234.4	1,169.8	-64.6
5722401	5	19	1,242.8	1,170.1	-72.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5722401	5	21	1,204.2	1,173.5	-30.7
5722401	5	22	1,208.7	1,173.5	-35.2
5722401	5	23	1,237.6	1,175.2	-62.5
5722401	5	24	1,207.6	1,174.5	-33.1
5722401	5	26	1,204.9	1,173.0	-31.9
5722401	5	27	1,195.9	1,173.4	-22.5
5722401	5	28	1,226.7	1,174.8	-51.9
5722401	5	29	1,194.8	1,176.3	-18.5
5722401	5	30	1,258.7	1,176.2	-82.5
5723112	5	24	1,208.2	1,051.8	-156.4
5737203	5	2	1,200.9	1,194.7	-6.2
5737203	5	7	1,201.9	1,208.6	6.6
5737203	5	12	1,206.8	1,209.1	2.3
5737203	5	17	1,184.4	1,214.1	29.7
5737203	5	18	1,203.4	1,216.2	12.8
5737203	5	19	1,203.5	1,216.8	13.3
5737203	5	20	1,188.9	1,216.7	27.8
5737203	5	21	1,204.9	1,216.8	11.9
5737203	5	22	1,203.3	1,216.4	13.1
5737203	5	23	1,204.0	1,220.1	16.1
5737203	5	24	1,192.1	1,222.4	30.3
5737203	5	25	1,208.0	1,223.9	15.9
5737203	5	26	1,189.1	1,226.0	36.9
5737607	5	23	1,297.0	1,174.2	-122.8
5738301	5	3	1,091.3	955.5	-135.7
5738512	5	18	1,168.5	1,107.0	-61.5
5738512	5	19	1,174.0	1,108.0	-66.0
5738512	5	20	1,166.0	1,105.1	-60.9
5738512	5	21	1,165.7	1,106.5	-59.2
5738512	5	22	1,169.3	1,106.7	-62.7
5738512	5	23	1,174.2	1,110.4	-63.8
5738512	5	24	1,167.4	1,110.4	-57.0
5738512	5	26	1,167.0	1,112.3	-54.7
5739103	5	26	920.9	824.8	-96.1
5742804	5	13	1,537.1	1,560.5	23.5
5742806	5	13	1,523.5	1,576.2	52.7
5742901	5	16	1,510.6	1,555.9	45.3
5742901	5	21	1,502.2	1,547.7	45.5

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5742901	5	22	1,509.9	1,548.0	38.1
5742901	5	27	1,504.9	1,545.2	40.4
5742901	5	30	1,504.8	1,544.0	39.2
5742901	5	31	1,511.6	1,544.7	33.1
5743206	5	13	1,602.0	1,605.8	3.8
5743207	5	13	1,621.7	1,603.5	-18.2
5743302	5	13	1,561.1	1,582.1	21.0
5743303	5	13	1,562.5	1,572.9	10.4
5743402	5	5	1,537.0	1,595.5	58.5
5743402	5	13	1,564.7	1,589.5	24.8
5743404	5	13	1,546.1	1,582.5	36.5
5743405	5	13	1,564.0	1,593.3	29.3
5743603	5	13	1,576.7	1,533.3	-43.4
5743702	5	16	1,544.8	1,575.0	30.2
5743702	5	21	1,547.0	1,564.9	17.9
5743702	5	22	1,547.3	1,564.9	17.7
5743702	5	27	1,547.5	1,560.7	13.2
5743702	5	30	1,546.8	1,559.2	12.3
5743702	5	31	1,548.3	1,560.0	11.7
5743703	5	13	1,551.9	1,576.3	24.4
5743704	5	13	1,544.0	1,568.7	24.7
5744405	5	13	1,526.7	1,453.7	-73.0
5744406	5	13	1,622.0	1,531.6	-90.4
5744512	5	19	1,447.0	1,400.2	-46.8
5745619	5	28	1,050.0	1,120.5	70.5
5745820	5	5	1,206.0	1,199.5	-6.5
5745822	5	25	1,207.6	1,151.8	-55.8
5745822	5	26	1,194.6	1,149.6	-44.9
5745822	5	27	1,187.1	1,149.7	-37.4
5745822	5	28	1,198.6	1,151.4	-47.2
5745822	5	29	1,186.0	1,149.4	-36.6
5745822	5	30	1,189.6	1,150.3	-39.3
5745822	5	31	1,194.8	1,150.3	-44.6
5745903	5	1	1,009.2	1,094.6	85.3
5745903	5	2	1,020.7	1,094.6	73.9
5746701	5	17	954.9	1,044.6	89.7
5746701	5	18	974.4	1,045.9	71.5
5746701	5	23	1,002.7	1,045.6	42.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5746701	5	26	990.5	1,044.6	54.1
5749601	5	5	1,587.5	1,600.9	13.4
5750101	5	1	1,505.0	1,531.3	26.3
5750101	5	14	1,497.9	1,566.0	68.1
5750102	5	4	1,512.0	1,574.0	62.0
5750102	5	13	1,505.5	1,567.4	61.9
5750102	5	15	1,480.6	1,568.6	88.0
5750102	5	16	1,496.8	1,567.7	71.0
5750102	5	21	1,485.6	1,565.0	79.4
5750102	5	22	1,508.7	1,565.6	56.8
5750102	5	27	1,507.7	1,565.6	57.9
5750102	5	30	1,501.2	1,565.3	64.1
5750102	5	31	1,506.8	1,565.9	59.1
5750106	5	12	1,498.8	1,567.7	69.0
5750106	5	13	1,489.3	1,567.4	78.1
5750106	5	15	1,489.3	1,568.6	79.3
5750106	5	16	1,495.1	1,567.7	72.6
5750106	5	21	1,488.9	1,565.0	76.1
5750106	5	22	1,511.6	1,565.6	53.9
5750106	5	27	1,488.3	1,565.6	77.4
5750106	5	30	1,480.1	1,565.3	85.3
5750106	5	31	1,490.1	1,565.9	75.8
5750107	5	16	1,502.7	1,562.5	59.8
5750107	5	21	1,497.7	1,559.5	61.8
5750107	5	22	1,509.9	1,560.0	50.1
5750107	5	27	1,507.9	1,560.0	52.2
5750107	5	30	1,502.7	1,559.7	57.0
5750107	5	31	1,508.9	1,560.2	51.3
5750108	5	10	1,502.0	1,562.7	60.7
5750108	5	11	1,509.6	1,563.2	53.6
5750108	5	12	1,510.8	1,564.4	53.7
5750108	5	13	1,520.2	1,563.9	43.7
5750108	5	14	1,512.9	1,564.1	51.2
5750108	5	15	1,512.2	1,565.2	53.0
5750108	5	16	1,511.2	1,564.3	53.1
5750108	5	17	1,512.6	1,561.6	49.0
5750108	5	18	1,520.8	1,564.2	43.5
5750108	5	19	1,520.6	1,562.1	41.5

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5750108	5	20	1,515.2	1,560.6	45.4
5750108	5	21	1,517.2	1,561.2	44.1
5750108	5	22	1,525.3	1,561.7	36.5
5750108	5	23	1,534.7	1,562.9	28.2
5750108	5	24	1,531.9	1,563.1	31.2
5750108	5	25	1,535.2	1,564.0	28.8
5750108	5	26	1,527.7	1,561.9	34.3
5750108	5	27	1,518.3	1,561.8	43.5
5750108	5	28	1,533.8	1,562.5	28.7
5750108	5	29	1,521.4	1,560.5	39.1
5750108	5	30	1,517.8	1,561.4	43.6
5750108	5	31	1,519.3	1,561.9	42.6
5750109	5	6	1,518.0	1,579.4	61.4
5750109	5	21	1,502.3	1,571.8	69.5
5750109	5	22	1,517.0	1,572.3	55.3
5750109	5	27	1,514.3	1,572.4	58.1
5750109	5	30	1,507.5	1,572.1	64.6
5750109	5	31	1,513.2	1,572.6	59.4
5750110	5	16	1,543.1	1,559.9	16.8
5750110	5	21	1,537.9	1,556.6	18.7
5750110	5	22	1,545.7	1,557.1	11.5
5750110	5	27	1,546.1	1,557.1	11.0
5750110	5	30	1,541.8	1,556.7	14.9
5750110	5	31	1,546.2	1,557.2	11.0
5750111	5	13	1,519.9	1,569.0	49.1
5750112	5	5	1,510.0	1,573.9	63.9
5750114	5	13	1,505.3	1,565.9	60.6
5750114	5	15	1,494.5	1,567.1	72.6
5750114	5	16	1,498.9	1,566.2	67.2
5750114	5	21	1,494.9	1,563.3	68.4
5750114	5	22	1,509.3	1,563.9	54.6
5750114	5	27	1,506.5	1,564.0	57.5
5750114	5	30	1,500.3	1,563.6	63.4
5750114	5	31	1,506.0	1,564.2	58.2
5750115	5	13	1,512.3	1,567.6	55.3
5750115	5	15	1,502.3	1,567.9	65.6
5750115	5	16	1,503.1	1,567.1	64.0
5750115	5	21	1,500.5	1,564.6	64.1

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5750115	5	22	1,511.4	1,565.2	53.9
5750115	5	27	1,509.4	1,565.3	55.9
5750115	5	30	1,503.6	1,565.0	61.4
5750115	5	31	1,511.9	1,565.6	53.7
5750118	5	22	1,562.0	1,577.6	15.7
5750118	5	27	1,571.2	1,577.8	6.6
5750118	5	30	1,567.3	1,577.5	10.2
5750118	5	31	1,570.3	1,578.1	7.8
5750202	5	5	1,515.0	1,564.7	49.7
5750205	5	21	1,505.6	1,554.2	48.6
5750205	5	22	1,517.3	1,554.8	37.4
5750205	5	27	1,515.6	1,554.7	39.1
5750205	5	30	1,510.6	1,554.4	43.8
5750205	5	31	1,516.3	1,554.9	38.6
5750209	5	16	1,514.3	1,557.2	42.9
5750209	5	21	1,509.0	1,554.2	45.2
5750209	5	22	1,519.9	1,554.8	34.9
5750209	5	27	1,509.5	1,554.7	45.2
5750209	5	30	1,515.2	1,554.4	39.2
5750209	5	31	1,520.7	1,554.9	34.2
5750215	5	5	1,517.1	1,567.1	50.0
5750218	5	5	1,525.0	1,568.1	43.1
5750221	5	16	1,509.6	1,557.2	47.6
5750221	5	22	1,515.7	1,554.8	39.0
5750221	5	27	1,515.2	1,554.7	39.6
5750221	5	30	1,510.9	1,554.4	43.4
5750221	5	31	1,516.5	1,554.9	38.4
5750222	5	16	1,510.8	1,557.2	46.4
5750224	5	6	1,524.0	1,567.0	43.0
5750227	5	15	1,516.1	1,554.4	38.3
5750227	5	16	1,514.7	1,553.3	38.6
5750227	5	21	1,507.7	1,548.6	40.9
5750227	5	22	1,515.9	1,549.1	33.1
5750227	5	27	1,512.0	1,548.8	36.7
5750227	5	30	1,510.7	1,548.3	37.6
5750227	5	31	1,514.6	1,548.8	34.2
5750230	5	2	1,541.0	1,572.6	31.6
5750231	5	14	1,507.2	1,557.4	50.3

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5750232	5	15	1,526.3	1,555.4	29.1
5750232	5	16	1,525.1	1,554.4	29.3
5750232	5	21	1,515.9	1,550.7	34.8
5750232	5	22	1,519.8	1,551.3	31.5
5750232	5	27	1,513.0	1,550.9	37.9
5750232	5	30	1,516.9	1,550.3	33.4
5750232	5	31	1,519.5	1,551.0	31.5
5750233	5	10	1,546.0	1,556.8	10.8
5750233	5	15	1,550.0	1,555.2	5.2
5750233	5	21	1,542.4	1,549.2	6.8
5750233	5	22	1,546.5	1,549.6	3.1
5750233	5	27	1,544.7	1,549.2	4.5
5750233	5	30	1,543.7	1,548.7	5.0
5750233	5	31	1,543.9	1,549.2	5.3
5750234	5	15	1,515.0	1,554.8	39.8
5750234	5	16	1,513.0	1,553.7	40.7
5750234	5	21	1,507.1	1,548.9	41.8
5750234	5	22	1,515.4	1,549.3	33.9
5750234	5	27	1,512.0	1,549.0	37.0
5750234	5	30	1,510.4	1,548.5	38.0
5750234	5	31	1,514.2	1,549.0	34.8
5750235	5	16	1,513.6	1,560.6	47.0
5750235	5	21	1,508.2	1,557.8	49.6
5750235	5	22	1,519.9	1,558.4	38.6
5750235	5	27	1,517.8	1,558.4	40.7
5750235	5	30	1,513.0	1,558.0	45.0
5750235	5	31	1,518.6	1,558.6	40.0
5750314	5	5	1,504.5	1,562.1	57.6
5750317	5	15	1,508.2	1,549.5	41.2
5750317	5	16	1,507.4	1,548.1	40.7
5750317	5	21	1,500.2	1,542.7	42.5
5750317	5	22	1,502.3	1,543.1	40.8
5750317	5	27	1,497.9	1,542.1	44.2
5750317	5	30	1,501.6	1,541.3	39.8
5750317	5	31	1,501.5	1,542.0	40.5
5750324	5	16	1,511.3	1,547.3	36.0
5750324	5	21	1,504.1	1,541.8	37.8
5750324	5	22	1,501.9	1,542.3	40.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5750324	5	23	1,504.0	1,543.4	39.3
5750324	5	24	1,499.2	1,543.1	44.0
5750324	5	25	1,496.6	1,544.2	47.7
5750324	5	26	1,504.5	1,541.8	37.3
5750324	5	27	1,499.3	1,541.8	42.4
5750324	5	28	1,507.6	1,542.7	35.1
5750324	5	29	1,482.4	1,540.1	57.7
5750324	5	30	1,501.6	1,541.1	39.5
5750324	5	31	1,491.1	1,541.7	50.6
5750325	5	16	1,510.6	1,544.5	33.9
5750325	5	21	1,500.4	1,539.1	38.7
5750325	5	22	1,486.3	1,539.6	53.3
5750325	5	27	1,490.2	1,539.0	48.9
5750325	5	30	1,493.5	1,538.4	44.9
5750325	5	31	1,489.4	1,539.0	49.6
5750326	5	16	1,511.1	1,544.5	33.4
5750326	5	21	1,500.9	1,539.1	38.2
5750326	5	22	1,486.2	1,539.6	53.4
5750326	5	27	1,489.6	1,539.0	49.4
5750326	5	30	1,493.8	1,538.4	44.7
5750326	5	31	1,490.3	1,539.0	48.8
5750327	5	16	1,506.1	1,544.5	38.4
5750327	5	21	1,495.6	1,539.1	43.5
5750327	5	22	1,485.8	1,539.6	53.7
5750327	5	27	1,482.1	1,539.0	56.9
5750327	5	30	1,489.5	1,538.4	48.9
5750327	5	31	1,487.1	1,539.0	51.9
5750328	5	16	1,505.5	1,544.5	39.0
5750328	5	21	1,495.1	1,539.1	44.0
5750328	5	22	1,485.1	1,539.6	54.5
5750328	5	27	1,482.7	1,539.0	56.3
5750328	5	30	1,488.3	1,538.4	50.1
5750328	5	31	1,485.6	1,539.0	53.4
5750329	5	16	1,511.7	1,548.0	36.3
5750329	5	21	1,501.9	1,543.1	41.3
5750329	5	22	1,493.7	1,543.6	50.0
5750329	5	27	1,493.2	1,543.0	49.9
5750330	5	15	1,512.3	1,551.7	39.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5750330	5	16	1,511.9	1,550.3	38.4
5750330	5	21	1,506.9	1,544.3	37.4
5750330	5	22	1,509.2	1,544.8	35.6
5750330	5	27	1,506.2	1,543.4	37.2
5750330	5	31	1,509.2	1,543.2	34.0
5750331	5	15	1,527.1	1,554.4	27.3
5750331	5	16	1,526.8	1,552.9	26.1
5750331	5	21	1,524.9	1,546.9	22.1
5750331	5	22	1,526.4	1,547.4	21.0
5750331	5	27	1,525.4	1,545.8	20.5
5750331	5	31	1,526.2	1,545.6	19.4
5750332	5	15	1,524.8	1,549.6	24.9
5750332	5	16	1,523.1	1,548.3	25.2
5750332	5	21	1,516.3	1,542.4	26.2
5750332	5	22	1,521.5	1,542.8	21.4
5750332	5	27	1,519.5	1,542.0	22.5
5750332	5	30	1,518.3	1,541.3	23.0
5750332	5	31	1,522.9	1,541.9	19.0
5750333	5	15	1,512.0	1,546.1	34.1
5750333	5	16	1,510.9	1,544.6	33.7
5750333	5	21	1,506.5	1,538.4	31.9
5750333	5	22	1,509.1	1,538.8	29.7
5750333	5	27	1,506.0	1,537.4	31.4
5750333	5	30	1,504.8	1,536.6	31.8
5750333	5	31	1,508.3	1,537.3	29.0
5750404	5	16	1,573.4	1,581.8	8.3
5750404	5	21	1,566.9	1,578.9	12.0
5750404	5	22	1,567.9	1,579.5	11.6
5750404	5	27	1,567.6	1,579.4	11.8
5750404	5	30	1,561.0	1,579.1	18.1
5750404	5	31	1,565.5	1,579.6	14.1
5750505	5	1	1,506.0	1,554.0	48.0
5750514	5	13	1,572.6	1,561.2	-11.4
5750514	5	15	1,567.7	1,561.5	-6.2
5750514	5	16	1,569.0	1,560.5	-8.5
5750514	5	21	1,564.6	1,556.6	-8.0
5750514	5	22	1,568.1	1,557.1	-11.1
5750514	5	27	1,569.3	1,556.9	-12.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5750514	5	30	1,567.8	1,556.5	-11.3
5750514	5	31	1,569.6	1,556.9	-12.7
5750515	5	13	1,569.3	1,558.2	-11.1
5750515	5	15	1,566.5	1,557.2	-9.2
5750515	5	16	1,566.0	1,556.1	-9.9
5750515	5	21	1,563.7	1,549.7	-14.0
5750515	5	22	1,564.3	1,549.9	-14.4
5750515	5	27	1,562.8	1,549.6	-13.2
5750515	5	30	1,564.9	1,549.0	-15.9
5750515	5	31	1,562.8	1,549.5	-13.3
5750516	5	18	1,558.0	1,557.2	-0.8
5750603	5	16	1,413.1	1,525.8	112.6
5750603	5	21	1,408.6	1,518.1	109.5
5750603	5	22	1,408.9	1,517.8	108.9
5750603	5	30	1,409.3	1,512.4	103.0
5750603	5	31	1,412.5	1,512.8	100.3
5750604	5	6	1,580.0	1,534.4	-45.6
5751101	5	5	1,462.6	1,513.8	51.2
5751107	5	5	1,466.0	1,516.7	50.7
5751109	5	19	1,489.0	1,521.7	32.7
5751111	5	6	1,472.0	1,515.2	43.2
5751201	5	5	1,437.9	1,490.4	52.4
5751215	5	6	1,455.0	1,484.1	29.1
5751305	5	18	1,407.6	1,467.5	59.9
5751305	5	19	1,411.6	1,466.6	55.0
5751305	5	30	1,422.4	1,454.9	32.5
5751307	5	10	1,398.0	1,472.7	74.7
5751402	5	5	1,466.9	1,518.0	51.1
5751404	5	16	1,463.0	1,516.5	53.6
5751404	5	21	1,456.7	1,507.8	51.1
5751404	5	22	1,461.3	1,507.5	46.2
5751404	5	27	1,458.4	1,503.8	45.4
5751404	5	30	1,456.5	1,502.1	45.6
5751404	5	31	1,461.4	1,502.4	41.0
5751407	5	28	1,470.3	1,493.0	22.7
5751407	5	29	1,459.3	1,490.1	30.8
5751407	5	30	1,461.2	1,490.7	29.6
5751407	5	31	1,462.2	1,491.1	28.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5751505	5	7	1,456.0	1,499.2	43.2
5752316	5	6	1,365.0	1,344.6	-20.4
5753302	5	1	1,163.7	1,147.8	-15.9
5753302	5	2	1,167.9	1,147.4	-20.4
5753302	5	7	1,180.7	1,145.8	-35.0
5753302	5	12	1,141.3	1,145.3	4.0
5753302	5	13	1,159.6	1,144.6	-15.0
5753302	5	17	1,149.3	1,140.9	-8.3
5753302	5	18	1,178.1	1,142.2	-35.8
5753302	5	19	1,182.0	1,142.3	-39.7
5753302	5	20	1,183.4	1,140.0	-43.4
5753302	5	21	1,170.1	1,139.7	-30.4
5753302	5	22	1,175.6	1,140.0	-35.6
5753302	5	23	1,179.3	1,140.5	-38.7
5753302	5	24	1,176.7	1,139.4	-37.4
5753302	5	25	1,183.8	1,140.2	-43.6
5753302	5	26	1,180.3	1,138.8	-41.5
4141501	7	9	1,449.5	1,339.6	-109.9
4141501	7	10	1,448.1	1,337.3	-110.9
4141501	7	11	1,447.3	1,338.0	-109.3
4141501	7	12	1,446.5	1,338.6	-107.9
4141501	7	13	1,446.9	1,337.9	-109.1
4141501	7	14	1,447.0	1,336.6	-110.3
4141501	7	15	1,446.0	1,339.5	-106.5
4141501	7	16	1,445.6	1,338.1	-107.5
4141501	7	19	1,443.8	1,336.1	-107.7
4141501	7	29	1,439.2	1,334.8	-104.4
4142601	7	10	1,441.4	1,259.4	-182.0
4142601	7	11	1,439.1	1,261.5	-177.6
4142601	7	12	1,438.9	1,260.3	-178.6
4142601	7	13	1,429.3	1,260.9	-168.4
4149704	7	16	1,494.0	1,356.7	-137.3
4149704	7	17	1,496.6	1,355.8	-140.8
4149704	7	19	1,500.4	1,356.1	-144.4
4149704	7	21	1,502.2	1,357.8	-144.4
4149704	7	23	1,503.2	1,357.0	-146.2
4149704	7	29	1,518.6	1,356.9	-161.7
4159702	7	9	1,453.4	1,463.4	10.0

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4159805	7	16	1,411.0	1,404.8	-6.2
4245601	7	1	1,512.5	1,477.3	-35.2
4245601	7	12	1,500.4	1,466.9	-33.5
4245601	7	15	1,495.5	1,463.3	-32.2
4245601	7	16	1,499.9	1,461.9	-37.9
4245601	7	17	1,491.3	1,452.3	-39.0
4245601	7	21	1,484.0	1,449.0	-35.0
4245601	7	23	1,482.0	1,460.3	-21.8
4245601	7	24	1,481.6	1,453.7	-27.9
4245601	7	25	1,482.0	1,458.8	-23.2
4246502	7	8	1,492.7	1,466.0	-26.7
4246502	7	17	1,485.7	1,457.0	-28.7
4246502	7	20	1,480.3	1,454.3	-26.0
4246502	7	21	1,471.7	1,453.2	-18.5
4246502	7	22	1,481.5	1,456.6	-24.9
4246502	7	23	1,479.4	1,459.4	-19.9
4246502	7	24	1,479.2	1,456.0	-23.2
4246502	7	25	1,480.1	1,461.0	-19.1
4246701	7	21	1,395.7	1,475.2	79.5
4246701	7	22	1,397.9	1,480.3	82.4
4246701	7	23	1,396.4	1,483.3	86.9
4246701	7	24	1,396.1	1,479.0	82.9
4246701	7	25	1,396.0	1,483.5	87.5
4247901	7	11	1,444.5	1,436.7	-7.9
4247901	7	16	1,442.4	1,436.4	-6.0
4247901	7	17	1,443.2	1,433.9	-9.3
4247901	7	21	1,441.8	1,432.0	-9.8
4247901	7	22	1,443.1	1,432.8	-10.3
4247901	7	23	1,443.3	1,434.5	-8.8
4247901	7	24	1,444.6	1,432.6	-12.0
4247901	7	25	1,445.7	1,437.1	-8.6
4252301	7	29	1,475.2	1,493.9	18.7
4254102	7	8	1,529.7	1,514.3	-15.4
4254102	7	16	1,502.6	1,508.5	5.9
4254202	7	3	1,491.0	1,523.4	32.4
4254802	7	21	1,486.0	1,547.1	61.1
4254903	7	17	1,495.8	1,541.8	46.0
4254903	7	21	1,494.7	1,541.9	47.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4254903	7	22	1,495.4	1,542.9	47.5
4254903	7	23	1,496.1	1,544.0	47.9
4254903	7	24	1,495.5	1,543.1	47.6
4254903	7	25	1,495.6	1,545.0	49.4
4255101	7	15	1,466.8	1,485.3	18.5
4255103	7	19	1,449.0	1,483.1	34.1
4255103	7	29	1,468.0	1,483.3	15.3
4256101	7	1	1,497.6	1,456.6	-41.0
4256101	7	11	1,482.6	1,442.6	-40.1
4256101	7	15	1,513.6	1,442.4	-71.1
4256101	7	16	1,508.3	1,442.0	-66.4
4260301	7	5	1,604.2	1,579.5	-24.7
4260401	7	6	1,552.9	1,591.1	38.2
4260401	7	7	1,551.7	1,591.1	39.4
4260401	7	16	1,542.4	1,586.2	43.8
4260401	7	19	1,538.8	1,581.9	43.1
4260401	7	20	1,536.9	1,578.8	41.9
4260401	7	23	1,533.7	1,583.6	49.9
4260401	7	29	1,533.1	1,576.2	43.2
4260502	7	7	1,551.7	1,591.2	39.5
4260503	7	6	1,548.0	1,589.1	41.1
4260503	7	7	1,547.4	1,589.2	41.8
4260503	7	9	1,545.6	1,586.3	40.7
4260503	7	16	1,538.4	1,584.6	46.2
4260503	7	19	1,534.9	1,580.6	45.7
4260503	7	20	1,532.8	1,577.8	45.0
4260503	7	23	1,530.3	1,582.8	52.5
4260503	7	29	1,532.5	1,576.6	44.2
4260601	7	6	1,541.9	1,595.7	53.8
4260601	7	7	1,542.1	1,595.7	53.6
4260601	7	15	1,531.6	1,592.0	60.4
4260601	7	16	1,533.0	1,591.5	58.5
4260601	7	19	1,529.5	1,587.9	58.4
4260601	7	20	1,526.9	1,585.4	58.5
4260601	7	23	1,525.6	1,590.0	64.4
4260601	7	29	1,530.2	1,584.9	54.7
4260602	7	6	1,540.2	1,590.1	49.9
4260602	7	7	1,541.9	1,590.1	48.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4260602	7	16	1,532.3	1,586.0	53.7
4260603	7	6	1,535.2	1,588.8	53.6
4260603	7	7	1,530.5	1,588.8	58.3
4260603	7	16	1,526.7	1,584.4	57.7
4260603	7	19	1,523.2	1,580.6	57.4
4260603	7	20	1,520.7	1,577.9	57.2
4260603	7	23	1,521.2	1,583.0	61.8
4260603	7	29	1,524.0	1,577.4	53.4
4260901	7	6	1,543.1	1,604.9	61.8
4260901	7	7	1,543.7	1,604.8	61.1
4260901	7	15	1,533.4	1,601.4	68.0
4260901	7	16	1,535.3	1,601.0	65.7
4260901	7	19	1,531.9	1,597.8	65.9
4260901	7	20	1,528.8	1,595.6	66.8
4260901	7	23	1,528.7	1,599.7	71.0
4260901	7	29	1,536.9	1,595.5	58.7
4260902	7	6	1,539.9	1,596.9	57.0
4260902	7	7	1,540.6	1,596.9	56.3
4260902	7	16	1,532.1	1,592.9	60.8
4260902	7	19	1,528.5	1,589.5	61.0
4260902	7	20	1,527.0	1,587.1	60.1
4260902	7	21	1,525.7	1,586.6	60.9
4260902	7	22	1,525.4	1,589.9	64.5
4260902	7	23	1,524.3	1,591.7	67.4
4260902	7	29	1,527.4	1,587.1	59.8
4260903	7	6	1,553.4	1,603.9	50.5
4260903	7	7	1,553.0	1,603.8	50.8
4260903	7	16	1,544.2	1,599.8	55.6
4260903	7	19	1,540.8	1,596.4	55.6
4260903	7	20	1,538.7	1,594.1	55.4
4260903	7	23	1,536.7	1,598.2	61.6
4260903	7	29	1,538.6	1,593.5	54.9
4261202	7	4	1,653.0	1,586.3	-66.7
4261303	7	29	1,529.9	1,482.0	-47.9
4262404	7	6	1,562.0	1,580.0	18.0
4262404	7	23	1,500.2	1,582.7	82.5
4262902	7	8	1,571.2	1,560.4	-10.9
4262902	7	9	1,567.1	1,560.1	-7.0

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4262902	7	10	1,567.7	1,560.4	-7.2
4262902	7	11	1,567.1	1,559.8	-7.4
4262902	7	12	1,567.1	1,559.1	-7.9
4262902	7	13	1,568.5	1,559.8	-8.7
4262902	7	14	1,567.5	1,559.4	-8.1
4262902	7	15	1,566.6	1,559.3	-7.3
4262902	7	16	1,563.3	1,560.1	-3.2
4262902	7	17	1,566.0	1,560.1	-5.9
4262902	7	18	1,566.7	1,560.0	-6.7
4262902	7	19	1,563.2	1,559.4	-3.8
4262902	7	20	1,562.2	1,559.5	-2.7
4262902	7	21	1,563.3	1,559.8	-3.5
4262902	7	22	1,563.8	1,559.7	-4.1
4262902	7	23	1,564.2	1,560.0	-4.2
4262902	7	24	1,563.7	1,560.3	-3.5
4262902	7	30	1,570.9	1,560.0	-10.9
4263501	7	6	1,482.3	1,495.8	13.5
4263501	7	7	1,484.8	1,495.5	10.7
4263501	7	8	1,485.6	1,495.3	9.7
4263501	7	9	1,483.3	1,495.8	12.5
4263501	7	16	1,469.4	1,496.0	26.6
4263501	7	17	1,475.5	1,496.4	20.9
4263501	7	18	1,480.0	1,496.7	16.7
4263501	7	19	1,480.2	1,495.8	15.6
4263501	7	20	1,477.8	1,495.3	17.5
4263501	7	21	1,478.6	1,496.1	17.5
4263501	7	22	1,478.2	1,496.3	18.1
4263501	7	25	1,478.4	1,497.9	19.5
4263501	7	30	1,481.9	1,496.8	14.9
4263706	7	7	1,547.7	1,515.7	-32.0
4263802	7	13	1,463.5	1,475.3	11.8
4263802	7	14	1,460.4	1,475.3	14.9
4263802	7	15	1,457.1	1,476.0	19.0
4263802	7	16	1,458.4	1,474.7	16.4
4263802	7	17	1,459.8	1,474.0	14.3
4263802	7	18	1,464.4	1,473.3	8.9
4263802	7	19	1,461.0	1,472.0	11.0
4263802	7	20	1,461.5	1,470.3	8.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4263802	7	22	1,463.1	1,468.6	5.5
4263802	7	23	1,469.4	1,468.6	-0.8
4263802	7	24	1,467.0	1,467.3	0.3
4263802	7	30	1,471.8	1,459.4	-12.5
4263803	7	17	1,482.7	1,470.3	-12.5
4263803	7	18	1,485.1	1,469.8	-15.3
4263803	7	19	1,483.3	1,468.9	-14.4
4263805	7	22	1,526.2	1,511.1	-15.1
4263807	7	7	1,520.2	1,474.0	-46.2
4263807	7	17	1,517.6	1,470.3	-47.3
4263807	7	18	1,516.8	1,469.5	-47.3
4263807	7	19	1,516.7	1,468.0	-48.7
4263808	7	7	1,478.2	1,471.8	-6.4
4263808	7	16	1,482.8	1,468.9	-13.9
4263808	7	17	1,471.0	1,468.3	-2.8
4263808	7	18	1,473.9	1,467.6	-6.3
4263808	7	19	1,474.6	1,466.4	-8.2
4263808	7	21	1,477.9	1,463.9	-14.0
4263808	7	22	1,478.8	1,463.2	-15.6
4263808	7	25	1,480.4	1,461.1	-19.3
4263808	7	30	1,481.8	1,454.9	-26.9
4263809	7	7	1,474.0	1,494.6	20.6
4263809	7	17	1,472.6	1,494.5	21.9
4263809	7	19	1,477.1	1,493.7	16.6
4263812	7	6	1,479.9	1,494.5	14.6
4263812	7	18	1,475.1	1,494.6	19.5
4263812	7	19	1,474.4	1,493.7	19.4
4263813	7	17	1,453.1	1,478.8	25.7
4263813	7	18	1,455.6	1,478.0	22.5
4263814	7	6	1,481.4	1,462.4	-19.0
4263814	7	9	1,481.5	1,462.8	-18.7
4263814	7	11	1,477.9	1,461.8	-16.1
4263814	7	17	1,476.8	1,459.4	-17.4
4263814	7	21	1,479.9	1,455.7	-24.2
4263814	7	25	1,481.4	1,453.4	-28.0
4263816	7	8	1,483.0	1,468.4	-14.6
4263816	7	16	1,467.6	1,466.8	-0.8
4263816	7	17	1,478.8	1,466.3	-12.5

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4263816	7	19	1,477.7	1,465.1	-12.6
4263816	7	21	1,479.6	1,463.4	-16.2
4263817	7	19	1,483.3	1,461.7	-21.6
4263819	7	17	1,508.0	1,463.1	-44.9
4263819	7	18	1,508.6	1,462.6	-46.0
4263821	7	29	1,477.0	1,486.7	9.7
4263908	7	1	1,482.1	1,460.6	-21.5
4263908	7	12	1,471.6	1,450.9	-20.7
4263908	7	15	1,472.8	1,450.3	-22.5
4263908	7	16	1,471.3	1,448.8	-22.5
4263908	7	21	1,473.2	1,444.0	-29.2
4263908	7	22	1,473.6	1,443.4	-30.2
4263908	7	25	1,474.9	1,441.3	-33.6
4263908	7	30	1,477.4	1,436.5	-41.0
4263909	7	16	1,473.7	1,471.0	-2.7
4263909	7	17	1,475.7	1,471.0	-4.7
4263909	7	18	1,477.1	1,471.0	-6.2
4263909	7	19	1,477.2	1,470.8	-6.4
4263909	7	20	1,477.6	1,470.7	-6.9
4263909	7	21	1,479.4	1,470.7	-8.7
4263909	7	22	1,479.8	1,470.7	-9.1
4263909	7	25	1,482.1	1,470.6	-11.5
4263909	7	30	1,482.7	1,470.5	-12.2
4263910	7	8	1,479.4	1,453.4	-26.0
4263910	7	9	1,477.9	1,453.4	-24.5
4263910	7	16	1,468.9	1,453.4	-15.5
4263910	7	17	1,472.4	1,453.4	-19.0
4263910	7	18	1,473.8	1,453.4	-20.4
4263910	7	19	1,471.2	1,453.4	-17.8
4263910	7	20	1,471.5	1,453.4	-18.1
4263910	7	21	1,473.6	1,453.4	-20.2
4263910	7	22	1,474.0	1,453.4	-20.6
4263910	7	25	1,475.4	1,453.4	-22.0
4263910	7	30	1,477.6	1,453.4	-24.2
4263915	7	9	1,473.1	1,456.2	-16.9
4263915	7	11	1,476.8	1,455.0	-21.8
4263915	7	16	1,460.4	1,452.6	-7.8
4263915	7	21	1,461.3	1,448.1	-13.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4263915	7	22	1,461.6	1,447.6	-14.0
4263915	7	25	1,461.6	1,445.6	-16.0
4263915	7	30	1,479.2	1,441.5	-37.7
4263916	7	11	1,487.6	1,453.4	-34.2
4263916	7	12	1,487.8	1,453.4	-34.4
4263916	7	13	1,487.0	1,453.4	-33.7
4263916	7	14	1,482.3	1,453.4	-28.9
4263916	7	16	1,482.0	1,453.4	-28.6
4263917	7	6	1,474.7	1,466.4	-8.3
4263918	7	8	1,483.5	1,457.3	-26.2
4263918	7	9	1,481.4	1,457.5	-23.9
4263918	7	16	1,476.9	1,457.5	-19.5
4263918	7	17	1,478.0	1,457.5	-20.5
4263918	7	18	1,478.2	1,457.7	-20.5
4263918	7	19	1,478.6	1,457.4	-21.3
4263918	7	20	1,476.7	1,457.2	-19.5
4263918	7	21	1,477.9	1,457.6	-20.3
4263918	7	22	1,479.6	1,457.6	-22.0
4263918	7	30	1,482.8	1,457.7	-25.2
4263925	7	6	1,472.0	1,466.4	-5.7
4263925	7	17	1,463.3	1,462.9	-0.4
4263925	7	18	1,467.1	1,462.4	-4.7
4263927	7	9	1,480.8	1,470.2	-10.6
4263928	7	11	1,483.6	1,471.2	-12.4
4263928	7	12	1,482.4	1,471.3	-11.2
4263928	7	14	1,484.0	1,471.1	-12.9
4263928	7	16	1,481.7	1,471.0	-10.7
4263928	7	18	1,482.9	1,471.0	-12.0
4263928	7	19	1,484.0	1,470.8	-13.2
4263928	7	20	1,484.2	1,470.7	-13.5
4263928	7	21	1,487.0	1,470.7	-16.3
4263928	7	25	1,487.1	1,470.6	-16.5
4263928	7	30	1,486.5	1,470.5	-16.0
4263930	7	17	1,468.0	1,467.8	-0.2
4263930	7	18	1,469.7	1,467.4	-2.3
4263931	7	17	1,474.5	1,467.8	-6.7
4263931	7	18	1,475.9	1,467.4	-8.6
4263931	7	19	1,474.9	1,466.5	-8.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
4263932	7	17	1,474.9	1,462.4	-12.5
4263932	7	18	1,477.5	1,461.9	-15.6
4263932	7	19	1,476.8	1,460.9	-15.8
4263933	7	17	1,474.7	1,439.9	-34.9
4263933	7	18	1,509.7	1,439.1	-70.6
4263933	7	19	1,513.4	1,437.8	-75.6
4263934	7	17	1,467.8	1,467.8	0.0
4263934	7	18	1,469.3	1,467.4	-2.0
4263934	7	19	1,468.5	1,466.5	-2.0
4263935	7	17	1,474.6	1,457.7	-16.9
4263935	7	18	1,475.4	1,457.0	-18.4
4263935	7	19	1,475.0	1,456.0	-19.0
4263935	7	30	1,480.4	1,448.1	-32.3
4263936	7	17	1,478.0	1,478.3	0.4
4263936	7	18	1,478.8	1,477.9	-0.9
4263936	7	19	1,478.5	1,477.0	-1.5
4263937	7	17	1,475.6	1,467.1	-8.5
4263937	7	18	1,477.7	1,466.7	-10.9
4263937	7	19	1,476.9	1,466.0	-11.0
4263938	7	17	1,473.0	1,475.8	2.9
4263938	7	18	1,473.9	1,475.5	1.7
4263938	7	19	1,473.2	1,474.7	1.6
4263939	7	17	1,477.2	1,452.4	-24.8
4263939	7	18	1,478.4	1,451.7	-26.7
4263939	7	19	1,478.3	1,450.6	-27.6
4264705	7	11	1,597.0	1,502.3	-94.7
5604302	7	15	1,582.0	1,627.9	45.9
5604707	7	11	1,640.9	1,656.5	15.6
5604707	7	12	1,638.4	1,657.5	19.2
5604707	7	13	1,639.0	1,656.5	17.5
5604707	7	14	1,634.9	1,654.2	19.3
5604707	7	16	1,631.9	1,653.1	21.3
5606202	7	16	1,600.1	1,593.9	-6.2
5606202	7	17	1,600.5	1,593.8	-6.7
5606202	7	18	1,647.7	1,593.7	-54.0
5606202	7	19	1,600.5	1,593.0	-7.5
5606202	7	21	1,644.2	1,593.4	-50.8
5606202	7	22	1,644.9	1,593.2	-51.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606202	7	25	1,646.4	1,594.0	-52.4
5606202	7	29	1,600.2	1,594.1	-6.1
5606202	7	30	1,600.0	1,593.8	-6.2
5606308	7	8	1,576.3	1,553.7	-22.6
5606308	7	10	1,576.5	1,554.1	-22.3
5606308	7	11	1,577.3	1,553.6	-23.8
5606308	7	12	1,583.1	1,552.6	-30.5
5606329	7	21	1,543.0	1,558.3	15.3
5606404	7	11	1,634.6	1,648.7	14.1
5606404	7	23	1,640.6	1,646.5	5.9
5606404	7	24	1,641.1	1,647.3	6.2
5606404	7	25	1,641.6	1,647.4	5.8
5606507	7	7	1,628.9	1,593.1	-35.8
5606603	7	7	1,618.2	1,580.8	-37.4
5606604	7	7	1,615.1	1,583.2	-31.8
5606605	7	7	1,619.4	1,581.1	-38.3
5606606	7	7	1,610.3	1,579.6	-30.8
5606606	7	29	1,608.0	1,571.7	-36.3
5606606	7	30	1,610.3	1,572.1	-38.2
5606607	7	7	1,625.6	1,580.2	-45.5
5606609	7	1	1,605.9	1,582.2	-23.7
5606610	7	1	1,599.3	1,580.9	-18.4
5606610	7	12	1,592.2	1,575.4	-16.8
5606610	7	16	1,590.0	1,573.7	-16.3
5606610	7	29	1,592.7	1,571.1	-21.6
5606611	7	1	1,628.8	1,582.7	-46.1
5606611	7	7	1,625.9	1,579.5	-46.4
5606611	7	8	1,626.2	1,578.6	-47.6
5606611	7	9	1,621.8	1,578.5	-43.3
5606611	7	10	1,620.8	1,578.0	-42.8
5606611	7	11	1,627.6	1,577.3	-50.3
5606611	7	12	1,626.3	1,576.8	-49.5
5606611	7	13	1,627.1	1,575.8	-51.3
5606611	7	14	1,624.8	1,575.1	-49.7
5606611	7	15	1,624.5	1,574.8	-49.7
5606611	7	16	1,619.5	1,573.8	-45.7
5606611	7	17	1,621.3	1,573.2	-48.1
5606611	7	18	1,620.9	1,572.7	-48.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606611	7	21	1,622.9	1,570.3	-52.6
5606611	7	23	1,623.2	1,570.1	-53.1
5606611	7	24	1,623.1	1,569.7	-53.4
5606611	7	25	1,624.9	1,569.5	-55.4
5606612	7	7	1,625.3	1,593.1	-32.2
5606613	7	7	1,611.2	1,579.8	-31.5
5606613	7	8	1,610.7	1,578.9	-31.7
5606613	7	10	1,605.2	1,578.4	-26.8
5606613	7	11	1,606.1	1,577.8	-28.3
5606613	7	12	1,605.6	1,577.2	-28.4
5606613	7	13	1,606.1	1,576.2	-29.9
5606613	7	14	1,604.6	1,575.5	-29.1
5606613	7	15	1,602.7	1,575.1	-27.6
5606613	7	16	1,602.3	1,574.4	-27.9
5606613	7	17	1,601.7	1,573.9	-27.8
5606613	7	18	1,602.7	1,573.6	-29.1
5606613	7	19	1,601.9	1,573.0	-28.9
5606613	7	20	1,597.4	1,571.9	-25.4
5606613	7	21	1,598.3	1,571.3	-27.0
5606613	7	22	1,599.4	1,571.2	-28.1
5606613	7	23	1,601.7	1,571.2	-30.5
5606613	7	24	1,600.3	1,570.9	-29.5
5606613	7	25	1,607.9	1,570.8	-37.1
5606613	7	26	1,605.6	1,570.8	-34.8
5606613	7	27	1,603.6	1,571.2	-32.4
5606613	7	28	1,610.1	1,573.1	-37.0
5606613	7	29	1,607.9	1,574.2	-33.7
5606613	7	30	1,608.7	1,574.6	-34.2
5606613	7	31	1,611.7	1,576.6	-35.2
5606614	7	1	1,616.9	1,591.5	-25.5
5606614	7	2	1,617.7	1,590.2	-27.5
5606614	7	3	1,614.9	1,589.6	-25.4
5606614	7	4	1,613.7	1,588.8	-24.9
5606614	7	5	1,612.7	1,588.7	-23.9
5606614	7	6	1,612.1	1,587.5	-24.6
5606614	7	7	1,612.7	1,587.1	-25.6
5606614	7	8	1,612.6	1,586.5	-26.1
5606614	7	9	1,609.7	1,587.0	-22.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606614	7	10	1,607.8	1,586.8	-20.9
5606614	7	11	1,607.7	1,586.3	-21.4
5606614	7	12	1,607.6	1,585.0	-22.6
5606614	7	13	1,608.3	1,584.7	-23.6
5606614	7	14	1,606.2	1,583.5	-22.7
5606614	7	15	1,605.1	1,583.1	-22.0
5606614	7	16	1,603.8	1,584.3	-19.5
5606614	7	17	1,603.8	1,584.2	-19.6
5606614	7	18	1,604.0	1,584.4	-19.6
5606614	7	19	1,602.4	1,583.4	-19.1
5606614	7	20	1,599.8	1,582.2	-17.6
5606614	7	21	1,600.4	1,582.4	-18.0
5606614	7	22	1,600.4	1,582.5	-17.9
5606614	7	23	1,601.5	1,582.8	-18.7
5606614	7	24	1,599.6	1,582.3	-17.4
5606614	7	25	1,602.6	1,583.2	-19.4
5606614	7	26	1,602.6	1,582.3	-20.3
5606614	7	27	1,602.6	1,581.6	-21.0
5606614	7	28	1,606.7	1,582.3	-24.4
5606614	7	29	1,606.6	1,583.7	-22.8
5606614	7	30	1,606.9	1,583.9	-23.0
5606614	7	31	1,607.5	1,584.6	-22.9
5606615	7	7	1,600.1	1,580.2	-19.8
5606616	7	7	1,606.2	1,579.9	-26.3
5606616	7	16	1,606.1	1,575.3	-30.8
5606616	7	18	1,608.2	1,574.9	-33.4
5606616	7	29	1,610.5	1,573.2	-37.3
5606616	7	30	1,610.2	1,573.6	-36.6
5606617	7	7	1,628.0	1,579.2	-48.8
5606617	7	9	1,623.6	1,578.3	-45.3
5606617	7	16	1,622.5	1,573.7	-48.8
5606617	7	17	1,630.0	1,573.2	-56.8
5606617	7	18	1,619.6	1,572.8	-46.8
5606617	7	19	1,615.4	1,572.1	-43.3
5606617	7	21	1,618.2	1,570.5	-47.7
5606617	7	23	1,617.5	1,570.3	-47.2
5606617	7	24	1,609.4	1,570.0	-39.4
5606617	7	25	1,610.1	1,569.8	-40.3

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606617	7	30	1,626.4	1,573.2	-53.2
5606618	7	7	1,622.2	1,581.8	-40.4
5606619	7	7	1,622.3	1,579.7	-42.5
5606620	7	7	1,636.9	1,579.9	-57.0
5606621	7	7	1,605.6	1,579.5	-26.1
5606623	7	7	1,621.4	1,581.7	-39.7
5606624	7	7	1,618.9	1,580.9	-38.0
5606625	7	7	1,619.3	1,581.0	-38.3
5606625	7	8	1,617.2	1,580.2	-37.1
5606625	7	9	1,613.6	1,580.2	-33.5
5606625	7	10	1,613.6	1,579.8	-33.8
5606625	7	11	1,610.9	1,579.2	-31.7
5606625	7	12	1,613.2	1,578.5	-34.7
5606625	7	13	1,613.6	1,577.6	-36.0
5606625	7	14	1,611.0	1,576.8	-34.2
5606625	7	15	1,610.0	1,576.3	-33.7
5606625	7	16	1,609.1	1,575.8	-33.3
5606625	7	17	1,609.3	1,575.4	-33.9
5606625	7	21	1,611.7	1,572.9	-38.8
5606625	7	23	1,612.1	1,572.8	-39.3
5606625	7	24	1,612.2	1,572.5	-39.7
5606625	7	25	1,612.3	1,572.5	-39.8
5606625	7	30	1,615.3	1,576.4	-38.9
5606626	7	7	1,622.0	1,580.4	-41.6
5606627	7	7	1,615.9	1,581.1	-34.8
5606627	7	9	1,612.3	1,580.0	-32.3
5606627	7	16	1,607.5	1,575.1	-32.4
5606627	7	17	1,610.8	1,574.5	-36.4
5606627	7	21	1,616.6	1,571.5	-45.1
5606627	7	23	1,615.9	1,571.2	-44.7
5606627	7	24	1,615.7	1,570.9	-44.8
5606627	7	25	1,615.8	1,570.7	-45.1
5606627	7	30	1,615.4	1,576.0	-39.4
5606628	7	7	1,627.9	1,580.2	-47.7
5606629	7	7	1,628.1	1,579.5	-48.6
5606629	7	9	1,624.6	1,578.5	-46.1
5606629	7	16	1,621.0	1,573.7	-47.3
5606629	7	17	1,622.2	1,573.1	-49.1

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606629	7	20	1,617.3	1,570.9	-46.4
5606629	7	21	1,621.1	1,570.2	-50.9
5606629	7	23	1,622.2	1,569.9	-52.3
5606629	7	24	1,622.6	1,569.6	-53.0
5606629	7	25	1,623.1	1,569.4	-53.7
5606630	7	7	1,616.2	1,581.5	-34.7
5606631	7	7	1,627.3	1,579.9	-47.4
5606631	7	9	1,625.9	1,578.8	-47.1
5606631	7	16	1,624.3	1,574.0	-50.3
5606631	7	17	1,626.8	1,573.2	-53.6
5606631	7	21	1,627.2	1,570.2	-57.0
5606631	7	23	1,628.1	1,569.9	-58.2
5606631	7	24	1,628.3	1,569.6	-58.8
5606631	7	25	1,628.4	1,569.3	-59.1
5606631	7	30	1,627.8	1,573.1	-54.7
5606642	7	7	1,606.8	1,579.6	-27.2
5606643	7	7	1,610.2	1,579.7	-30.5
5606645	7	29	1,617.7	1,579.7	-38.0
5606645	7	30	1,617.9	1,580.1	-37.8
5606646	7	7	1,613.6	1,582.5	-31.1
5606647	7	7	1,622.2	1,579.5	-42.7
5606648	7	7	1,626.4	1,579.9	-46.5
5606648	7	8	1,627.5	1,579.0	-48.4
5606648	7	9	1,625.6	1,578.8	-46.8
5606648	7	10	1,623.7	1,578.2	-45.4
5606648	7	11	1,623.5	1,577.5	-46.0
5606648	7	12	1,623.9	1,577.0	-46.9
5606648	7	13	1,626.2	1,576.0	-50.2
5606648	7	14	1,625.5	1,575.3	-50.2
5606648	7	15	1,622.6	1,575.0	-47.6
5606649	7	7	1,631.5	1,579.9	-51.6
5606650	7	7	1,629.5	1,579.9	-49.6
5606651	7	7	1,614.3	1,579.5	-34.8
5606652	7	7	1,620.2	1,579.5	-40.7
5606653	7	7	1,618.7	1,580.7	-38.0
5606654	7	7	1,621.6	1,580.0	-41.6
5606655	7	7	1,606.7	1,579.6	-27.1
5606656	7	7	1,620.7	1,580.0	-40.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606657	7	7	1,625.8	1,579.7	-46.1
5606658	7	7	1,665.0	1,579.5	-85.5
5606701	7	11	1,641.6	1,660.2	18.6
5606701	7	16	1,645.7	1,659.2	13.5
5606701	7	17	1,646.0	1,657.6	11.6
5606701	7	20	1,641.7	1,655.0	13.3
5606701	7	21	1,641.7	1,654.9	13.2
5606701	7	23	1,641.0	1,654.7	13.7
5606701	7	24	1,642.1	1,655.5	13.4
5606701	7	25	1,642.6	1,656.0	13.4
5606718	7	30	1,641.2	1,653.6	12.4
5606809	7	30	1,642.4	1,611.0	-31.4
5606811	7	8	1,647.4	1,622.9	-24.5
5606811	7	11	1,616.9	1,620.7	3.8
5606811	7	16	1,637.9	1,615.6	-22.3
5606811	7	21	1,647.2	1,610.0	-37.2
5606811	7	23	1,643.5	1,609.4	-34.1
5606811	7	25	1,645.2	1,608.4	-36.8
5606811	7	30	1,641.9	1,611.0	-31.0
5606813	7	17	1,737.0	1,620.6	-116.4
5606813	7	21	1,737.2	1,616.6	-120.6
5606813	7	23	1,737.5	1,616.3	-121.2
5606813	7	25	1,738.6	1,615.7	-123.0
5606815	7	30	1,678.5	1,616.4	-62.1
5606816	7	30	1,647.7	1,606.7	-41.0
5606835	7	9	1,650.0	1,635.4	-14.6
5606836	7	14	1,493.0	1,624.8	131.8
5606902	7	9	1,621.6	1,581.8	-39.8
5606902	7	17	1,616.1	1,576.1	-40.0
5606902	7	25	1,617.4	1,572.2	-45.2
5606903	7	7	1,637.4	1,602.8	-34.6
5606904	7	7	1,643.2	1,603.5	-39.6
5606905	7	11	1,631.8	1,608.4	-23.4
5606905	7	16	1,638.7	1,603.7	-35.0
5606905	7	17	1,639.7	1,602.6	-37.1
5606905	7	20	1,634.0	1,599.5	-34.5
5606905	7	21	1,638.7	1,598.5	-40.2
5606905	7	23	1,639.4	1,597.8	-41.6

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606905	7	24	1,639.1	1,597.3	-41.8
5606905	7	25	1,639.5	1,596.9	-42.6
5606906	7	11	1,645.1	1,615.8	-29.3
5606906	7	16	1,638.1	1,610.8	-27.4
5606906	7	17	1,640.6	1,609.5	-31.1
5606906	7	20	1,634.9	1,606.1	-28.8
5606906	7	21	1,639.3	1,605.1	-34.2
5606906	7	23	1,640.1	1,604.3	-35.8
5606906	7	25	1,641.2	1,603.4	-37.8
5606906	7	30	1,648.0	1,606.7	-41.3
5606910	7	1	1,649.7	1,603.0	-46.6
5606910	7	7	1,641.4	1,602.8	-38.6
5606910	7	8	1,639.6	1,602.0	-37.6
5606910	7	9	1,638.3	1,601.6	-36.7
5606910	7	10	1,636.7	1,600.9	-35.8
5606910	7	11	1,637.9	1,600.1	-37.8
5606910	7	12	1,637.3	1,599.4	-37.9
5606910	7	13	1,636.6	1,598.4	-38.3
5606910	7	14	1,635.2	1,597.5	-37.7
5606910	7	15	1,634.0	1,596.9	-37.1
5606910	7	16	1,634.2	1,595.7	-38.5
5606910	7	17	1,634.1	1,594.7	-39.4
5606910	7	20	1,627.0	1,591.7	-35.3
5606910	7	21	1,628.7	1,590.7	-38.0
5606910	7	23	1,629.1	1,590.0	-39.1
5606910	7	24	1,629.4	1,589.6	-39.9
5606910	7	25	1,629.5	1,589.2	-40.3
5606910	7	30	1,633.7	1,593.6	-40.2
5606911	7	11	1,609.4	1,600.4	-9.1
5606911	7	16	1,603.0	1,596.0	-7.0
5606911	7	17	1,604.2	1,595.0	-9.2
5606911	7	20	1,619.9	1,592.2	-27.8
5606911	7	24	1,620.4	1,590.1	-30.3
5606911	7	25	1,620.9	1,589.8	-31.2
5606911	7	30	1,628.2	1,594.1	-34.1
5606912	7	7	1,637.2	1,588.3	-48.9
5606912	7	9	1,635.0	1,587.3	-47.7
5606913	7	9	1,616.3	1,579.1	-37.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5606913	7	11	1,606.4	1,577.9	-28.5
5606913	7	16	1,611.6	1,574.3	-37.3
5606913	7	17	1,611.9	1,573.6	-38.3
5606913	7	20	1,606.5	1,571.5	-35.0
5606913	7	21	1,613.4	1,570.7	-42.7
5606913	7	23	1,612.5	1,570.5	-42.0
5606913	7	24	1,604.8	1,570.2	-34.6
5606913	7	25	1,605.1	1,570.0	-35.1
5606913	7	30	1,618.8	1,574.9	-43.9
5606914	7	30	1,624.9	1,576.0	-48.9
5606919	7	23	1,618.5	1,577.8	-40.7
5606919	7	24	1,618.4	1,577.5	-40.9
5606919	7	25	1,618.7	1,577.3	-41.4
5606926	7	30	1,662.2	1,603.8	-58.4
5606935	7	30	1,626.0	1,575.6	-50.4
5606943	7	7	1,659.7	1,581.8	-77.8
5606944	7	7	1,632.1	1,598.3	-33.8
5606945	7	7	1,646.0	1,599.9	-46.2
5606946	7	7	1,681.1	1,606.3	-74.8
5606948	7	7	1,627.6	1,593.9	-33.7
5606949	7	7	1,645.5	1,595.7	-49.8
5606950	7	7	1,663.3	1,581.0	-82.3
5607107	7	1	1,546.2	1,541.1	-5.2
5607107	7	6	1,532.6	1,537.5	4.9
5607107	7	7	1,530.9	1,538.6	7.7
5607107	7	9	1,524.7	1,538.3	13.6
5607107	7	12	1,521.8	1,537.3	15.5
5607107	7	15	1,528.2	1,536.3	8.1
5607107	7	16	1,516.7	1,534.8	18.1
5607107	7	17	1,518.7	1,533.9	15.2
5607107	7	22	1,518.6	1,527.0	8.4
5607107	7	25	1,520.2	1,523.8	3.6
5607110	7	6	1,513.4	1,531.6	18.2
5607110	7	7	1,551.7	1,531.6	-20.1
5607110	7	9	1,511.3	1,532.4	21.1
5607110	7	11	1,511.0	1,532.1	21.1
5607110	7	16	1,502.4	1,531.0	28.6
5607110	7	17	1,515.8	1,530.6	14.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5607110	7	21	1,506.5	1,527.4	20.9
5607110	7	22	1,506.8	1,527.1	20.3
5607110	7	25	1,508.1	1,527.0	18.9
5607110	7	30	1,512.8	1,521.1	8.3
5607211	7	17	1,505.8	1,515.9	10.1
5607211	7	18	1,507.2	1,514.7	7.5
5607216	7	1	1,527.6	1,518.6	-9.0
5607216	7	6	1,491.6	1,514.8	23.2
5607216	7	7	1,500.5	1,515.1	14.6
5607216	7	9	1,494.2	1,516.1	21.9
5607216	7	11	1,489.2	1,516.0	26.8
5607216	7	12	1,483.8	1,515.0	31.2
5607216	7	15	1,494.0	1,513.9	19.9
5607216	7	16	1,489.0	1,515.0	26.0
5607216	7	17	1,492.6	1,514.4	21.8
5607216	7	20	1,476.7	1,511.0	34.3
5607216	7	21	1,487.6	1,511.0	23.4
5607216	7	22	1,488.1	1,510.7	22.6
5607216	7	25	1,489.1	1,510.4	21.3
5607218	7	1	1,478.7	1,472.5	-6.3
5607218	7	12	1,502.5	1,463.6	-38.9
5607218	7	15	1,516.1	1,462.9	-53.2
5607218	7	16	1,516.2	1,461.2	-55.0
5607218	7	17	1,517.4	1,460.1	-57.4
5607218	7	18	1,517.6	1,458.9	-58.7
5607218	7	21	1,517.7	1,453.4	-64.3
5607218	7	22	1,518.1	1,452.2	-65.9
5607218	7	25	1,520.2	1,448.8	-71.4
5607219	7	1	1,467.5	1,484.6	17.1
5607219	7	16	1,448.8	1,478.4	29.7
5607219	7	17	1,448.4	1,476.3	27.9
5607219	7	18	1,448.9	1,474.8	25.9
5607219	7	19	1,457.7	1,471.9	14.2
5607219	7	21	1,459.1	1,467.4	8.3
5607219	7	22	1,460.6	1,465.9	5.3
5607219	7	25	1,461.2	1,462.2	1.0
5607220	7	1	1,479.0	1,472.5	-6.5
5607220	7	15	1,526.8	1,462.9	-63.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5607220	7	16	1,528.4	1,461.2	-67.2
5607220	7	17	1,529.2	1,460.1	-69.2
5607220	7	18	1,529.7	1,458.9	-70.8
5607220	7	21	1,526.5	1,453.4	-73.1
5607220	7	22	1,526.9	1,452.2	-74.7
5607220	7	25	1,526.1	1,448.8	-77.3
5607223	7	7	1,495.8	1,515.4	19.6
5607234	7	17	1,504.8	1,460.1	-44.7
5607234	7	18	1,515.8	1,458.9	-56.9
5607234	7	19	1,515.2	1,457.1	-58.1
5607235	7	17	1,455.1	1,459.6	4.6
5607235	7	18	1,485.8	1,458.5	-27.3
5607236	7	7	1,550.1	1,512.1	-38.0
5607237	7	7	1,548.6	1,512.1	-36.5
5607238	7	7	1,514.2	1,515.4	1.2
5607240	7	6	1,486.9	1,480.6	-6.3
5607240	7	7	1,487.0	1,484.1	-2.9
5607240	7	9	1,478.3	1,485.2	6.9
5607240	7	16	1,516.1	1,481.3	-34.8
5607240	7	17	1,475.7	1,477.9	2.2
5607240	7	30	1,489.8	1,442.4	-47.4
5607241	7	7	1,508.8	1,513.0	4.2
5607242	7	17	1,489.7	1,440.1	-49.7
5607242	7	18	1,493.6	1,439.1	-54.6
5607242	7	19	1,492.8	1,437.5	-55.3
5607243	7	5	1,487.0	1,482.8	-4.2
5607243	7	6	1,486.3	1,481.2	-5.1
5607243	7	7	1,488.0	1,483.1	-4.9
5607243	7	11	1,473.8	1,483.0	9.2
5607243	7	16	1,455.0	1,480.1	25.1
5607243	7	17	1,466.2	1,478.1	12.0
5607243	7	18	1,473.3	1,476.6	3.3
5607243	7	19	1,474.7	1,473.9	-0.8
5607243	7	20	1,478.5	1,471.2	-7.3
5607243	7	21	1,480.1	1,469.3	-10.8
5607243	7	22	1,480.3	1,467.8	-12.5
5607243	7	25	1,481.4	1,463.9	-17.5
5607243	7	30	1,491.7	1,449.0	-42.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5607251	7	18	1,466.2	1,497.2	31.0
5607251	7	19	1,489.1	1,494.0	4.9
5607252	7	17	1,448.5	1,513.3	64.8
5607252	7	18	1,449.3	1,512.1	62.8
5607252	7	19	1,488.5	1,509.9	21.4
5607266	7	17	1,451.0	1,490.8	39.9
5607266	7	18	1,467.1	1,489.1	22.0
5607273	7	17	1,476.9	1,525.0	48.2
5607273	7	18	1,483.4	1,524.9	41.5
5607273	7	19	1,537.2	1,522.9	-14.3
5607301	7	9	1,481.9	1,444.7	-37.2
5607301	7	16	1,457.7	1,441.0	-16.8
5607301	7	19	1,512.6	1,437.6	-75.0
5607302	7	1	1,493.0	1,452.9	-40.1
5607302	7	12	1,485.6	1,439.5	-46.1
5607302	7	15	1,484.3	1,438.6	-45.7
5607302	7	16	1,483.1	1,437.0	-46.1
5607302	7	21	1,484.6	1,431.1	-53.6
5607302	7	22	1,485.1	1,430.2	-54.9
5607302	7	25	1,487.7	1,427.4	-60.3
5607305	7	1	1,483.4	1,465.2	-18.2
5607305	7	12	1,476.7	1,455.4	-21.3
5607305	7	15	1,474.3	1,454.6	-19.7
5607305	7	16	1,472.0	1,453.1	-18.9
5607305	7	17	1,474.1	1,452.4	-21.7
5607305	7	18	1,475.8	1,451.7	-24.1
5607305	7	19	1,475.8	1,450.6	-25.2
5607305	7	21	1,478.6	1,448.4	-30.3
5607305	7	22	1,479.3	1,447.8	-31.5
5607305	7	25	1,479.7	1,445.8	-34.0
5607309	7	17	1,474.6	1,470.1	-4.5
5607309	7	18	1,476.9	1,469.5	-7.4
5607309	7	19	1,476.6	1,468.5	-8.2
5607313	7	17	1,465.9	1,430.5	-35.3
5607315	7	17	1,478.8	1,470.1	-8.8
5607315	7	18	1,481.0	1,469.5	-11.5
5607315	7	19	1,478.9	1,468.5	-10.4
5607318	7	17	1,485.8	1,435.0	-50.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5607318	7	18	1,497.1	1,434.1	-63.0
5607318	7	19	1,500.2	1,432.7	-67.5
5607321	7	17	1,473.9	1,454.4	-19.4
5607321	7	18	1,473.7	1,453.7	-20.0
5607321	7	19	1,473.6	1,452.5	-21.1
5607322	7	17	1,479.8	1,448.7	-31.1
5607322	7	18	1,479.4	1,448.0	-31.4
5607322	7	19	1,479.6	1,446.8	-32.8
5607329	7	7	1,470.3	1,440.6	-29.8
5607329	7	16	1,463.9	1,436.3	-27.6
5607329	7	17	1,476.4	1,435.5	-40.9
5607331	7	17	1,450.8	1,435.5	-15.2
5607331	7	18	1,454.5	1,434.6	-19.9
5607331	7	19	1,453.7	1,433.3	-20.4
5607334	7	17	1,484.2	1,448.7	-35.5
5607334	7	18	1,485.0	1,448.0	-37.1
5607334	7	19	1,484.3	1,446.8	-37.5
5607335	7	17	1,481.2	1,433.0	-48.3
5607335	7	18	1,482.1	1,432.1	-49.9
5607335	7	19	1,484.4	1,430.8	-53.6
5607403	7	7	1,595.7	1,582.1	-13.5
5607403	7	23	1,589.6	1,571.6	-18.0
5607404	7	1	1,627.1	1,586.3	-40.7
5607404	7	7	1,609.2	1,584.6	-24.7
5607404	7	12	1,587.9	1,581.1	-6.8
5607404	7	16	1,577.8	1,577.8	0.0
5607404	7	17	1,588.0	1,576.9	-11.1
5607404	7	18	1,573.8	1,576.3	2.5
5607404	7	21	1,575.7	1,573.5	-2.2
5607404	7	23	1,575.8	1,573.3	-2.6
5607404	7	24	1,575.6	1,572.5	-3.1
5607404	7	25	1,577.1	1,572.1	-5.0
5607404	7	30	1,609.6	1,574.4	-35.2
5607406	7	6	1,581.4	1,578.8	-2.6
5607406	7	8	1,576.8	1,578.6	1.8
5607406	7	9	1,573.4	1,578.9	5.5
5607406	7	16	1,549.0	1,574.1	25.1
5607406	7	17	1,549.8	1,573.4	23.6

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5607406	7	18	1,550.4	1,572.9	22.5
5607406	7	19	1,550.7	1,571.9	21.2
5607406	7	21	1,554.1	1,569.9	15.8
5607406	7	25	1,555.6	1,568.1	12.5
5607407	7	9	1,571.5	1,578.9	7.4
5607407	7	16	1,562.8	1,574.1	11.3
5607407	7	17	1,562.8	1,573.4	10.6
5607407	7	18	1,563.2	1,572.9	9.7
5607407	7	19	1,563.6	1,571.9	8.3
5607407	7	21	1,557.1	1,569.9	12.8
5607407	7	22	1,558.3	1,569.5	11.2
5607407	7	25	1,559.0	1,568.1	9.1
5607407	7	30	1,562.7	1,566.5	3.8
5607409	7	7	1,609.1	1,580.1	-29.1
5607424	7	7	1,599.1	1,583.0	-16.1
5607424	7	17	1,574.9	1,576.0	1.1
5607424	7	18	1,563.4	1,575.5	12.1
5607424	7	23	1,573.0	1,572.6	-0.4
5607424	7	24	1,573.2	1,571.9	-1.3
5607424	7	25	1,573.6	1,571.5	-2.1
5607424	7	30	1,590.7	1,573.2	-17.5
5607425	7	7	1,585.3	1,582.0	-3.3
5607426	7	7	1,625.7	1,584.5	-41.2
5607426	7	29	1,608.3	1,573.8	-34.6
5607427	7	7	1,595.2	1,583.6	-11.6
5607428	7	7	1,593.6	1,581.2	-12.5
5607429	7	7	1,601.4	1,580.1	-21.4
5607430	7	7	1,594.4	1,581.7	-12.7
5607431	7	7	1,613.8	1,580.5	-33.2
5607432	7	7	1,614.9	1,580.1	-34.8
5607433	7	7	1,727.9	1,584.6	-143.3
5607434	7	7	1,582.1	1,580.9	-1.3
5607434	7	30	1,572.9	1,571.9	-1.0
5607436	7	7	1,611.4	1,580.6	-30.8
5607438	7	7	1,602.4	1,583.9	-18.5
5607439	7	7	1,608.9	1,583.9	-25.0
5607440	7	7	1,600.8	1,583.9	-16.9
5607441	7	7	1,714.7	1,586.8	-127.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5607442	7	7	1,716.4	1,586.8	-129.6
5607443	7	30	1,573.8	1,571.9	-1.9
5607901	7	1	1,636.7	1,666.0	29.3
5607902	7	20	1,562.2	1,674.3	112.1
5607902	7	23	1,564.6	1,673.1	108.5
5607902	7	25	1,565.2	1,671.8	106.6
5607902	7	29	1,571.8	1,671.5	99.7
5607902	7	30	1,591.6	1,671.2	79.6
5607903	7	9	1,612.3	1,676.2	64.0
5607904	7	20	1,609.8	1,683.0	73.2
5607906	7	9	1,642.4	1,685.0	42.6
5607907	7	9	1,612.8	1,676.2	63.5
5608104	7	9	1,506.1	1,554.2	48.1
5608104	7	11	1,498.4	1,553.0	54.6
5608104	7	16	1,489.2	1,549.6	60.4
5608104	7	17	1,485.9	1,549.1	63.2
5608104	7	21	1,485.1	1,545.6	60.5
5608104	7	22	1,500.6	1,545.2	44.6
5608104	7	25	1,487.7	1,544.3	56.6
5608104	7	30	1,514.5	1,542.1	27.6
5608105	7	30	1,547.9	1,554.0	6.1
5608106	7	9	1,522.6	1,548.4	25.8
5608106	7	11	1,520.3	1,547.1	26.8
5608106	7	16	1,496.7	1,543.6	46.9
5608106	7	17	1,516.6	1,542.9	26.3
5608106	7	21	1,518.0	1,539.2	21.2
5608106	7	25	1,518.7	1,537.5	18.8
5608106	7	30	1,535.2	1,535.3	0.1
5608109	7	6	1,526.7	1,548.3	21.6
5608109	7	9	1,520.3	1,548.4	28.1
5608109	7	11	1,520.5	1,547.1	26.6
5608109	7	16	1,518.7	1,543.6	24.9
5608109	7	17	1,517.8	1,542.9	25.1
5608109	7	21	1,523.7	1,539.2	15.5
5608109	7	22	1,525.6	1,538.8	13.2
5608109	7	25	1,526.6	1,537.5	10.9
5608109	7	30	1,530.6	1,535.3	4.7
5608110	7	6	1,530.1	1,548.3	18.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5608110	7	9	1,524.1	1,548.4	24.3
5608110	7	16	1,521.9	1,543.6	21.7
5608110	7	17	1,515.6	1,542.9	27.3
5608110	7	21	1,520.5	1,539.2	18.7
5608110	7	22	1,520.9	1,538.8	17.9
5608110	7	25	1,521.6	1,537.5	15.9
5608110	7	30	1,533.8	1,535.3	1.5
5608116	7	17	1,509.5	1,573.9	64.4
5608117	7	6	1,565.5	1,585.6	20.1
5608117	7	9	1,565.4	1,584.4	19.0
5608117	7	11	1,555.7	1,583.7	28.0
5608117	7	16	1,567.6	1,581.3	13.7
5608117	7	22	1,571.9	1,578.6	6.7
5608202	7	10	1,532.6	1,524.8	-7.8
5608205	7	10	1,582.7	1,598.9	16.2
5608205	7	12	1,580.3	1,595.9	15.7
5608205	7	15	1,584.6	1,592.6	8.0
5608205	7	16	1,584.8	1,595.7	10.9
5608205	7	29	1,587.0	1,592.9	5.9
5608206	7	7	1,581.6	1,570.5	-11.1
5608301	7	7	1,623.5	1,576.5	-47.0
5608302	7	7	1,622.2	1,585.5	-36.7
5608302	7	10	1,621.3	1,588.4	-32.9
5608302	7	11	1,605.6	1,588.9	-16.7
5608302	7	12	1,614.5	1,585.3	-29.2
5608302	7	16	1,605.2	1,584.0	-21.2
5608302	7	23	1,630.1	1,589.8	-40.3
5608302	7	29	1,628.7	1,583.6	-45.1
5608401	7	6	1,579.8	1,655.3	75.5
5608401	7	9	1,576.4	1,654.4	78.0
5608401	7	11	1,570.9	1,654.0	83.1
5608401	7	16	1,572.1	1,651.3	79.2
5608401	7	17	1,568.6	1,651.1	82.5
5608401	7	20	1,568.2	1,649.1	80.9
5608401	7	21	1,576.1	1,648.6	72.5
5608401	7	22	1,576.6	1,648.2	71.6
5608401	7	23	1,577.4	1,648.5	71.1
5608401	7	25	1,577.9	1,648.3	70.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5608403	7	1	1,583.3	1,652.2	68.9
5608403	7	12	1,574.0	1,655.9	81.9
5608403	7	15	1,576.7	1,654.5	77.7
5608403	7	16	1,565.9	1,653.9	88.1
5608403	7	17	1,576.9	1,653.6	76.7
5608403	7	20	1,577.1	1,651.7	74.6
5608403	7	21	1,578.9	1,651.1	72.2
5608403	7	22	1,578.7	1,650.7	72.0
5608403	7	25	1,579.2	1,650.6	71.4
5608403	7	29	1,588.2	1,648.2	60.0
5608403	7	30	1,591.7	1,647.9	56.2
5608409	7	9	1,696.6	1,664.2	-32.4
5608501	7	9	1,590.7	1,630.1	39.3
5608501	7	10	1,588.9	1,630.1	41.2
5608501	7	12	1,586.8	1,627.9	41.1
5608501	7	15	1,595.5	1,625.2	29.8
5608501	7	16	1,597.1	1,626.5	29.4
5608501	7	23	1,596.2	1,625.6	29.4
5608501	7	29	1,595.9	1,621.8	25.9
5608502	7	1	1,666.8	1,662.5	-4.3
5608502	7	7	1,664.6	1,661.4	-3.3
5608502	7	10	1,659.1	1,660.9	1.8
5608502	7	12	1,664.1	1,659.8	-4.3
5608502	7	16	1,667.4	1,657.4	-10.0
5608502	7	23	1,671.3	1,654.5	-16.8
5608502	7	29	1,665.3	1,650.6	-14.7
5608503	7	1	1,704.6	1,665.1	-39.5
5608503	7	12	1,703.5	1,662.4	-41.1
5608503	7	15	1,701.0	1,661.3	-39.7
5608503	7	16	1,701.4	1,659.6	-41.8
5608503	7	23	1,705.3	1,655.9	-49.4
5608503	7	29	1,683.7	1,651.6	-32.1
5608504	7	7	1,596.5	1,662.6	66.1
5608505	7	7	1,594.8	1,656.7	61.9
5608505	7	11	1,584.7	1,655.7	71.0
5608505	7	16	1,584.6	1,653.3	68.7
5608505	7	23	1,589.5	1,649.1	59.6
5608505	7	29	1,599.5	1,644.5	45.0

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5608508	7	9	1,658.7	1,660.8	2.2
5608509	7	7	1,668.8	1,661.1	-7.7
5608509	7	8	1,670.5	1,660.1	-10.5
5608509	7	11	1,669.8	1,660.1	-9.8
5608509	7	12	1,670.6	1,659.6	-11.1
5608509	7	13	1,678.5	1,658.5	-20.1
5608509	7	14	1,676.5	1,658.1	-18.5
5608509	7	15	1,670.8	1,658.2	-12.5
5608509	7	16	1,669.8	1,657.3	-12.5
5608509	7	17	1,668.3	1,657.1	-11.2
5608509	7	18	1,673.5	1,657.0	-16.5
5608509	7	19	1,668.2	1,656.1	-12.1
5608509	7	20	1,664.8	1,654.8	-10.0
5608509	7	21	1,666.7	1,654.3	-12.4
5608509	7	22	1,670.7	1,654.0	-16.7
5608509	7	23	1,675.3	1,654.5	-20.8
5608509	7	24	1,672.2	1,653.7	-18.5
5608509	7	25	1,674.1	1,653.6	-20.4
5608509	7	29	1,672.2	1,650.8	-21.4
5608511	7	7	1,638.1	1,650.4	12.3
5608512	7	7	1,633.4	1,647.4	14.1
5608512	7	29	1,629.2	1,636.3	7.1
5608513	7	9	1,594.2	1,638.5	44.4
5608514	7	9	1,624.5	1,641.3	16.9
5608515	7	8	1,594.0	1,652.3	58.3
5608516	7	8	1,611.4	1,649.1	37.7
5608517	7	7	1,648.2	1,643.2	-5.0
5608602	7	7	1,583.5	1,642.9	59.4
5608602	7	10	1,585.9	1,642.9	57.0
5608602	7	12	1,585.0	1,642.4	57.4
5608602	7	15	1,585.0	1,641.9	56.9
5608602	7	16	1,584.7	1,640.2	55.5
5608602	7	29	1,606.3	1,632.8	26.5
5608603	7	9	1,656.1	1,621.8	-34.2
5608604	7	9	1,554.5	1,613.7	59.2
5608605	7	10	1,697.6	1,573.1	-124.5
5608606	7	9	1,689.3	1,604.8	-84.5
5608607	7	11	1,600.0	1,625.8	25.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5608704	7	17	1,612.6	1,672.0	59.4
5608704	7	20	1,610.5	1,669.9	59.4
5608704	7	21	1,611.5	1,669.3	57.8
5608704	7	22	1,612.1	1,668.8	56.7
5608704	7	23	1,612.4	1,668.8	56.4
5608704	7	25	1,613.3	1,667.5	54.2
5608705	7	9	1,704.8	1,671.0	-33.8
5608706	7	9	1,634.0	1,674.7	40.7
5608708	7	17	1,697.6	1,669.8	-27.8
5608708	7	20	1,694.4	1,667.5	-26.9
5608708	7	21	1,695.6	1,666.9	-28.7
5608708	7	22	1,696.1	1,666.5	-29.6
5608708	7	23	1,696.3	1,666.7	-29.6
5608708	7	25	1,697.4	1,665.3	-32.1
5608715	7	17	1,580.2	1,665.5	85.3
5608717	7	9	1,705.6	1,672.1	-33.5
5608718	7	9	1,686.3	1,667.6	-18.7
5608719	7	9	1,689.3	1,669.6	-19.7
5608720	7	9	1,720.3	1,671.0	-49.3
5608721	7	9	1,699.3	1,670.6	-28.6
5608723	7	9	1,660.5	1,674.7	14.2
5608725	7	9	1,659.5	1,675.3	15.8
5608726	7	9	1,666.6	1,676.0	9.5
5608728	7	9	1,648.7	1,676.0	27.3
5608730	7	9	1,636.0	1,675.0	39.1
5608733	7	17	1,542.9	1,662.4	119.5
5608733	7	20	1,541.0	1,660.4	119.4
5608733	7	21	1,543.1	1,659.7	116.6
5608733	7	22	1,543.2	1,659.3	116.1
5608733	7	23	1,544.1	1,659.4	115.3
5608733	7	25	1,544.9	1,658.6	113.7
5608801	7	9	1,747.1	1,672.0	-75.1
5608802	7	9	1,736.1	1,671.4	-64.7
5608805	7	9	1,731.0	1,671.1	-59.9
5608805	7	17	1,733.8	1,667.6	-66.2
5608805	7	20	1,733.5	1,665.2	-68.4
5608902	7	9	1,576.5	1,629.4	52.9
5608903	7	9	1,575.1	1,629.4	54.3

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5608906	7	17	1,558.1	1,615.9	57.8
5608906	7	20	1,557.5	1,613.7	56.2
5608906	7	21	1,559.0	1,613.1	54.1
5608906	7	22	1,559.3	1,613.0	53.7
5608906	7	23	1,559.9	1,613.7	53.8
5608906	7	25	1,561.5	1,612.6	51.1
5608906	7	29	1,557.9	1,611.8	53.9
5608906	7	30	1,559.2	1,612.3	53.1
5613105	7	16	1,583.9	1,666.2	82.3
5613105	7	17	1,581.8	1,661.4	79.6
5613202	7	1	1,635.2	1,675.9	40.8
5613202	7	12	1,653.2	1,668.5	15.2
5613202	7	15	1,656.8	1,663.1	6.3
5613202	7	16	1,655.4	1,660.6	5.2
5613202	7	29	1,657.6	1,650.3	-7.3
5613502	7	16	1,633.1	1,635.1	2.0
5613502	7	21	1,646.7	1,628.6	-18.1
5613502	7	22	1,646.8	1,627.3	-19.5
5613502	7	23	1,646.7	1,628.4	-18.3
5613601	7	16	1,668.2	1,635.1	-33.1
5613601	7	21	1,716.2	1,627.8	-88.4
5613601	7	22	1,716.7	1,626.3	-90.4
5613601	7	23	1,717.0	1,625.2	-91.8
5613601	7	25	1,717.0	1,623.1	-94.0
5613804	7	16	1,774.6	1,630.4	-144.2
5613902	7	11	1,652.0	1,619.6	-32.4
5613902	7	16	1,647.8	1,612.4	-35.5
5613902	7	19	1,647.3	1,607.7	-39.6
5613902	7	20	1,645.7	1,606.4	-39.3
5613902	7	21	1,647.2	1,605.3	-41.9
5613902	7	22	1,647.2	1,604.3	-42.9
5613902	7	23	1,647.4	1,603.2	-44.2
5613902	7	25	1,650.6	1,601.1	-49.5
5613902	7	29	1,647.5	1,600.5	-47.1
5613904	7	12	1,655.8	1,635.5	-20.2
5613904	7	13	1,657.4	1,634.1	-23.3
5613904	7	15	1,648.4	1,630.7	-17.7
5613904	7	16	1,656.9	1,629.2	-27.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5613904	7	22	1,657.4	1,620.5	-36.9
5613904	7	23	1,657.1	1,619.4	-37.7
5613904	7	25	1,657.2	1,617.2	-40.0
5613904	7	26	1,609.5	1,616.2	6.7
5613916	7	22	1,624.4	1,596.1	-28.3
5613916	7	23	1,624.6	1,595.2	-29.4
5613916	7	25	1,625.2	1,593.3	-31.9
5613916	7	29	1,621.4	1,591.0	-30.4
5613917	7	29	1,622.6	1,594.8	-27.8
5614108	7	16	1,687.0	1,663.7	-23.3
5614108	7	29	1,634.6	1,655.5	20.9
5614203	7	29	1,694.5	1,629.5	-65.0
5614408	7	22	1,654.9	1,629.5	-25.4
5614408	7	23	1,656.4	1,628.5	-28.0
5614408	7	24	1,655.4	1,627.3	-28.1
5614716	7	11	1,659.3	1,626.6	-32.8
5614716	7	23	1,652.2	1,609.5	-42.7
5614716	7	25	1,652.4	1,607.4	-45.0
5614716	7	29	1,660.0	1,606.7	-53.3
5614717	7	11	1,652.3	1,631.7	-20.6
5614717	7	16	1,651.8	1,623.8	-28.0
5614717	7	19	1,653.4	1,618.9	-34.5
5614717	7	20	1,649.6	1,617.5	-32.1
5614717	7	22	1,649.7	1,615.4	-34.3
5614717	7	23	1,649.6	1,614.2	-35.4
5614717	7	25	1,650.0	1,612.1	-37.9
5614717	7	29	1,657.9	1,611.5	-46.4
5614720	7	29	1,652.5	1,611.5	-41.0
5614723	7	19	1,645.4	1,607.5	-37.9
5614723	7	20	1,643.5	1,606.8	-36.7
5614723	7	22	1,643.4	1,605.2	-38.2
5614723	7	23	1,643.6	1,603.9	-39.7
5614723	7	25	1,644.7	1,601.6	-43.1
5614801	7	7	1,622.3	1,597.9	-24.4
5614801	7	11	1,629.5	1,592.7	-36.8
5614801	7	16	1,626.6	1,588.2	-38.4
5614801	7	19	1,628.4	1,586.1	-42.3
5614801	7	20	1,628.7	1,586.9	-41.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5614801	7	22	1,629.0	1,588.4	-40.6
5614801	7	23	1,629.2	1,588.3	-40.9
5614801	7	25	1,630.2	1,587.5	-42.7
5614801	7	29	1,626.0	1,587.5	-38.5
5614802	7	1	1,591.5	1,553.4	-38.1
5614802	7	7	1,597.6	1,581.5	-16.1
5614802	7	12	1,591.5	1,584.7	-6.8
5614802	7	15	1,592.4	1,583.7	-8.7
5614802	7	16	1,593.6	1,583.9	-9.7
5614802	7	19	1,593.3	1,583.3	-10.0
5614802	7	20	1,590.1	1,584.1	-6.0
5614802	7	22	1,590.1	1,586.5	-3.6
5614802	7	23	1,590.4	1,587.0	-3.4
5614802	7	25	1,591.4	1,587.2	-4.2
5614803	7	7	1,635.5	1,591.7	-43.9
5614804	7	7	1,651.9	1,592.7	-59.3
5614804	7	19	1,647.2	1,587.5	-59.7
5614804	7	20	1,646.3	1,588.6	-57.7
5614804	7	22	1,647.4	1,590.8	-56.6
5614804	7	23	1,647.6	1,590.9	-56.7
5614804	7	25	1,647.9	1,590.5	-57.5
5614805	7	7	1,647.9	1,589.9	-57.9
5614806	7	7	1,659.8	1,589.9	-69.8
5614807	7	7	1,618.3	1,597.4	-20.9
5614808	7	7	1,635.2	1,581.4	-53.8
5614810	7	7	1,624.3	1,597.9	-26.4
5614811	7	7	1,626.9	1,576.0	-50.8
5614812	7	7	1,589.6	1,581.5	-8.1
5614812	7	19	1,591.0	1,583.3	-7.7
5614812	7	20	1,588.4	1,584.1	-4.3
5614812	7	22	1,589.0	1,586.5	-2.5
5614812	7	23	1,588.8	1,587.0	-1.8
5614812	7	29	1,577.7	1,589.7	12.0
5614814	7	7	1,649.6	1,589.9	-59.6
5614814	7	16	1,642.8	1,589.4	-53.5
5614814	7	19	1,645.8	1,588.4	-57.4
5614814	7	20	1,645.1	1,589.6	-55.5
5614814	7	22	1,645.2	1,592.3	-52.9

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5614814	7	23	1,645.4	1,592.6	-52.8
5614814	7	25	1,646.0	1,592.3	-53.7
5614815	7	19	1,608.1	1,587.2	-20.9
5614815	7	20	1,606.2	1,588.2	-18.0
5614815	7	22	1,606.1	1,591.0	-15.1
5614815	7	23	1,606.4	1,591.4	-15.0
5614815	7	25	1,607.5	1,591.4	-16.1
5614815	7	29	1,583.2	1,594.1	10.9
5614817	7	7	1,591.2	1,578.1	-13.1
5614817	7	19	1,585.5	1,579.0	-6.5
5614817	7	20	1,585.1	1,579.6	-5.5
5614817	7	22	1,585.2	1,581.6	-3.6
5614817	7	23	1,585.5	1,582.1	-3.4
5614817	7	25	1,586.0	1,582.4	-3.6
5614817	7	29	1,578.5	1,584.7	6.2
5614819	7	7	1,620.6	1,577.1	-43.5
5614901	7	16	1,473.7	1,528.7	55.0
5614901	7	20	1,475.1	1,528.3	53.2
5614901	7	22	1,475.0	1,530.3	55.3
5614901	7	23	1,474.7	1,530.3	55.6
5614901	7	25	1,476.4	1,531.2	54.8
5614906	7	19	1,586.2	1,560.3	-25.9
5614906	7	20	1,578.9	1,560.6	-18.3
5614906	7	22	1,578.6	1,561.9	-16.8
5614906	7	23	1,578.9	1,562.2	-16.7
5614906	7	25	1,579.0	1,562.4	-16.6
5614906	7	29	1,571.4	1,564.0	-7.5
5614907	7	11	1,584.5	1,567.3	-17.2
5614907	7	12	1,581.3	1,567.0	-14.3
5614907	7	16	1,575.7	1,565.1	-10.7
5614907	7	17	1,573.7	1,564.4	-9.3
5614907	7	18	1,572.6	1,564.0	-8.6
5614907	7	19	1,571.9	1,563.9	-8.0
5614907	7	20	1,567.8	1,564.2	-3.7
5614907	7	29	1,564.8	1,568.1	3.3
5615302	7	9	1,603.0	1,683.5	80.5
5615304	7	9	1,614.3	1,684.7	70.4
5615305	7	9	1,598.0	1,686.7	88.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5615702	7	1	1,536.3	1,532.0	-4.3
5615702	7	12	1,533.9	1,532.0	-2.0
5615702	7	15	1,534.7	1,532.0	-2.8
5615702	7	16	1,531.9	1,532.0	0.0
5615702	7	17	1,533.0	1,532.0	-1.1
5615702	7	18	1,535.0	1,532.0	-3.1
5615702	7	19	1,533.9	1,532.0	-1.9
5615702	7	20	1,532.3	1,532.0	-0.4
5615702	7	21	1,533.6	1,532.0	-1.6
5615702	7	23	1,534.4	1,532.0	-2.4
5615702	7	24	1,535.7	1,532.0	-3.8
5615702	7	25	1,536.7	1,532.0	-4.8
5616101	7	9	1,646.8	1,679.6	32.8
5620527	7	20	1,619.5	1,628.9	9.4
5621107	7	30	1,583.1	1,592.1	9.0
5621309	7	16	1,555.0	1,561.9	6.9
5622402	7	29	1,323.2	1,433.4	110.2
5623105	7	1	1,531.4	1,453.1	-78.3
5623105	7	12	1,527.2	1,456.8	-70.4
5623105	7	15	1,528.2	1,458.1	-70.1
5623105	7	18	1,527.5	1,458.9	-68.6
5623105	7	19	1,525.9	1,459.1	-66.8
5623105	7	20	1,523.2	1,459.2	-64.0
5623105	7	21	1,522.3	1,459.3	-63.0
5623105	7	22	1,522.5	1,459.4	-63.0
5623105	7	23	1,521.1	1,459.6	-61.5
5623105	7	24	1,519.4	1,459.6	-59.7
5623106	7	1	1,527.1	1,446.3	-80.8
5623106	7	12	1,497.9	1,476.3	-21.5
5623106	7	16	1,483.7	1,477.3	-6.5
5623106	7	17	1,478.1	1,476.9	-1.2
5623106	7	18	1,477.4	1,476.6	-0.8
5623106	7	19	1,484.9	1,476.0	-8.9
5623106	7	20	1,479.2	1,475.5	-3.7
5623106	7	21	1,477.0	1,475.3	-1.6
5623106	7	23	1,477.3	1,475.3	-2.1
5623106	7	24	1,471.2	1,475.5	4.3
5623107	7	5	1,580.7	1,460.2	-120.5

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5623114	7	5	1,532.0	1,430.9	-101.2
5623115	7	5	1,528.0	1,426.8	-101.2
5623603	7	1	1,317.4	1,343.0	25.6
5623603	7	12	1,328.2	1,344.8	16.7
5623603	7	15	1,322.2	1,344.8	22.6
5623603	7	16	1,327.8	1,344.5	16.7
5623603	7	17	1,331.4	1,344.1	12.7
5623603	7	18	1,327.3	1,343.9	16.6
5623603	7	19	1,333.5	1,343.7	10.2
5623603	7	20	1,332.4	1,343.3	10.9
5623603	7	21	1,333.4	1,343.1	9.7
5623603	7	22	1,330.2	1,342.9	12.7
5623603	7	23	1,333.3	1,342.9	9.6
5623603	7	24	1,321.9	1,342.7	20.8
5631503	7	29	1,447.1	1,571.3	124.2
5631504	7	18	1,495.0	1,577.5	82.5
5631504	7	29	1,490.9	1,568.6	77.7
5632202	7	1	1,418.0	1,431.9	13.9
5632202	7	12	1,424.3	1,426.5	2.2
5632202	7	15	1,426.8	1,423.9	-2.9
5632202	7	16	1,426.9	1,423.2	-3.8
5632202	7	17	1,425.3	1,422.6	-2.6
5632202	7	18	1,427.1	1,422.4	-4.7
5632202	7	19	1,417.7	1,422.0	4.4
5632202	7	21	1,427.5	1,420.9	-6.6
5632202	7	22	1,429.1	1,420.7	-8.5
5632202	7	23	1,428.6	1,420.6	-8.0
5632202	7	24	1,428.1	1,420.2	-8.0
5632401	7	1	1,476.0	1,455.9	-20.1
5632401	7	12	1,476.2	1,445.8	-30.4
5632401	7	16	1,479.4	1,444.4	-35.0
5632401	7	18	1,479.0	1,446.3	-32.7
5632401	7	19	1,463.8	1,445.5	-18.3
5632401	7	20	1,479.6	1,443.1	-36.5
5632401	7	22	1,479.7	1,444.8	-35.0
5632401	7	23	1,479.7	1,445.7	-34.0
5632401	7	24	1,479.6	1,443.9	-35.7
5632401	7	29	1,477.8	1,443.1	-34.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5639501	7	18	1,670.0	1,743.7	73.7
5639501	7	19	1,674.7	1,743.2	68.5
5639501	7	21	1,669.6	1,741.1	71.6
5639501	7	27	1,669.7	1,740.2	70.5
5639501	7	30	1,675.3	1,739.6	64.4
5639501	7	31	1,666.7	1,740.1	73.4
5640504	7	6	1,675.0	1,763.9	88.9
5640504	7	18	1,744.0	1,751.4	7.4
5640504	7	19	1,729.2	1,751.3	22.1
5640504	7	30	1,746.5	1,751.0	4.5
5640505	7	13	1,759.6	1,778.7	19.1
5648602	7	18	1,788.3	1,768.4	-19.9
5648602	7	19	1,788.6	1,768.5	-20.2
5648602	7	21	1,789.6	1,767.5	-22.1
5648602	7	31	1,789.6	1,768.3	-21.2
5656305	7	18	1,697.3	1,731.9	34.7
5656305	7	19	1,693.7	1,731.8	38.1
5656305	7	21	1,687.6	1,730.5	43.0
5656305	7	27	1,698.4	1,730.9	32.5
5656305	7	30	1,696.3	1,730.8	34.5
5656305	7	31	1,695.9	1,731.3	35.3
5656307	7	13	1,684.0	1,734.0	50.0
5656601	7	1	1,674.8	1,661.8	-13.0
5656601	7	7	1,677.1	1,662.6	-14.5
5656601	7	10	1,678.1	1,660.4	-17.7
5656601	7	18	1,670.5	1,659.1	-11.5
5656601	7	19	1,674.9	1,659.0	-15.9
5656601	7	21	1,670.5	1,657.9	-12.6
5656601	7	27	1,673.2	1,658.5	-14.7
5656601	7	30	1,674.0	1,658.4	-15.5
5656601	7	31	1,673.3	1,659.0	-14.3
5701202	7	9	1,750.7	1,563.4	-187.3
5701401	7	9	1,703.9	1,604.8	-99.1
5701402	7	9	1,560.0	1,608.6	48.6
5701402	7	10	1,554.7	1,609.5	54.8
5701402	7	12	1,552.5	1,610.6	58.1
5701404	7	9	1,550.9	1,608.6	57.7
5701405	7	9	1,550.5	1,606.3	55.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5701406	7	9	1,527.7	1,609.2	81.5
5701408	7	9	1,537.3	1,608.6	71.3
5701409	7	9	1,556.8	1,608.6	51.8
5701410	7	9	1,547.8	1,610.4	62.6
5701411	7	7	1,546.9	1,604.7	57.8
5701412	7	9	1,556.0	1,608.1	52.1
5701412	7	16	1,563.7	1,609.6	45.9
5701413	7	9	1,642.0	1,588.5	-53.5
5701413	7	10	1,647.4	1,589.4	-58.0
5701414	7	9	1,543.6	1,611.7	68.1
5701414	7	10	1,542.6	1,612.4	69.8
5701414	7	12	1,542.9	1,613.4	70.6
5701415	7	8	1,537.0	1,608.1	71.2
5701501	7	9	1,736.1	1,620.2	-116.0
5701501	7	16	1,730.1	1,619.1	-111.0
5701501	7	23	1,731.1	1,618.3	-112.8
5701502	7	9	1,667.2	1,592.5	-74.7
5701502	7	10	1,653.9	1,592.9	-61.0
5701502	7	12	1,657.3	1,590.2	-67.1
5701502	7	15	1,695.5	1,584.9	-110.6
5701502	7	16	1,694.6	1,589.9	-104.8
5701504	7	9	1,605.7	1,586.6	-19.1
5701505	7	9	1,580.8	1,619.4	38.6
5701506	7	16	1,708.7	1,593.5	-115.2
5701507	7	9	1,652.7	1,620.3	-32.4
5701602	7	1	1,567.1	1,624.3	57.2
5701602	7	10	1,567.5	1,623.6	56.1
5701602	7	12	1,566.9	1,623.1	56.3
5701602	7	15	1,568.9	1,623.6	54.7
5701602	7	16	1,570.1	1,622.4	52.3
5701703	7	1	1,537.9	1,570.5	32.6
5701903	7	9	1,610.6	1,510.7	-99.9
5701904	7	9	1,427.2	1,445.4	18.3
5702301	7	1	1,495.6	1,539.6	44.0
5702301	7	10	1,485.3	1,537.2	51.9
5702301	7	12	1,485.5	1,536.1	50.6
5702301	7	15	1,504.1	1,534.4	30.3
5702301	7	16	1,494.2	1,536.6	42.4

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5702301	7	17	1,501.7	1,537.4	35.7
5702301	7	19	1,495.9	1,537.8	41.9
5702301	7	20	1,486.5	1,536.4	50.0
5702303	7	9	1,471.7	1,575.6	103.9
5702401	7	3	1,493.0	1,619.2	126.2
5702401	7	17	1,513.3	1,620.2	106.9
5702401	7	19	1,513.5	1,620.1	106.6
5702402	7	16	1,524.9	1,620.1	95.2
5702402	7	17	1,520.8	1,620.2	99.4
5702402	7	19	1,521.7	1,620.1	98.4
5702601	7	9	1,509.6	1,575.1	65.5
5702901	7	1	1,526.3	1,541.4	15.2
5703103	7	1	1,483.9	1,485.2	1.3
5703103	7	8	1,484.6	1,476.7	-7.9
5703103	7	10	1,481.7	1,478.9	-2.8
5703103	7	12	1,481.4	1,477.0	-4.4
5703103	7	15	1,487.2	1,472.7	-14.5
5703103	7	16	1,488.6	1,476.7	-11.9
5703103	7	19	1,490.7	1,479.3	-11.5
5703105	7	3	1,464.0	1,486.6	22.6
5703107	7	9	1,468.9	1,468.7	-0.1
5703108	7	9	1,490.1	1,481.8	-8.2
5703109	7	8	1,469.0	1,472.7	3.7
5703202	7	8	1,458.3	1,462.0	3.7
5703202	7	10	1,455.5	1,464.6	9.1
5703202	7	12	1,456.2	1,462.4	6.2
5703202	7	19	1,462.4	1,465.8	3.4
5703204	7	9	1,491.1	1,474.0	-17.2
5703214	7	9	1,474.9	1,474.0	-0.9
5703220	7	9	1,488.8	1,469.5	-19.3
5703224	7	9	1,472.5	1,468.3	-4.2
5703224	7	10	1,471.7	1,468.1	-3.6
5703224	7	12	1,471.2	1,467.7	-3.5
5703224	7	15	1,474.1	1,466.4	-7.6
5703224	7	16	1,474.1	1,466.3	-7.8
5703231	7	9	1,476.2	1,471.8	-4.4
5703302	7	9	1,413.9	1,359.6	-54.3
5703311	7	19	1,437.0	1,343.2	-93.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5703401	7	8	1,482.6	1,490.7	8.1
5703401	7	16	1,484.6	1,488.8	4.2
5703401	7	19	1,487.7	1,488.6	0.9
5703402	7	8	1,496.9	1,494.3	-2.6
5703404	7	9	1,496.1	1,491.5	-4.6
5703405	7	9	1,491.4	1,495.9	4.5
5703410	7	8	1,502.1	1,487.4	-14.7
5703410	7	10	1,499.0	1,486.9	-12.1
5703410	7	12	1,497.7	1,486.6	-11.1
5703410	7	15	1,503.4	1,485.7	-17.7
5703410	7	16	1,503.9	1,485.3	-18.6
5703501	7	16	1,477.8	1,481.0	3.2
5703501	7	17	1,477.2	1,480.8	3.6
5703501	7	19	1,478.2	1,480.7	2.5
5703504	7	10	1,464.1	1,445.1	-18.9
5703504	7	12	1,463.6	1,444.8	-18.8
5703504	7	15	1,464.0	1,443.9	-20.1
5703504	7	16	1,464.2	1,443.6	-20.7
5705702	7	1	1,024.5	1,017.4	-7.2
5705702	7	2	1,025.8	1,018.8	-7.0
5705702	7	7	1,026.7	1,015.8	-10.9
5705702	7	11	1,021.3	1,015.4	-5.9
5705702	7	12	1,023.9	1,019.0	-4.9
5705702	7	16	1,021.7	1,016.5	-5.2
5705702	7	18	1,024.9	1,017.3	-7.6
5705702	7	19	1,021.8	1,016.6	-5.2
5705702	7	20	1,017.1	1,013.3	-3.9
5705702	7	21	1,017.6	1,007.1	-10.5
5705702	7	22	1,023.3	1,016.3	-7.0
5705702	7	23	1,026.7	1,017.6	-9.2
5705702	7	27	1,014.7	1,007.6	-7.1
5705702	7	28	1,025.0	1,011.8	-13.2
5705702	7	29	1,016.5	1,014.4	-2.1
5705804	7	19	892.0	1,020.3	128.3
5710103	7	1	1,308.4	1,464.4	156.0
5710103	7	2	1,308.7	1,467.6	158.9
5710103	7	7	1,310.4	1,479.0	168.6
5710103	7	12	1,308.9	1,486.6	177.7

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5710103	7	15	1,311.6	1,490.4	178.8
5710103	7	16	1,311.2	1,491.5	180.3
5710103	7	20	1,310.0	1,495.5	185.5
5710233	7	9	1,329.6	1,495.3	165.7
5710240	7	1	1,327.5	1,471.5	144.0
5710244	7	1	1,320.0	1,470.6	150.6
5714101	7	17	975.7	1,017.4	41.7
5714101	7	18	1,011.8	1,024.7	12.9
5714101	7	19	1,012.9	1,024.0	11.1
5714101	7	20	1,004.3	1,020.9	16.6
5714101	7	21	1,014.1	1,014.9	0.8
5714404	7	11	1,009.0	1,024.8	15.8
5714408	7	11	1,020.0	1,022.7	2.7
5720502	7	1	1,116.0	1,136.1	20.1
5720502	7	4	1,118.3	1,134.8	16.5
5720502	7	7	1,119.4	1,133.0	13.6
5720502	7	12	1,115.6	1,126.3	10.7
5720502	7	15	1,117.5	1,120.8	3.3
5722804	7	30	965.2	1,113.8	148.6
5722804	7	31	967.0	1,113.9	147.0
5727603	7	4	1,123.0	1,151.3	28.3
5733103	7	10	1,654.9	1,801.5	146.6
5733103	7	18	1,658.7	1,800.5	141.8
5733103	7	19	1,657.0	1,800.5	143.6
5733103	7	21	1,653.2	1,799.5	146.4
5733103	7	30	1,658.5	1,798.9	140.5
5733905	7	12	1,724.0	1,873.9	149.9
5734403	7	5	1,740.7	1,811.1	70.4
5735707	7	18	1,710.6	1,675.4	-35.1
5735707	7	19	1,711.4	1,675.0	-36.4
5735707	7	30	1,706.5	1,655.6	-50.9
5735805	7	9	1,672.0	1,655.0	-17.1
5735805	7	18	1,673.6	1,643.4	-30.2
5735805	7	19	1,673.3	1,643.0	-30.3
5735805	7	30	1,672.1	1,625.2	-46.9
5737402	7	1	1,357.3	1,240.6	-116.7
5737402	7	2	1,376.1	1,241.7	-134.4
5737402	7	7	1,377.9	1,248.0	-129.8

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5737402	7	12	1,390.0	1,250.3	-139.7
5737402	7	13	1,376.1	1,249.8	-126.3
5737402	7	17	1,357.1	1,247.1	-110.0
5737402	7	18	1,370.6	1,252.2	-118.4
5737402	7	19	1,383.0	1,251.9	-131.1
5737402	7	20	1,362.2	1,246.7	-115.5
5737402	7	21	1,363.6	1,248.9	-114.7
5737402	7	22	1,365.2	1,250.5	-114.7
5737402	7	23	1,380.5	1,253.5	-127.0
5737402	7	24	1,365.3	1,252.0	-113.3
5737402	7	25	1,383.0	1,256.1	-127.0
5737402	7	26	1,357.0	1,253.5	-103.5
5741205	7	10	1,787.5	1,802.9	15.3
5741205	7	18	1,786.1	1,802.8	16.7
5741205	7	19	1,787.6	1,802.8	15.2
5741205	7	30	1,787.7	1,804.8	17.1
5741206	7	18	1,768.9	1,772.9	4.0
5741301	7	1	1,745.0	1,789.2	44.2
5741301	7	2	1,750.0	1,787.7	37.7
5741301	7	4	1,744.0	1,784.0	40.0
5741301	7	10	1,724.6	1,765.5	41.0
5741502	7	10	1,750.3	1,767.4	17.1
5741502	7	19	1,755.5	1,761.2	5.6
5741502	7	30	1,758.0	1,761.5	3.5
5741503	7	10	1,741.5	1,756.5	15.1
5741503	7	18	1,744.5	1,748.7	4.2
5741503	7	19	1,744.9	1,749.0	4.2
5741503	7	30	1,753.0	1,749.1	-3.9
5741614	7	5	1,725.5	1,732.5	7.0
5741615	7	31	1,645.3	1,735.5	90.2
5741616	7	18	1,750.3	1,721.7	-28.6
5741616	7	21	1,741.8	1,719.4	-22.3
5741616	7	30	1,759.1	1,721.0	-38.2
5741618	7	13	1,756.8	1,753.4	-3.4
5741618	7	14	1,758.1	1,750.5	-7.6
5741618	7	15	1,757.1	1,750.7	-6.4
5741621	7	18	1,717.7	1,731.0	13.3
5741621	7	19	1,719.3	1,731.0	11.6

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5741621	7	30	1,723.0	1,730.4	7.4
5741621	7	31	1,721.7	1,731.2	9.5
5741702	7	1	1,732.0	1,758.8	26.8
5741702	7	18	1,740.1	1,743.6	3.5
5741702	7	19	1,739.6	1,743.6	4.1
5741702	7	21	1,733.9	1,742.3	8.4
5741908	7	5	1,723.3	1,722.3	-1.0
5742101	7	7	1,659.1	1,779.1	120.1
5742101	7	10	1,662.1	1,768.6	106.4
5742203	7	6	1,688.0	1,747.5	59.5
5742303	7	7	1,835.2	1,759.7	-75.5
5742303	7	10	1,835.2	1,754.5	-80.7
5742303	7	18	1,836.4	1,741.9	-94.5
5742303	7	30	1,834.4	1,726.2	-108.3
5742305	7	19	1,794.8	1,705.0	-89.7
5742306	7	7	1,807.5	1,718.2	-89.3
5742306	7	10	1,800.0	1,713.4	-86.6
5742306	7	18	1,798.9	1,700.4	-98.5
5742306	7	19	1,796.4	1,699.2	-97.3
5742306	7	30	1,778.2	1,681.8	-96.4
5742502	7	1	1,649.4	1,741.8	92.3
5742502	7	7	1,648.0	1,729.6	81.6
5742502	7	10	1,648.7	1,718.0	69.3
5742502	7	12	1,648.6	1,717.4	68.8
5742502	7	13	1,650.6	1,714.3	63.7
5742502	7	14	1,649.6	1,710.8	61.2
5742502	7	15	1,649.8	1,710.3	60.6
5742502	7	18	1,645.9	1,705.6	59.7
5742502	7	19	1,640.5	1,704.8	64.3
5742502	7	30	1,643.9	1,697.8	53.9
5742705	7	5	1,609.8	1,652.2	42.4
5743102	7	5	1,707.0	1,672.3	-34.7
5743103	7	18	1,573.1	1,627.9	54.7
5743103	7	19	1,581.4	1,626.9	45.5
5743103	7	30	1,581.1	1,609.6	28.5
5743201	7	5	1,606.6	1,621.6	15.0
5743203	7	13	1,613.0	1,610.3	-2.7
5744510	7	11	1,468.0	1,460.8	-7.2

Table A1 Simulated versus measured heads (water levels) at wells.

State Well Number	Model Layer	Stress Period	Measured Head (feet above mean sea level)	Simulated Head (feet above mean sea level)	Residual (feet)
5745101	7	7	1,293.6	1,271.8	-21.8
5745101	7	13	1,282.9	1,271.1	-11.8
5745101	7	17	1,281.7	1,270.3	-11.4
5745101	7	19	1,279.3	1,270.4	-8.9
5745101	7	23	1,283.5	1,270.7	-12.8
5745101	7	24	1,283.5	1,270.2	-13.3
5745111	7	1	1,264.1	1,264.7	0.6
5745111	7	2	1,266.8	1,264.4	-2.4

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Appendix B: Head Hydrographs

- hydrographs are arranged based on state well number
- only wells with more than 10 measurements in more than 10 year span presented
- Following figure shows how to read a hydrograph

4141501
Hickory
San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale

4149501
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4149701
San Saba
Marble Falls
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4149704
Hickory
San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4149802
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4149902
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4150502
San Saba
Marble Falls
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4150902
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4151504
San Saba
Marble Falls
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4151506
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4151701
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4158401
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4160303
San Saba
Marble Falls
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4161402
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4245601
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4246502
Hickory
McCulloch
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale

4247901
Hickory
McCulloch
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4248801
San Saba
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

4254901
McCulloch
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4260601
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4260602
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4260603
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4260901
Hickory
McCulloch
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4260902
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4260903
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4261901
McCulloch
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4262902
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4262909
McCulloch
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4262910
McCulloch
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Deeper Than Vertical Scale
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263501
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263802
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263808
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263814
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263908
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263909
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263910
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263915
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263916
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263918
Hickory
McCulloch
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
Well Depth Not Available
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263928
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

4263935
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606202
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5606610
McCulloch
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606611
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606613
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606614
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606617
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5606625
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606627
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5606629
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5606631
Hickory
Mason
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606701
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606811
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606813
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606905
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5606906
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606911
Hickory
Mason
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5606913
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607107
McCulloch
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607110
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607216
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607218
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607219
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607220
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607240
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607243
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607302
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607305
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607404
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607406
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607407
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607424
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5607902
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608104
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608106
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608109
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608110
McCulloch
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608117
McCulloch
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608205
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608302
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608401
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608403
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608501
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608502
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608503
Hickory
San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5608505
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608509
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608602
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608704
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5608906
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5612302
Menard
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5613202
Mason
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5613502
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5613601
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5613902
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5613904
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614716
Hickory
Mason
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614717
Hickory
Mason
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614801
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614802
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614804
Hickory
Mason
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5614812
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614815
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614817
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614906
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5614907
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5615702
Mason
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5623105
Mason
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5623106
Mason
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5623603
Mason
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5632202
Mason
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5632401
Mason
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5639501
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5640104
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5640106
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5640201
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5640504
Gillespie
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5656201
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5656305
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5656601
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5701409
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5701501
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5701502
Hickory
San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5701505
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5701602
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5702401
Hickory
San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5702402
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5703103
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5703202
San Saba
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5703224
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5703401
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5703410
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5703501
San Saba
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5710103
Llano
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5720502
Llano
Hickory
Head (feet, above mean sea level)
2000
1800
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5722401
Burnet
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
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800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5733103
Gillespie
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
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800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5735707
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
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12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5735805
Hickory
Gillespie
Head (feet, above mean sea level)
2000
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12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5737203
Blanco
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5737402
Blanco
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5738512
Blanco
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5741205
Gillespie
Hickory
2000
1800
1600
1400
1200
1000
800
600
Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5741206
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5741502
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5741503
Gillespie
Hickory
Head (feet, above mean sea level)
2000
1800
1600
1400
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800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5741616
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5741618
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
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12/31/1980
12/30/1984
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12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5741621
Hickory
Gillespie
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
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12/26/2000
12/25/2004
12/24/2008
Date

5741702
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
1600
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/27/1996
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12/25/2004
12/24/2008
Date

5742303
Gillespie
Hickory
Head (feet, above mean sea level)
2000
1800
1600
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/26/2000
12/25/2004
12/24/2008
Date

5742306
Gillespie
Hickory
2000
1800
1600
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Head (feet, above mean sea level)
Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5742502
Hickory
Gillespie
Head (feet, above mean sea level)
2000
1800
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12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5742901
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
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1200
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5743103
Hickory
Gillespie
Head (feet, above mean sea level)
2000
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600
12/31/1980
12/30/1984
12/29/1988
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5743702
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/24/2008
Date

5750102
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
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12/25/2004
12/24/2008
Date

5750106
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/25/2004
12/24/2008
Date

5750107
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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1600
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1200
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750108
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/29/1988
12/28/1992
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12/26/2000
12/25/2004
12/24/2008
Date

5750109
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/26/2000
12/25/2004
12/24/2008
Date

5750110
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750114
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750115
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750118
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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12/31/1980
12/30/1984
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date
Simulated Head
Measured Head
Well Bottom

5750205
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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1600
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750209
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/27/1996
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12/25/2004
12/24/2008
Date

5750221
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
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1200
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750227
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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800
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/26/2000
12/25/2004
12/24/2008
Date

5750232
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
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12/27/1996
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12/25/2004
12/24/2008
Date

5750233
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/26/2000
12/25/2004
12/24/2008
Date

5750234
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/25/2004
12/24/2008
Date

5750235
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
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12/24/2008
Date

5750317
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750324
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/25/2004
12/24/2008
Date

5750325
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/25/2004
12/24/2008
Date

5750326
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
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Simulated Head
Measured Head
Well Bottom
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12/24/2008
Date

5750327
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
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12/24/2008
Date

5750328
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
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Simulated Head
Measured Head
Well Bottom
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12/27/1996
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12/25/2004
12/24/2008
Date

5750329
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/29/1988
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12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750330
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750331
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
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800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750332
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
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800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750333
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750404
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750514
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5750603
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
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800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5751305
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
1600
1400
1200
1000
800
600
Simulated Head
Measured Head
Well Bottom
12/31/1980
12/30/1984
12/29/1988
12/28/1992
12/27/1996
12/26/2000
12/25/2004
12/24/2008
Date

5751404
Gillespie
Ellenburger-San Saba
Head (feet, above mean sea level)
2000
1800
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600
Simulated Head
Measured Head
Well Bottom
12/31/1980
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12/24/2008
Date

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Appendix C: Glossary List

acre-foot (ac-ft) - the volume of water required to cover 1 acre of land (43,560 square feet) to a depth of 1 foot. Equal to 325,851 gallons or 1,233 cubic meters.

anisotropy - the condition of having different values of hydraulic conductivity (in particular) in different directions in geologic materials. This is especially apparent in fractured bedrock or layered sediment.

aquifer - a geologic formation(s) that is water bearing. A geological formation or structure that stores and/or transmits water, such as to wells and springs. Use of the term is usually restricted to those water-bearing formations capable of yielding water in sufficient quantity to constitute a usable supply for people's uses.

aquifer (confined) - soil or rock below the land surface that is saturated with water. There are layers of impermeable material both above and below it and it is under pressure so that when the aquifer is penetrated by a well, the water will rise above the top of the aquifer (not necessarily flowing well).

aquifer (unconfined) - an aquifer whose upper water surface (water table) is at atmospheric pressure, and thus is able to rise and fall.

base flow - sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced stream flows. Natural base flow is sustained largely by ground-water discharges.

boundary condition - a mathematical statement specifying the dependent variable at the boundaries of the modeled domain which contain the equations of the mathematical model. Examples are specified head, specified flux, or mixed boundaries.

calibrated model - a model for which all residuals between calibration targets and corresponding model outputs, or statistics computed from residuals, are less than pre-set acceptable values.

calibration - the process of refining the model representation of the hydrogeologic framework, hydraulic properties, and boundary conditions to achieve a desired degree of correspondence between the model simulations and observations of the groundwater flow system, which includes both measured hydraulic head and flux.

calibration target - measured, observed, calculated, or estimated hydraulic heads or groundwater flow rates that a model must reproduce, at lease approximately, to be considered calibrated.

cell - a distinct one-two-or three dimensional model unit representing a discrete portion of a physical system with uniform properties assigned to it.

code (computer program) - the assembly of numerical techniques, bookkeeping, and control language that represents the model from acceptance of input data and instructions to delivery of output. Examples: MODFLOW, BIOSCREEN, MT3d, etc.

conceptual model - an interpretation of the characteristics and dynamics of an aquifer system which is based on an examination of all available hydrogeological data for a modeled area. This includes the external configuration of the system, location and rates of recharge and discharge, location and hydraulic characteristics of natural boundaries, and the directions of groundwater flow throughout the aquifer system.

cone of depression - a depression of the potentiometric surface that develops around a well which is being pumped.

constant head boundary – a MODFLOW boundary condition used to simulate a hydraulic feature (such as lake or reservoir) where hydraulic head remains the same over the time period considered. Constant head boundary could receive from or discharge to groundwater.

cubic feet per second (cfs) - a rate of the flow, in streams and rivers, for example. It is equal to a volume of water one foot high and one foot wide flowing a distance of one foot in one second. One "cfs" is equal to 7.48 gallons of water flowing each second.

discharge - the volume of water that passes a given location within a given period of time. Usually expressed in cubic feet per second.

discretization - the process of subdividing the continuous model and/or time domain into discrete segments or cells. Algebraic equations which approximate the governing flow and/or transport equations are written for each segment or cell.

drain boundary - a MODFLOW boundary condition used to simulate a hydraulic feature (such as agriculture drain) which only receives groundwater.

drawdown - a lowering of the ground-water surface caused by pumping.

evaporation - the process of liquid water becoming water vapor, including vaporization from water surfaces, land surfaces, and snow fields, but not from leaf surfaces.

evapotranspiration - the sum of evaporation and transpiration.

finite difference method (FDM) - a discretization technique for solving a partial differential equation (PDE) by (1) replacing the continuous domain of interest by a finite number of regular-spaced mesh-or grid-points (i.e., nodes) representing volume-averaged sub-domain properties; and (2) by approximating the derivatives of the PDE for each of these points using finite differences; the resulting set of linear or nonlinear algebraic equations is solved using direct or interactive matrix solving techniques.

flux - the volume of fluid crossing a unit cross-sectional surface area per unit time.

general head boundary – a generic MODFLOW boundary condition used to simulate groundwater flow between model domain and a constant head hydraulic source outside the model domain.

groundwater - part of the subsurface water that is in the saturated zone.

groundwater recharge - inflow of water to a groundwater aquifer from the surface. Infiltration of precipitation and its movement to the water table is one form of natural recharge. Also, the volume of water added by this process.

groundwater basin - a groundwater system that has defined boundaries and may include more than one aquifer of permeable materials, which are capable of furnishing a significant water supply.

groundwater discharge - the water released from the zone of saturation; also the volume of water released.

groundwater flow - the movement of water in the zone of saturation.

groundwater flow model - an application of mathematical model to represent a regional or site-specific groundwater flow system.

groundwater modeling code - the computer code used in groundwater modeling to represent a non-unique, simplified mathematical description of the physical framework, geometry, active processes, and boundary conditions present in a reference subsurface hydrologic system.

hydraulic conductivity - a constant of proportionality which relates the rate of groundwater flow to the hydraulic head gradient. It is a property of the porous media (intrinsic permeability) and the density and viscosity of the water moving through the porous media. It is defined as the volume of water at the existing kinematic viscosity that will move in unit time under unit hydraulic gradient through a unit area measured at right angles to the direction of low. Estimated by, in order of preference, aquifer tests, slug tests, grain size analysis.

hydraulic gradient - the change in total hydraulic head per unit distance of flow at a given point and in the direction of groundwater flow.

hydraulic head - the height above a datum plane (such as sea level) of the column of water than can be supported by the hydraulic pressure at a given point in a groundwater system. For a well, the hydraulic head is equal to the distance between the water level in the well and the datum plane.

hydraulic properties - properties of sediment and rock that govern the entrance of water and the capacity to hold, transmit and deliver water, e.g. porosity, effective porosity, specific retention, permeability and direction of maximum and minimum permeability. Synonymous with hydrologic properties.

hydrogeologic unit - geologic strata that can be distinguished on the basis of capacity to yield and transmit fluids.

infiltration - flow of water from the land surface into the subsurface.

initial conditions - the specified values for the dependent variable (hydraulic head or solute concentration) at the beginning of the model simulation.

inverse method - a method of calibrating a groundwater flow model using a computer code to systematically vary inputs or input parameters to minimize residuals or residual statistics.

irrigation - the controlled application of water for agricultural purposes through manmade systems to supply water requirements not satisfied by rainfall.

leakage - the flow of water from one hydrogeologic unit to another. The leakage may be natural, as through semi-impervious confining layer, or human made, as through an uncased tank.

model - an assembly of concepts in the form of mathematical equations that portray an understanding of a natural phenomenon.

model construction - the process of transforming the conceptual model into a parameterized mathematical form; as parameterization requires assumptions regarding spatial and temporal discretization, model construction requires a-priori selection of computer code.

modeling - the process of formulating a model of a system of process.

m**odel input** - the constitutive coefficients, system parameters, forcing terms, auxiliary conditions and program control parameters required to apply a computer code to a particular problem.

MODFLOW-88/96/2000/2005/NWT – finite difference computer codes developed by the U.S. Geological Survey to simulate groundwater flow.

MODFLOW-USG – an unstructured grid version of MODFLOW using a control volume finite-difference formulation to simulate groundwater flow.

no-flow boundary – a model boundary which is a specified flux boundary where the assigned flux is equal to zero.

numerical model - in subsurface fluid flow modeling, a mathematical model that uses numerical methods to solve the governing equations of the applicable problem.

numerical layer - a layer in a numerical model representing a hydrogeologic unit.

output - in subsurface fluid flow modeling, all information that is produced by the computer code.

parameter - any of a set of physical properties which determine the characteristics or behavior of a system.

peak flow - the maximum instantaneous discharge of a stream or river at a given location. It usually occurs at or near the time of maximum stage.

pre/post-processing - using computer programs to assist in preparing data sets for use with generic simulation codes; may include parameter allocation, control parameter selection, and data file formatting.

precipitation - rain, snow, hail, sleet, dew, and frost.

recharge - water added to an aquifer. For instance, rainfall that seeps into the ground.

reservoir - a pond, lake, or basin, either natural or artificial, for the storage, regulation, and control of water.

residual - the difference between the model-computed and field-measured values of a variable, such as hydraulic head or groundwater flow rate, at a specific time and location.

river - a natural stream of water of considerable volume, larger than a brook or creek.

river basin: the total area drained by a river and its tributaries.

river boundary - a MODFLOW boundary condition used to simulate the interaction between a hydraulic feature (such as river) and groundwater. The river boundary could gain water from or lose water to an aquifer.

runoff - part of the precipitation, snow melt, or irrigation water that appears in uncontrolled surface streams, rivers, drains or sewers. Runoff may be classified according to speed of appearance after rainfall or melting snow as direct runoff or base runoff, and according to source as surface runoff, storm interflow, or ground-water runoff.

sensitivity analysis - a procedure based on systematic variation of model input values (1) to identify those model input elements that cause the most significant variations in model output; and (2) to quantitatively evaluate the impact of uncertainty in model input on the degree of calibration and on the model's predictive capability.

simulation - in groundwater modeling, one complete execution of a groundwater modeling computer program, including input and output. Simulation is sometimes also used broadly to refer to the process of modeling in general.

specific storage - the volume of water released from or taken into storage per unit volume of the porous medium per unit change in head.

specific yield - the quantity of water released due to gravity drainage from unit volume of water table or unconfined aquifer.

specified flux boundary - a model boundary condition in which the groundwater flux or mass flux is specified; also called fixed or prescribed flux, or Neumann boundary condition.

spring - area where there is a concentrated discharge of ground water that flows at the ground surface.

steady state condition - a condition in which system inputs and outputs are in equilibrium so that there is no net change in the system with time.

storage coefficient - the volume of water an aquifer releases from or takes into storage per unit surface are of the aquifer per unit change in head. For a confined aquifer, the storage coefficient is equal to the product of the specific storage and aquifer thickness. For an unconfined aquifer, the storage coefficient is approximately equal to specific yield.

storativity - see storage coefficient.

transient condition - a condition in which system inputs and outputs are not in equilibrium so that there is a net change in the system with time.

transmissibility (groundwater) - the capacity of a rock or sediment to transmit water under pressure.

transpiration - the loss of water vapor from plants.

water budget (mass balance) - an inventory of the difference source and sinks of water in a hydrogeologic system. In a well-posed model, the sources and sinks should balance.

water table - the top of the water surface in the saturated part of an aquifer.