

APPENDIX P

**COMMENTS RECEIVED ON INITIALLY PREPARED
PLAN AND RESPONSES**



TEXAS WATER DEVELOPMENT BOARD



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June 28, 2010

Mr. C.E. Williams
Chairman, Panhandle Water Planning Group
c/o Panhandle Groundwater
Conservation District
P.O. Box 637
White Deer, Texas 79097

Mr. Gary Pitner
Panhandle Regional Planning Commission
415 West 8th Street
Amarillo, Texas 79101

Re: Texas Water Development Board Comments for the Panhandle Water Planning Group
(Region A) Initially Prepared Plan, Contract No. 0904830860

Dear Mr. Williams and Mr. Pitner:

Texas Water Development Board (TWDB) staff completed a review of the Initially Prepared Plan (IPP) submitted by March 1, 2010 on behalf of the Region A Regional Water Planning Group. The attached comments (Attachments A and B) follow this format:

- Level 1: Comments, questions, and online planning database revisions that must be satisfactorily addressed in order to meet statutory, agency rule, and/or contract requirements; and
- Level 2: Comments and suggestions for consideration that may improve the readability and overall understanding of the regional plan.

Based on the information provided to date by regional water planning groups, TWDB has identified potential interregional conflicts that are summarized in Attachment C. The TWDB's statutory requirement for review of potential interregional conflicts under Title 31, Texas Administrative Code (TAC) §357.14 will not be completed until submittal and review of adopted regional water plans.

Title 31, TAC §357.11(b) requires the regional water planning group to consider timely agency and public comment. Section 357.10(a)(3) of the TAC requires the final adopted plan include summaries of all timely written and oral comments received, along with a response explaining any resulting revisions or why changes are not warranted.

Our Mission

To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas.

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Mr. C. E. Williams
Mr. Gary Pitner
June 28, 2010
Page 2

Copies of TWDB's Level 1 and 2 written comments and the region's responses must be included in the final, adopted regional water plan.

If you have any questions, please do not hesitate to contact Virginia Sabia at (512) 936-9363.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Brittin". The signature is fluid and cursive, with the first letter of the first name being a large, stylized capital 'C'.

Carolyn L. Brittin
Deputy Executive Administrator
Water Resources Planning and Information

Attachments (3)

c w/att: Ms. Simone Kiel, Freese & Nichols, Inc.

TWDB Comments on Initially Prepared 2011 Region A Regional Water Plan

LEVEL 1. Comments and questions must be satisfactorily addressed in order to meet statutory, agency rule, and/or contract requirements.

General Comment

1. Some electronic files submitted with the plan included track changes and comments. Please ensure that all final electronic documents submitted are print-ready. *[Contract Exhibit "D" Section 2.1]*
2. Please include base map source references (e.g. Figure 3-9 and 3-10). *[Contract Exhibit "D" Section 2.3]*
3. The plan does not appear to contain a list of potentially feasible water management strategies that were selected for evaluation by the planning group. Please include a list of potentially feasible water management strategies. *[Contract Exhibit "C" Section 11.1]*

Executive Summary

4. Pages 4-5: The plan discusses both firm and safe yields for reservoir supplies. Please state in plan when firm or safe yields were used. *[Title 31 Texas Administrative Code (TAC) §357.7(a)(1)(L)]*

Chapter 1

5. Page 1-49, Section 1.8: Please describe any threats to agricultural and natural resources due to water quantity or water quality problems related to water supply. *[31 TAC §357.7(a)(1)(L)]*

Chapter 2

6. Page 2-3, Table 2-1: The plan does not present population and categories of water use by counties and river basins. Please present population and water demands by counties and river basin. *[31 TAC §357.7(a)(2)(A)(iv)]*
7. Pages 2-18 through 2-22, Section 2.3: Wholesale water provider water use is not presented by category and delineated by counties and river basins. Please present water use by category and delineate by counties and river basins. *[31 TAC §357.7(a)(2)(A)(iv) and (a)(2)(B)]*

Chapter 3

8. The Dallam County priority groundwater management area (PGMA) is not referred to in the plan. Please describe how water availability requirements or limitations associated with the (PGMA), if any, were considered in developing the regional water plan. *[31 TAC §357.5(k)(1)(G)]*

9. Groundwater and surface water supplies are not presented for wholesale water providers. Please present water supplies for wholesaler water providers. *[Title 31 TAC §357.7(a)(3)]*
10. Please explain whether plan includes all ongoing water development projects for which TCEQ has issued a permit. *[31 TAC §358.3(b)(21)]*
11. Page 3-19: The plan refers to “reliable yield” for Lake Meredith, instead of reservoir firm yield. Please define the term “reliable yield” and clarify whether it was used in plan and, if so, whether its use was approved by TWDB. Also explain how the “long-term reliable yield” of 50,000 ac-ft/y for Lake Meredith was obtained. *[31 TAC §357.7(a)(3)(B)]*
12. Page 3-42 through 3-44, Tables 3-24 and 3-26: The 2030 total supply (1,201,217 acft/yr) in Table 3-24 does not match the Grand Total supply (1,029,080 acft/yr) in Table 3-26. Please revise as appropriate throughout the plan.
13. Pages 3-42 through 3-45, Tables 3-25, 3-26, and 3-27: It appears that total county surplus/shortages were calculated incorrectly by subtracting total [county-wide] supply from total [county-wide] demand. Please revise to reflect total county water needs as the sum of the individual needs of each water user group in the county; needs that are calculated based on each water user group’s own demands and supplies. *[31 Texas Administrative Code (TAC) §357.7(a)(4)(A)]*

Chapter 4

14. The plan does not appear to contain a table of alternative water management strategies. If applicable, please include a table of alternative water management strategies that include water supply volumes from water management strategy, by decade, and capital costs. *[Contract Exhibit “C” Sections 4.3, 11.1]*
15. Page 4-9, Table 4-2 and page 4-9, second paragraph: The plan assumes the cost for municipal conservation to be \$1.50 per thousand gallons (\$490 per acre-foot). Please include a description of how conservation unit costs were calculated.
16. Pages 4-10 to 4-41: The plan does not include information for strategies that were evaluated but not recommended. Please include documentation of all information on all potentially feasible strategies that were evaluated. *[31 TAC §357.7(a)(8)]*
17. Page 4-31 and 4-32: The capital cost of \$2.1 million for the City of Wheeler water management strategy “New Wells in Ogallala” on page 4-31 and in table on page 4-31 (\$2,108,700) do not match the “Total Capital Cost” of \$2,233,300 shown in Appendix H, page 28 for the same strategy. Please reconcile the cost as appropriate. *[Contract Exhibit “D” Section 4.1.2]*
18. Page 4-54, Section 4.9: Water needs for wholesale water providers are not presented by county and basin river basins. Please present wholesale water providers water needs by county and basin, if appropriate. *[31 TAC §357.7(a)(4)(B)]*

19. Page 4-63: The cost presented for “City of Cactus New Well Field” (\$8.6 Million) does not match the value presented in Appendix H, page 17, Table H-6 (\$5,446,700.) Please revise as appropriate. *[Contract Exhibit “D” Section 4.1.2]*

Chapter 6

20. The differences between conservation strategies and drought management plans are unclear as presented in the plan. Please clarify differences. *[Contract Exhibit “D” Section 6]*
21. *(Attachment B)* Comments on the online planning database (i.e. DB12) are herein being provided in spreadsheet format. These Level 1 comments are based on a direct comparison of the online planning database against the Initially Prepared Regional Water Plan document as submitted. The table only includes numbers that do not reconcile between the plan (left side of spreadsheet) and online database (right side of spreadsheet). An electronic version of this spreadsheet will be provided upon request.
22. *(Attachment C)* Based on the information provided to date by the regional water planning groups, TWDB has also attached a summary, in spreadsheet format, of potential interregional conflicts, and apparent water source over allocations that were identified during the review of the online planning database and Initially Prepared Regional Water Plan. *[Additional TWDB comments regarding the general conformance of the online planning database (DB12) format and content to the Guidelines for Regional Water Planning Data Deliverables (Contract Exhibit D) are being provided by TWDB staff under separate cover as ‘Exception Reports’]*

LEVEL 2. Comments and suggestions that might be considered to clarify or enhance the plan.

Chapter 3

1. Some tables (e.g. Tables 3-3 and 3-4) show water supply totals for each water source while other tables (e.g. Table 3-6) do not present the total volumes for sources. Please consider including totals for all tables where appropriate.
2. Tables 3-8, and 3-22: The plan presents developed water supplies for the Dockum Aquifer in Table 3-22 (from 24,420 acft/yr in 2010 to 19,220 acft/yr in 2060). Table 3-8 is based on the assumption that available annual supplies are 1.25% of available storage (338,000 acft/yr in 2010.) In May 2010, the Texas Water Development Board released Groundwater Availability Model –Run Report 09-014 which estimates pumping for the Dockum Aquifer in GMA 1 to be 21,226 acft/yr for all decades from 2010 through 2060. Please consider referencing the new report as appropriate in the plan. *[Contract Exhibit “D” Section 3.0-3.1]*

Chapter 7

3. Page 7-6: The unnumbered and untitled table references where the plan considered regulatory requirements met. Please consider adding a title and number to the table.

REGION A		Non-matching numbers											
Item		IPP document number					Online Planning Database (DB12) number						
Page number	Table number	2010	2020	2030	2040	2050	2060	non-decadal number	2020	2030	2040	2050	2060
Appendix A	WMS Summary	\$ 3,114,800.00						\$ 8,218,000.00					
Appendix A	WMS Summary	\$ 5,446,700.00						\$ 10,893,400					
Appendix A	WMS Summary									1,000			
Appendix A	WMS Summary	\$ 7,276,100.00					2,600					1,800	2,400
Appendix A	WMS Summary		10,667	11,495	12,387	13,348	14,384		9,467	10,292	11,182	11,141	10,831
Appendix A	WMS Summary		2,454	2,842	3,009	3,009	3,009		2,453	2,639	2,841	2,841	3,012
Appendix A	WMS Summary		72	118	114	107	102		24	71	71	71	71
Appendix A	WMS Summary		81	146	159	174	188		80	176	191	208	227
Appendix A	WMS Summary		1,996	3,593	3,881	4,179	4,419		2,061	3,771	4,069	4,374	4,624
Appendix A	WMS Summary												
Appendix A	WMS Summary		173	1,033	1,396	1,718	2,067		0	50	100	100	100
Appendix A	WMS Summary	\$ 4,399,400.00		1,000	1,000	1,000	1,000		0	0	0	500	50
Appendix A	WMS Summary			33	57	35	43			200	328	313	225
Appendix A	WMS Summary			0	602	1,333	2,155			444	1,087	1,846	2,638
Appendix A	WMS Summary		1,996	3,593	3,881	4,179	4,419		2,061	3,771	4,069	4,374	4,624
Appendix A	WMS Summary		10,667	11,495	12,387	13,348	14,384		9,467	10,292	11,182	11,141	10,831
Appendix A	WMS Summary	\$ 5,308,730,400		38,108	43,459	46,477	48,551		15,104	22,608	27,854	42,070	44,341
Appendix A	WMS Summary		217,709	403,157	453,032	488,551	488,551		297,112	485,081	540,862	549,383	552,385
Appendix A	WMS Summary		1,996	3,593	3,881	4,179	4,419		2,061	3,771	4,069	4,374	4,624
Appendix A	WMS Summary		800	2,830	4,399	5,938	7,815		200	800	2,561	6,918	7,672
Appendix A	WMS Summary			3,875	3,833	3,792	3,750			3,758	3,758	3,758	3,750
Appendix A	WMS Summary			0	0	0	0		6	10	10	10	10
Appendix A	WMS Summary		100	100	100	100	100		na	na	na	na	na
Appendix A	WMS Summary		150	150	200	200	200		50	50	100	100	100
Appendix A	WMS Summary		na	na	na	na	na		0	16	28	27	26
Appendix A	WMS Summary		0	0	0	0	0		0	16	28	28	27
Appendix A	WMS Summary		na	na	na	na	na		0	0	0	0	0
Appendix A	WMS Summary		na	na	na	na	na		0	0	0	0	0
Appendix A	WMS Summary		563	575	575	575	575		613	675	675	1,183	1,187
Appendix A	WMS Summary		600	600	600	600	600		1,600	1,600	1,600	1,600	1,600
Appendix A	WMS Summary		743	743	743	743	743		1,743	1,743	1,743	1,743	1,743
Appendix A	WMS Summary									2,600	2,600	2,600	2,600
Appendix A	WMS Summary		na	na	na	na	na		0	0	0	0	0
Appendix A	WMS Summary		797	1,431	1,431	1,431	1,431		800	1,435	2,075	2,708	2,708
Appendix A	WMS Summary		na	na	na	na	na		0	7	12	13	13
Appendix A	WMS Summary		0	0	0	0	0		0	12	13	13	13
Appendix A	WMS Summary		0	0	0	0	0		0	64	110	110	104
Appendix A	WMS Summary		0	0	0	0	0		0	20	35	37	38
Appendix A	WMS Summary		800	800	800	800	800		500	500	500	500	500
Appendix A	WMS Summary		834	834	834	834	834		534	536	538	539	539
Appendix A	WMS Summary		7	12	12	12	12		257	262	262	262	261
Appendix A	WMS Summary		na	na	na	na	na		na	na	na	na	na
Appendix A	WMS Summary	\$ 5,446,700.00		15	15	15	15		2,108,700			215	
Appendix A	WMS Summary	\$ 2,233,300.00											
Appendix A	WMS Summary												
Appendix A	WMS Summary	\$ 2,572,400.00											
Appendix A	WMS Summary	\$ 2,722,300.00											
Appendix A	WMS Summary	\$ 3,114,800.00											

REGION A

POTENTIALLY OVER ALLOCATED SOURCES

Source Name	Source Region	Source County	Source Basin	Comments	Over allocated by WUG or WWP?	Interregional?
MEREDITH LAKE/RESERVOIR	A	RESERVOIR	CANADIAN	This source is over allocated by 1,339 acre feet in 2010.	WUG	Yes - A/O



Life's better outside.®

June 24, 2010

Mr. Kyle Ingham, Director
Local Government Services
Panhandle Regional Planning Commission
P.O. Box 9257
Amarillo, TX 79105

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Fort Worth

Carter P. Smith
Executive Director

Re: 2010 Panhandle Region A Initially Prepared Plan

Dear Mr. Ingham:

Thank you for the opportunity to review and comment on the 2010 Initially Prepared Regional Water Plan (IPP) Panhandle Region A Water Planning Area. Texas Parks and Wildlife (TPW) acknowledges the time, money and effort required to produce the regional water plan as mandated by Senate Bill 1 of the 75th Legislature. A number of positive steps have been taken since the first planning cycle to advance the issue of environmental protection. For example, the regional water planning groups are required by TAC §357.7(a)(8)(A), to perform a "quantitative reporting of environmental factors including effects on environmental water needs, wildlife habitat, cultural resources, and effect of upstream development on bays, estuaries, and arms of the Gulf of Mexico" when evaluating water management strategies (WMS). Quantification of environmental impacts is a critical step in planning for our state's future water needs while also protecting environmental resources.

TPW staff has reviewed the IPP with a focus on the following questions:

- Does the plan include a quantitative reporting of environmental factors including the effects on environmental water needs, and habitat?
- Does the plan include a description of natural resources and threats to natural resources due to water quantity or quality problems?
- Does the plan discuss how these threats will be addressed?
- Does the plan describe how it is consistent with long-term protection of natural resources?
- Does the plan include water conservation as a water management strategy? Reuse?
- Does the plan recommend any stream segments be nominated as ecologically unique?
- If the plan includes strategies identified in the 2006 regional water plan, does it address concerns raised by TPW at that time?

According to the Region A IPP, regional population is expected to grow but water demands are expected to decrease, primarily due to expected decreases in irrigation demand. Recommended water management strategies in the Panhandle Region A IPP include municipal and agricultural conservation, development of new groundwater well fields in the Ogallala, Dockum and Seymour aquifers and purchase of water from wholesale providers.

Brief discussions of wetlands, playa basins, springs, aquatic resources, endangered/threatened species, and ecologically unique resources are included in the Region A IPP. A good discussion of the importance of playa basins is included in the IPP. In addition to their biological importance as wetlands, playas also provide local recharge to

Mr. Kyle Ingham
Page 2
June 24, 2010

the Ogallala aquifer. The IPP states that environmental impacts and the protection of the region's resources were a priority in the water management strategies selection process, and potential impacts to sensitive environmental factors were considered for each strategy.

The IPP does not include a quantitative reporting of environmental factors since minimal impacts to fish and wildlife are expected. Where additional groundwater pumping is proposed detailed evaluations were not provided because specific locations for groundwater rights were not available. Potential impacts to spring flows, spring ecosystems and playa lakes should be identified where additional groundwater development was identified as a water management strategy. Emphases should be placed on protecting springs and playa basins that support fish and wildlife.

Municipal and agricultural conservation are the principle strategies for meeting future water needs. The planning group has proposed municipal water conservation strategies that can potentially reduce per capita water use in the region by 5% by 2060. TPW supports the planning group's consideration of brush control/management as an additional means of conserving water if done in a manner that can also benefit wildlife habitat. The IPP also includes reuse of treated effluent as a water source for meeting future industrial and mining needs.

TPW notes that the plan does not recommend nomination of any stream segments as ecologically unique. The Regional Planning Group decided the unknown consequences of designation were outweighed by potential benefits. TPW has identified several stream segments in the region that meet at least one of the criteria for classification as ecologically unique should the regional planning group decide to pursue nomination of an ecologically significant stream in the future.

Thank you for your consideration of these comments. TPW looks forward to continuing to work with the planning group to develop water supply strategies that not only meet the future water supply needs of the region but also preserve the ecological health of the region's aquatic resources. Please contact Cindy Loeffler at (512) 389-8715 if you have any questions or comments.

Sincerely,



Ross Melnychuk,
Deputy Executive Director, Natural Resources

RM:CL:ch

SUBMISSION OF WRITTEN COMMENTS

Panhandle Water Planning Group
Panhandle Water Planning Area - Region A

Written Comments for Suggestions and Recommendations as to Issues to be Addressed or Provisions to be Included in the Regional Water Plan will be accepted through Monday, June 28, 2010 at 5:00 p.m. Comments may be mailed, delivered, or faxed to:

Kyle Ingham, Local Government Services Director
Panhandle Regional Planning Commission
415 West Eighth Avenue
Amarillo, TX 79101
Fax Number: (806) 373-3268
E-Mail: kingham@theprpc.org

COMMENTS

(Name and Address Must be Completed - Please See Reverse Side)

I need to know who would rule on the following: I have a surface water right No: 5236 & NO 5235 (Type 6). The water District that I am a member of, issued a permit to a land owner adjacent to me. When we leased this section, we stopped the spring from running. Now this old well has not produced for over 10 yrs. Now they are re-drilling it. I just wonder who would have precedence. My surface water rights were granted in the 1950's. - Thank you



Gary Pitner

13 May 2010

LONGRANGE PLAN STEERING COM. FOR WHOM THIS COVER
LETTER WAS WRITTEN. BUT WE
WANTED YOU TO HAVE A COPY.

Dear Steering Committee Member

The enclosed document is a compilation of what the League of Women Voters of Amarillo learned during our two-year water study which commenced in May 2008 and ended in April of 2010. Because of your interest in the welfare of our area, we are sharing it with you.

Alan

Our study consisted of a series of book discussions, film viewings, public forums, small group meetings, and field trips. Managers of the groundwater districts, Bridget Scanlon and other experts met with the Environment Committee. Early on we established a partnership with the Amarillo Public Library. Our forums and book discussions provided an opportunity for city dwellers and farmers to share their concerns, creating a deeper understanding of each other's points of view.

Speakers at our public forums included:

State Senator Kel Seliger, "Whose Water Is It?"

Jarrett Atkinson, Assistant Amarillo City Manager, "Every Drop Counts"

Laura Marbry, Texas Living Waters Project, "Environmental Flow"

Darryl Birkenfeld, Ogallala Commons, "The Ethics of Water Use"

Janet Guthrie, Manager Hemphill Underground Water Conservation District, "HUWCD
Groundwater Model "

James Herring, Chair Texas Water Development Board, "The Influence of Groundwater on Texas
Water Planning and Policy"

Book Discussions on Saturday afternoons at the library covered the following:

The Worst Hard Times, by Tim Egan

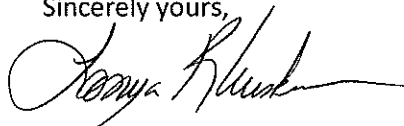
Ogallala Blue, by William Ashworth

Blue Gold, by Maude Barlow & Tony Clarke

Pillar of Sand: Can the Irrigation Miracle Last? By Sandra Postel

There is no question that some day the Panhandle will run out of water. The good news is that a lot of people have started talking about the problem, and many of them are trying to do something to slow down the process. We think you, too, will be encouraged by the final section of the report.

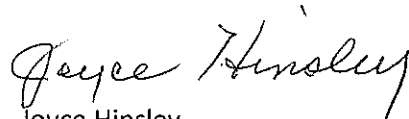
Sincerely yours,



Tonya Kleuskens

Chair, Environment Committee

LWV



Joyce Hinsley

President, Amarillo LWV

April 28, 2010

Dear Kyle,

The Amarillo League of Women Voters has finished its Water Study report. We want to thank you for your presentations, your time, information and support. This Water Study was only possible because you spent time with us and answered all of our questions. We sincerely hope that this study will continue to grow in purpose and intent, serving as an additional avenue for conservation education.

Sincerely,

A handwritten signature in cursive script that reads "Tonya".

Tonya Kleuskens

Amarillo League of Women Voters, Environment Committee

A number of other small reservoirs are currently used for private storage and diversion purposes. In order to use any of the minor reservoirs for water supply purposes, water rights for diverting the water for a specific use may be needed. Other issues may be associated with diverting water from playa lakes. Therefore, these surface water sources have not been included as sources of available water supplies.

3.1.7 Reuse Supplies

Direct reuse is used in the PWPA for irrigation and industrial water uses. Currently, the largest producer of treated effluent for reuse is the city of Amarillo. Most of the city's wastewater is sold to Xcel Energy for steam electric power use. The city of Borger also sells a portion of its wastewater effluent for manufacturing and industrial use. Most of the other reuse in the PWPA is used for irrigation. A summary of the estimated direct reuse in the PWPA is shown in Table 3-16.

Table 3-16 Direct Reuse in the PWPA
 (Values are in ac-ft /yr)

County	2010	2020	2030	2040	2050	2060
Carson	67	64	62	61	56	50
Childress	146	148	150	151	151	147
Collingsworth	50	50	50	50	50	50
Dallam	430	421	409	391	379	379
Gray	246	246	246	246	246	246
Hall	0	0	0	0	0	0
Hemphill	0	0	0	0	0	0
Hutchinson	1,045	1,045	1,045	1,045	1,045	1,045
Lipscomb	0	0	0	0	0	0
Moore	547	592	633	664	684	696
Potter	21,803	25,567	27,230	29,125	31,192	34,169
Randall	700	700	700	700	700	700
Roberts	0	0	0	0	0	0
Wheeler	95	95	95	95	95	95
Total	24,883	28,682	30,374	32,282	34,352	37,331

3.1.8 Local Supplies

Local supplies are those surface water supplies that cannot be quantified from the WAM models. These include water sources that do not require a State water right permit, such as local stock ponds for livestock use and self contained storage facilities (old gravel pits, etc.) for mining. The amounts of available supplies for these uses are based on data collected by the TWDB on historical water use. A summary of the local supplies by county is shown in Table 3-17.

IPP Chapter 4
 Evaluation of Water Management Strategies

4.2.2 City of Pampa

The City of Pampa provides water to customers in Gray County, including TDCJ, and Titan Specialties and other manufacturers. The City receives blended water from CRMWA and operates wells for groundwater from the Ogallala aquifer. The City also reuses treated wastewater to supply irrigation water to its municipal golf course. Table 4-2 lists the projected demands and supplies for the City of Pampa and its customers. Pampa has sufficient supplies to meet its current demands.

Table 4-2: Summary of Demands and Supplies for the City of Pampa

	Demands (AF/Y)					
Customer	2010	2020	2030	2040	2050	2060
Residential	2,759	2,751	2,742	2,734	2,726	2,718
Commercial	655	655	655	655	655	655
TDCJ	257	257	257	257	257	257
Total Demand	3,671	3,663	3,655	3,648	3,640	3,633
	Current Water Supply (AF/Y)					
Sources	2010	2020	2030	2040	2050	2060
Ogallala – Gray County	1,351	1,351	1,325	1,288	1,250	1,219
Reuse	246	246	246	246	246	246
TDCJ	484	484	484	484	484	484
Lake Meredith (CRMWA)	1,791	1,791	1,791	1,791	1,791	1,791
Ogallala – Roberts Co. (CRMWA)	1,980	1,980	1,980	1,980	1,980	1,980
Total Current Supply	5,852	5,852	5,826	5,789	5,751	5,720
Surplus or Shortage	2,181	2,189	2,171	2,140	2,111	2,087
Recommended Strategies:	2010	2020	2030	2040	2050	2060
Conservation	0	15	65	65	65	65
Purchase additional water from CRMWA	0	0	0	0	1,000	1,000
Additional Ogallala – Gray Co.	968	2,581	0	0	0	0
Total from Strategies	968	2,596	65	65	1,065	1,065

Recommended Strategies

- Implement conservation strategies
- Purchase additional water from CRMWA
- Develop additional groundwater (Ogallala aquifer) and rehab existing wells
- Rehab of infrastructure

IPP Chapter 4

Evaluation of Water Management Strategies

Recommended Conservation Strategies

- Implementation of water conservation plan
- Water conservation pricing
- System water audit

Strategy Descriptions

The recommended strategies include implementing conservation measures, purchasing additional water from CRMWA and developing additional groundwater from the Ogallala in Gray County. Table 4-? Shows the amount of water supply associated with each of the recommended strategies. The yield of the City of Pampa well field is expected to decline over time. It is anticipated that Pampa will continue to operate groundwater system at levels similar to current pump age. To do this, the City will need to install additional wells and rehab existing wells. To provide for additional commercial demands, the City of Pampa can purchase additional water from CRMWA. For planning purposes, it is assumed that additional infrastructure will be needed and rehabbed; however, pending the additional purchase amount, there may be sufficient capacity in the existing infrastructure.

Time intended to complete

Water conservation strategies are in place with water savings being noticed in 2020. The Gray County well field rehab is beginning in 2010. Additional expansion of the well field will be developed as needed. Additional supply from CRMWA will be developed as needed.

Quality, Reliability and Cost

The quantity of water should be sufficient. The reliability of conservation is considered moderate because much of the conservation plan must be implemented by the consumers. The conservation measures do not have any capital costs associated with them.

Environmental Issues

The environmental impacts from conservation and groundwater development are expected to be low. Once the specific locations of additional wells and alignment associated with the infrastructure are identified, a detailed evaluation to determine environmental impacts, if any, will need to be performed.

Impact on Water Resources and Other Management Strategies

Water conservation may impact the amount of water returned to the system that might be available for reuse. The increased demands on the Ogallala will continue to deplete the storage in the aquifer. There are other users that may compete for groundwater supplies, but there is sufficient water in Gray County to support these demands.

Impact on Agriculture and Natural Resources

Water conservation and the possible development of the future well fields are expected to have minimal impact on the agriculture and other natural resources.

IPP Chapter 4

Evaluation of Water Management Strategies

Other Relevant Factors

There are no other identified relevant factors.

Interbasin Transfer

The recommended strategies do not require interbasin transfer permits.



May 12, 2010

Kyle Ingham
Panhandle Regional Planning Commission
P.O. Box 9257
415 W. Eighth Ave.
Amarillo, TX 79105

Re: Regional Water Plan – Infrastructure Financing Report - City of Canyon

Dear Kyle:

As we discussed on the phone earlier this week, we have discovered a discrepancy in our submission to the regional water plan for 2011. In the preparation of the cost estimate for the project, the amount for the 1 MG ground storage tank was inadvertently omitted. Including the tank increases the project estimate to \$9,528,800. We changed the number on the IFR, inserted 20% of the cost for planning, design and permitting and 80% of the total for acquisition and construction. We have estimated the timeframe for each phase of the project as well.

I have attached a copy of the revised estimate and a sketch of the overall project.

If you have any questions, or need anything else, please call me at 655-5011.

Sincerely,

A handwritten signature in blue ink that reads "Dan E. Reese".

Dan E. Reese
Director of Public Works

cc: file

Comments on the Initially Prepared Regional Water Plan For the Panhandle Water Planning Area

As submitted March 1, 2010

Prepared by John C. Williams

Primary Comments: Water supply availability

- A. For Surface Water, notably from Lake Meredith:** In Section 3.1.3, at pp 3-18 and 3-19, the document discusses the yield studies for Lake Meredith and correctly states that CRMWA believes the long-term reliable yield of Lake Meredith may be only approximately 50,000 AF/yr, and that for purposes of this Plan, the yield is estimated at 30,000 AF for 2010 and 50,000 AF/yr for the following decades (based on the assumption that the Lake will at least partially recover soon). These numbers are used in Table 3-10 and to calculate the supplies to WUG's as shown in Table 3-22. However, Table 3-18 on page 3-31, and the text of the Executive Summary on pages ES-4 and ES-5, as well as Table ES-1, still refer to the Firm Yield as determined previously from the WAM and need revision.

Also, the information in Table 1-8 on page 1-25 should be footnoted to show that the firm yield as given is questionable and subject to re-evaluation at the end of the current drought.

For Groundwater, notably from the Ogallala Aquifer: The Plan documentation is inconsistent and confusing about what version of the GAM was used to develop and illustrate water availability and shortages. Section 3.1.2, beginning on page 3-12, describes the refinement of the Northern Ogallala GAM as described more fully in Appendix F. In this section, on page 3-14, in the third paragraph, the Plan states that "The updated model was also used to assess groundwater availability based upon the criteria defined by the planning group." However, the updated model was *not* used to calculate the Total Water in Storage shown in Table 3-1 on page 3-6 nor the Available Water Supplies shown in Tables 3-2 on page 3-7. As indicated somewhat obliquely by the footnote at Table 3-1, these data were derived with the 2004 version of the GAM, as run by Intera in October 2009, presumably with the demands derived for the 2011 Plan. The Plan text is also confusing because the last paragraph on page 3-3 says the "current TWDB Northern Ogallala GAM" in Appendix D was used to determine the availability of water from the Ogallala/Rita Blanca aquifer. It is unclear which version is the "current" version. Appendix D contains output from one run of the 2004 GAM by Interra, but only the county availability data are shown, not the totals for the entire region nor the demands which were input. The data from that run is used in Table 3-2, but Table 3-1 cannot be easily correlated to the GAM run in Appendix D. If I understand correctly, the only data reflected in the Plan (other than Appendix F) which is based on the fully revised "new" GAM is the illustration shown in Figures 3-9 and 3-10, reflecting the effect of unrestricted pumpage at

current demand levels. The Plan text is not at all clear which version of the GAM has been used in most cases. The source of the data in Tables 3-24, 3-25, 3-26, 3-27, and in the DB-12 tables is not noted so far as I can see. The information in Table 1-6 on page 1-21 for 2010 is likewise not well identified, but is probably from the same source as Table 3-1. It does not appear that use of data from the updated GAM would substantially revise any county or user shortage (in fact the shortages would probably be less), but the document should make clear what source was used for each step in the process.

Other General comments, mostly editorial: Other comments are as follows:

1. On page ES-8, under "Long-term Protection...." The draft states that the plan recommends using not more than 1.25% of annual saturated thickness. This appears to be a carryover from the 2006 Plan and needs to be updated to comply with the management goals actually adopted for the 2011 Plan.
2. In the County Summaries which are in the ES, the legends are not clear. Meaning of the cross-hatching is not noted. Stippled areas presumably show various aquifers, but the small size of the legends make it difficult to discern which one is stippled. The graphical display of Supplies and Demands or Shortages is not the same for all counties. For Dallam, Hall, Hansford, Hartley, Hutchinson, Moore, Potter, Randall, and Sherman the bar graphs just show percentages of supply and shortages, while the quantities of each are tabulated below the graph. All of the other counties graph the quantities of Supplies and Demands for each WUG in the bar graphs as well as the pie charts. On the map for Roberts County, the Basin Boundary between the Canadian and Red crosses several drainages.
3. In Chapter 1, page 1-2, the Plan states there are 11 interest groups, where it should say 12 as reflected in Table 1-1.
4. On Page 1-11, Par. 1.3.2, and in Table 1-3, the data seems far outdated.
5. In Par.1.5.1. page 1-15, the Plan should mention the requirements of HB 1763, passed by the 79th Tx Legislature in 2005, requiring the GMA's to establish a Desired Future Condition and that each GWD in the GMA adopt goals and objectives consistent with achieving the DFC. Also, the last sentence of this section should state that the GWD's can regulate production as well as the other criteria enumerated.
6. In the second paragraph on Page 1-20, increased cost of power should be included in the list of factors reducing the rate of water level declination.
7. On page 1-39, par. 1.7.2, the document should note that CRMWA, partnered with the Texas State Soil and Water Conservation Board and NRCS (now Agri-Life) have conducted a salt-cedar control program in the Canadian Basin above Lake Meredith which has effectively treated over 10,000 acres of the infestation, at a cost of over \$3 million.
8. Table 4-16 shows the Demands, Supplies, and Strategies for Amarillo. The current supplies from CRMWA Lake Meredith shown do not quite conform to the contractual allocations from CRMWA. Amarillo is entitled to receive 37.058% of CRMWA's Lake Meredith supply and 40.621% of the groundwater supply from CRMWA. If CRMWA's available supplies are

as shown in Table 4-15, Amarillo would have about 4000 AF more groundwater available from CRMWA in the 2020-2060 period. Other variations are smaller.

9. On page 5-12 and the top of page 5-13, the draft discusses a study done by BEG for the 2006 Water Plan. Apparently this section was not revised from the 2006 language. It should be made clear that this is not a new study done for the 2011 Plan. In addition, questions recently raised about this study may make it advisable to simply state that the study supports the probability of decreases in water quality with increased pumping, but that projections of the study are not entirely borne out by actual observations. References to Appendix X (of the 2006 Plan?) should be so noted, or deleted.
10. Section 6.4, page 6-9 does not mention the requirement for setting a Desired Future Condition or that the GCD's will have to regulate or manage groundwater so as to achieve the DFC, or to keep pumpage within the MAG.
11. Section 7.4.2, page 7-4 does not mention either the Lake Meredith National Recreation Area (it is not clear whether the 103,000 acres mentioned include the 45,000 acres in LMNRA) or the Alibates Flint Quarries National Monument (the only National Monument in Texas).
12. Paragraph 7-5 on page 7-4 contains a quotation concerning the Arkansas River shiner and the designation of critical habitat for the species, but no source is given for the statement quoted.
13. The City of Fritch has recently been approved for some financing from the TWDB to support purchase of water rights held by Hi Texas Water Supply Corp. Although this loan (\$1,160,000) has already been approved and therefore may not need to be supported in the Plan, it may be judicious to include some mention of this as a strategy for the City of Fritch. Their plan includes acquisition of the High Texas Water System, including the water rights, rehab of those wells and drilling at least one new well, and installation of a connecting line. Other financing will also be needed (source presently unknown). The present draft of the Plan does not show any shortage or strategy for Hi Texas or Fritch. The information prepared by the staff for the TWDB's consideration stated that "the project is consistent with the 2007 State Water Plan and the 2006 Region A Water Plan, since it is using the water supply source identified in the Regional and State Water Plans." I presume the TCEQ will agree when Fritch seeks a CCN for the new service area, but it could be wise to have some provision in the new Plan.

Kyle Ingham

From: John Williams [jwilliams@crmwa.com]
Sent: Thursday, March 25, 2010 3:22 PM
To: simone.kiel@freese.com
Cc: Kyle Ingham; Chad Pernel; Kent Satterwhite
Subject: IPP Strategies for Borger and Amarillo

In looking at the IPP which was submitted 3/1, I notice some circumstances regarding the supply from CRMWA to Borger and the strategies shown for them to meet their needs. I'm not sure if the information for Borger was supplied by the city in response to PWPG questionnaires, but the strategies shown appear to need some tweaking.

Table 4-17 shows that the municipal demand for Borger will decrease somewhat over the planning period, but demand for their industrial customers will increase, resulting in an overall demand increase for them as a WWP. Table 4-2 shows that they will meet this increased demand first by installing new wells (presumably in their existing wellfield west of Stinnett) and later (2050-2060) by purchasing additional water from CRMWA.

There are two factors which will affect these strategies:

First, Borger is not shown to use all of the water they have the right to take from CRMWA. Based on the available supply which CRMWA is shown to have in Table 4-15 (30 KAF lake and 60KAF groundwater in 2010, increasing to 50KAF lake and 69 KAF ground in 2020 thru 2060), with Borger contractually entitled to 5.549% of each, Borger would have available supply from CRMWA of 2,774 AF lakewater and 3,849 AF wellwater (total 6,603 AF/Y) for the decades 2020 through the end of the planning period. Table 4-17 only shows that they will be using 1,681 AF from Lake Meredith and 2,319 AF from our Roberts County supply (total 4000 AF/Yr). So they could draw up to 2,603 AF/yr additional from CRMWA.

Second, however, their usage will probably be affected by the needs of their industrial customers. With one exception, I think the industrial users currently will not accept lake water. Since the demand growth is all on the industrial side, they may not be able to meet it with the surface supply. They could take an additional 1,530 AF/yr of Roberts County water from CRMWA, which is more than the 1000 AF/yr additional supply they are shown to purchase in Table 4-2. Their ability to supply our Roberts County water to industries will depend on installation of a new supply line from our Roberts County transmission line, or some modification of their own distribution system.

At any rate, the need for Borger to "purchase" additional water from CRMWA does not seem an appropriate strategy. They already have the right to use more than the additional purchase which is proposed. These comments ignore any possible need for contractual modifications.

A somewhat similar but less critical situation exists with the strategies shown for Amarillo. Like Borger, Amarillo could use slightly more water from CRMWA under the existing contracts than is shown in Table 4-16 late in the planning period. They are entitled to 37.058% of our lake water and 40.621% of our Roberts County supply. They could use about 3,000 AF/yr more groundwater from our Roberts County supply than is shown in Table 4-16, but that might not be enough to avoid the need to develop their own Roberts County supply. Furthermore, there could be some delivery problems related to getting that water into Amarillo, so I would not advocate modifying the strategies shown for Amarillo.

Response to Comments on the 2010 Initially Prepared Regional Water Plan for the Panhandle Regional Planning Area

Agency Comments

Comments received from Carolyn Brittin, TWDB, June 28, 2010

General comments:

1. All documents for the final plan will be submitted in final format.
2. Sources for all base maps were from the TWDB in accordance with Contract Exhibit D. The source for the maps shown on Figures 3-9 and 3-10 is the TWDB Northern Ogallala GAM (2004 Dutton GAM). This source was added to these figures.
3. A list of potentially feasible water management strategies is included in an attachment following Chapter 4.

Executive Summary:

4. The TWDB requires the regions to report firm yields for all surface water sources. Safe yield or reliable supply is the amount of water that is considered available for use by water user groups. This distinction is clarified in the Executive Summary.

Chapter 1:

5. A new subsection was added to describe the threats to agriculture and natural resources.

Chapter 2:

6. The population and water demands tables by county and river basin are included in the DB12 Data Tables in Appendix A in the final plan.
7. The water demands on wholesale water providers by county and river basin are included in the DB12 Data Tables in Appendix A in the final plan.

Chapter 3:

8. The identification of the Dallam County PGMA was added to the discussion in Chapter 1, Section 1.5.1, Groundwater Regulation. Groundwater availability is discussed in Section 3.1.1. The availability approach for the Ogallala Aquifer followed the recommendations of the Groundwater Management Area #1, which includes the Dallam County PGMA. There are no known water availability limitations set forth by the Dallam County Commissioners within the designated PGMA.

9. Wholesale water providers are discussed in Chapter 4, including the sources of water supplies. Details of the supply sources for wholesale water providers are included in the DB12 Data Tables in Appendix A in the final plan.
10. To our knowledge the plan includes all ongoing surface water development projects. The PWPA regional water plan evaluated surface water using the latest TCEQ-approved water availability models. These models include all water supply projects that TCEQ has issued a permit. Also, there has not been a consumptive surface water right issued by TCEQ in Region A since 1991, and the source of the water for this right is groundwater.
11. The discussion of reliable yield is included on Page 3-19. The values are based on studies conducted by CRMWA and provided to the PWPG by CRMWA staff. The 30,000 acre-feet per year value reported in 2010 is the allocation amount adopted by the CRMWA Board of Directors for supply distribution to its customers. The 50,000 acre-feet per year estimate for subsequent decades assumes that Lake Meredith will recover storage from the current drought. A reference was added to Chapter 3.
12. This was corrected.
13. These tables reflect a supply and demand comparison by county. The projected shortages by water user group are shown in Tables 3-29 through 3-31. The projected surplus or shortage for each water user group by county and river basin is included in the DB12 tables in Appendix A. A footnote was added to Tables 3-25 through 3-27 noting that the sum of individual shortages may differ from the surplus or shortage shown in this table. A reference to the tables with WUG shortages was added.

Chapter 4:

14. A table of alternative strategies is included in an attachment following Chapter 4.
15. A description of the cost assumption for conservation was added on Page 4-9.
16. The plan does include information for all strategies evaluated.
17. Capital costs were corrected.
18. The projected needs for each wholesale water provider by county and river basin are included in the DB12 tables in Appendix A.
19. Capital costs were corrected.

Chapter 6:

20. Conservation strategies are recommended or alternative strategies that conserve water over the long-term. Drought management plans are plans developed by a political subdivision to address short-term responses to drought conditions. Synopses of drought contingency plans that were submitted to the PWPG are included in Chapter 6.

21. Attachment B, online database comments: Data was reconciled. See tables at the end of the responses.
22. Attachment C, inter-regional conflicts: The overallocation of Lake Meredith is the result of inconsistencies with the data entered for Region O customers of CRMWA. The TWDB is working with Region O to resolve this issue. As of August 18, this has been resolved.

Level 2 Comments from the TWDB:

Chapter 3:

1. Totals were added to all tables where appropriate.
2. The Dockum GAM run report 09-014 was completed after the IPP was published and this information was not used for water availability or distribution of supplies. At this time it has not been adopted by the GMA 1. No changes are made.

Chapter 7:

3. Added title and table number to the regulatory table in Chapter 7.

Comments received from Ross Melinchuk, TPWD, June 24, 2010

The PWPG appreciates the TPWD comments on the 2010 Initially Prepared Plan and support of the recommended conservation strategies. The PWPG agrees that protection of the region's natural resources, including springs and playa lakes, is important to the region. The regional water plan generally provides for flexibility in developing water management strategies such that environmental sensitive areas can be avoided if possible. It is assumed that during the development of a project, more detailed assessments of potential impacts will be conducted.

Public Comments

Oral Comments received at the Public Hearing on April 28, 2010:

Mr. Marty Jones, representing George Arrington, Mesa Water and other land owners:

Mr. Jones questioned the adoption of the GMA #1 DFCs for the Ogallala aquifer in lieu of the 1.25% decline approach that was used for the 2006 Regional Water Plan, and he requested that the PWPG adopt a 50/50 standard for all aquifers in the Panhandle region. **Response:** The PWPG carefully considered all options in determining the approach to water availability in light of on-going activities with the GMAs and local GCDs. The PWPG concluded that following the

approach adopted by the GMA #1 for the Ogallala was consistent with the intent of HB 1763. No changes were made to the plan.

Ms. Joyce Hinsley, Amarillo League of Women Voters:

Ms. Hinsley iterated support for the 2010 Panhandle Regional Water Plan. The PWPG appreciates the support provided by the Amarillo League of Women Voters.

Mr. Al Alford:

Mr. Alford asked several questions during the public hearing, which were generally answered at that time and recorded in the minutes of the meeting. In response to the question about conservation achievement dates, Mr. Alford provided a spreadsheet and subsequently spoke to Simone Kiel of Freese and Nichols. It was determined that Mr. Alford's assumptions and those used for planning were different. No changes were made to the plan.

Mr. Robert Eakles:

Mr. Eakles discussed the possibility of pumping seawater to meet future water needs. The PWPG appreciates Mr. Eakles input. No changes were made to the plan.

Written Comments received during the Public Comment Period:

Mr. Larry Henard, water rights holder, Wellington, TX:

The Mesquite Groundwater Conservation District regulates the issuance of groundwater permits, including well spacing and pumpage. The Texas Commission on Environmental Quality regulates surface water. The PWPG has no authority in this matter. You may wish to contact your local groundwater conservation district or the TCEQ.

Women League of Voters, Amarillo, TX, May 13, 2010:

The PWPG appreciates your comments and the copy of the Water Study report. No changes made to the plan.

Donny Hooper, City of Pampa, June 16, 2010:

The PWPG appreciates your input to the 2010 Regional Water Plan. The reuse water that your city is providing to the golf course was added to the existing supplies. The PWPG cannot change water demands at this time, but your input will be considered for the 2015 Regional Water

Plan. The City of Pampa currently does not show a need for water over the planning period. We understand the need to rehabilitate and replace lost capacity of existing wells. The supplies shown for water from the Ogallala in Gray County are based on the methodology used for regional water planning. This methodology limits the amount of annual withdrawal based on having 50% of the storage remaining in 50 years. As a result, the supplies from the City's existing well field are limited to 1,000 acre-feet per year in 2010 and reducing to 238 acre-feet per year by 2060. With the updated 2010 Intera GAM model there appears to be some additional supply associated with the current well field. To provide the full request of 2,581 acre-feet per year in 2020, the City will likely need to expand its existing well field. The regional water plan was updated to include the City's requested water management strategies. No changes were made to the City's demands or existing supplies.

Dan Reese, City of Canyon, May 12, 2010:

Mr. Reese provided an updated cost estimate for the recommended new groundwater strategy. The costs were updated in the regional water plan.

Written Comments received from the PWPG during the Public Comment Period:

John Williams Comments, March 1, 2010

Primary Comments:

- A. Surface water supplies are clarified in Tables ES-1 and Table 3-18 to show the reliable supply for Lake Meredith and safe yield for Greenbelt Reservoir. These values are used for representing total available supply from these sources for regional water planning.

To clarify which version of the Northern Ogallala GAM was used for different purposes, the models are now distinguished as the 2004 Dutton GAM and the 2010 Intera GAM. The 2004 Dutton GAM refers to the GAM model that is currently used and maintained by the TWDB. The 2010 Intera GAM is the model version that was updated by Intera as part of this regional water plan. Both models were updated in different ways. For the discussion in Section 3.2.1, the 2004 Dutton GAM was updated with new projected pumping amounts based on the revised agricultural demands developed by Texas AgriLife. The updates for the 2010 Intera GAM are documented in Appendix F and include updates to the aquifer structure and calibration. Changes were made to the plan to clarify these distinctions and better document the data sources.

Availability calculations shown in Appendix D were determined using the 2004 Dutton GAM. These calculations are not based on the projected demands, but rather the criteria set forth by the PWPG. The pumping amounts were initially set and adjusted for each grid cell in the model to meet the 40/50/80 criteria. The results reported in Appendix D represent these pumping values (i.e. demands = availability). The storage output from the 2004 Dutton GAM that was the basis for determine availability was added to Appendix D. These storage values are reported in Table 3-1, along with storage values estimated from the Southern Ogallala GAM. The interaction of flow between grid cells in the GAM model does not provide for a simple arithmetic calculation between Tables 3-1 and 3-2.

The updated pumping demands used for the discussion in Section 3.2.1 and used for the predictive runs in Appendix F were added to Appendix D.

To better document the data sources for tables showing supplies and demands, footnotes were added as appropriate.

Other General comments:

1. The sentence on Page ES-8 states that if no desired future conditions have been adopted, then the plan recommends using 1.25% of the saturated thickness. This is correct. Desired future conditions have been adopted for the Ogallala and Rita Blanca aquifers. These DFCs were used for groundwater availability. Sentence was re-worded to clarify this distinction for the Northern Ogallala GAM.
2. County maps were revised. Graphical displays for surplus/shortages by county are different based on PWPG input for the 2006 plan. The counties with different graphical displays are those counties with shortages.
3. The text is correct. The TWDB requires 11 interest groups. The PWPG elected to add another, making 12 interest groups in total.
4. Updated data with personal income for 1998 and 2008. Some economic data is older because the 2007 Economic Census had not been released at the time of publication.
5. Comments 5 through 7, 9, 10 and 12 were incorporated in the final plan.
6. Comment 8: The supply to Amarillo is limited to 42,987 acre-feet per year due to infrastructure constraints. The split between surface water and groundwater is based on the percentage of supply from each source rather than the contracted percentages. The 42,987 ac-ft/yr limit is less than the contracted percentages.
7. Comment 11: Both the Lake Meredith National recreation Area and Alibates Flint Quarries National Monument are included in Section 7.4.2, on page 7-4.
8. Comment 13: A strategy will be added for Fritch.

John Williams Comments, March 25, 2010 (email to Simone Kiel)

1. Comment regarding the city of Borger's contracted amounts with CRMWA and the need for a water management strategy for additional water from CRMWA. **Response:** Freese and Nichols contacted the city of Borger and confirmed that the city is using its full allotment of groundwater from Roberts County. The currently available supplies to Borger will be changed and the recommended strategy to purchase additional supplies from CRMWA will be removed. The City will continue to have a need, which will be met through developing additional groundwater.
2. Comment regarding the city of Amarillo's contracted amount with CRMWA. **Response:** The supplies to Amarillo are limited by infrastructure, not contractual amounts. No changes will be made to Amarillo's supplies from CRMWA.

REGION A			Non-matching numbers													Response to Comments			
Region/IPP	IPP document reference:		IPP document number						Online Planning Database (DB12) number										
	Page number	Table number	non-decadal number	2010	2020	2030	2040	2050	2060	non-decadal number	2010	2020	2030	2040	2050		2060		
A	Dallam County water use	ES-2		358,177								297,251					Text was changed.		
A	Available Water Supplies, Local Supply	ES-5	ES-1		21,022	21,022	21,022	21,022	21,022	21,022		21	21	21	21	21	ES table includes livestock local supplies. DB12 is only showing local supplies.		
A	Available Water Supplies, Other Aquifer	ES-5	ES-1		676	676	673	671	671	671		636	636	636	636	636			
A	Water Conservation Strategies Total Volume	ES-8				219,653				462,965			315,253			573,887			
A	Hansford County Summary, available supplies	ES-27	Hansford		137,130	120,292	116,158	107,259	97,160	87,286		136,980	120,143	116,011	107,113	97,016	87,142	DB12 and text are reconciled.	
A	Potter County Summary, available supplies	ES-43	Potter		65,126	70,261	70,342	70,764	71,420	73,155		64,799	69,995	70,017	70,440	71,098	72,833		
A	Randall County Summary, available supplies	ES-45	Randall		51,534	50,372	48,646	46,993	44,454	42,008		50,814	49,657	47,937	46,889	43,753	41,307		
A	Wheeler Co., Seymour Aquifer availability	3-9	3-4		na	na	na	na	na	na		88	88	88	88	88	changed db12		
A	Oldham County, Dockum Aquifer availability	3-11	3-8		74,000	65,400	57,600	50,800	44,800	39,500		74,000	64,800	56,700	49,600	43,400	38,000	changed db12	
A	Potter County, Dockum Aquifer availability	3-11	3-8		33,700	29,500	25,900	22,700	19,900	17,400		33,600	29,400	25,800	22,500	19,700	17,300	changed db12	
A	Collingsworth County, Red Basin, run-of-river supply	3-24	3-13		867	867	867	867	867	867		798	798	798	798	798	798	corrected DB12	
A	Hansford County, Canadian Basin, run-of-river supply	3-24	3-13		172	172	172	172	172	172		22	22	22	22	22	22	corrected table	
A	Potter Canadian combined-run-of-river supply	3-24	3-13		322	322	322	322	322	322		na	na	na	na	na	na	Corrected table	
A	Randall Co, Canadian Basin, combined-run-of-river-irrigation supply	3-24	3-13		215	215	215	215	215	215		175	175	175	175	175	175	corrected DB12	
A	Wheeler County, Canadian Basin, combined-run-of-river-irrigation supply	3-24	3-13		603	603	603	603	603	603		580	580	580	580	580	580	corrected DB12	
A	Direct reuse supply Carson Co	3-29	3-16		67	64	62	61	56	50		71	67	65	64	59	53	corrected DB12	
A	Direct reuse supply Collingsworth Co	3-29	3-16		50	50	50	50	50	50		300	300	300	300	300	300	corrected DB12	
A	Direct reuse supply Grey Co	3-29	3-16		na	na	na	na	na	na		1,902	1,879	1,615	1,568	1,525	1,525	corrected DB12	
A	Direct reuse supply Hall Co	3-29	3-16		na	na	na	na	na	na		7	6	6	5	5	5	corrected DB12	
A	Direct reuse supply Hutchinson Co	3-29	3-16		1,045	1,045	1,045	1,045	1,045	1,045		1,332	1,270	1,198	1,112	1,073	1,073	corrected DB12	
A	Direct reuse supply Lipscomb Co	3-29	3-16		na	na	na	na	na	na		34	34	34	34	34	34	deleted from db12	
A	livestock local supply Childress Co	3-30	3-17		100	100	100	100	100	100		300	300	300	300	300	300	correct table.	
A	Grand total supply	3-31	3-18		3,996,033	3,753,024	3,461,626	3,167,983	2,897,305	2,639,165		3,957,672	3,734,378	3,442,347	3,148,172	2,877,215	2,619,071	corrected table and db12	
A	Carson County, Red Basin supply	3-42	3-24				98,842							40,142					
A	Childress County, Red Basin supply	3-42	3-24				7,735							7,835					
A	Collingsworth County, Red Basin supply	3-42	3-24		31,754							31,254							
A	Dallam County, Canadian Basin supply	3-42	3-24				139,942							132,949					
A	Donley County, Red Basin supply	3-42	3-24		34,751							34,530							
A	Gray County, Canadian Basin supply	3-42	3-24				17,469							17,032					
A	Gray County, Red Basin supply	3-42	3-24				20,777							20,354					
A	Hall County, Red Basin supply	3-42	3-24				11,863							11,558					
A	Hansford County, Canadian Basin supply	3-42	3-24		137,130		119,152			87,286		136,980		116,011			87,142		
A	Hartley County, Canadian Basin supply	3-42	3-24				221,007							98,576					
A	Hemphill County, Canadian Basin supply	3-42	3-24				6,120							4,131					
A	Hutchinson County, Canadian Basin supply	3-42	3-24				73,180							58,921					
A	Lipscomb County, Canadian Basin supply	3-42	3-24				19,371							18,224					
A	Moore County, Canadian Basin supply	3-42	3-24				86,685							95,062					
A	Ochiltree County, Canadian Basin supply	3-42	3-24				59,113							58,445					
A	Potter County, Canadian Basin supply	3-42	3-24		44,524		48,615			54,434		44,197		48,826			54,112		
A	Potter County, Red Basin supply	3-42	3-24				22,492							21,191					
A	Randall County, Canadian Basin supply	3-42	3-24		73		72			64		27		25			19		
A	Randall County, Red Basin supply	3-42	3-24		51,461		51,440			41,944		50,787		47,912			41,288		
A	Roberts County, Canadian Basin supply	3-42	3-24				6,521							7,601					
A	Roberts County, Red Basin supply	3-42	3-24				1,396							316					
A	Sherman County, Canadian Basin supply	3-42	3-24				147,487							121,895					
A	Wheeler County, Red Basin supply	3-42	3-24				15,921							15,876					
A	Supply amounts for Grand Total	3-42	3-24		1,198,474		1,201,217			798,357		1,196,564		1,027,899			797,190		
A	Donley County 2010 Supply	na	3-25		34,751							34,530							
A	2010 Supply amounts for GRAY Co.	na	3-25		40,736							40,744							
A	2010 Supply amounts for HANSFORD Co.	na	3-25		137,130							136,980							
A	2010 Supply amounts for POTTER Co.	na	3-25		65,126							64,799							
A	2010 Supply amounts for RANDALL Co.	na	3-25		51,534							50,814							
A	2010 Supply amounts for Grand Total Co.	na	3-25		1,198,474							1,196,564							
A	2030 Supply amounts for POTTER Co.	na	3-26				70,342							70,017					
A	2030 Supply amounts for RANDALL Co.	na	3-26				48,646							47,937					
A	2030 Supply amounts for Grand Total Co.	na	3-26				1,029,080							1,027,899					
A	2060 Supply amounts for HANSFORD Co.	na	3-27							87,286							87,142		
A	2060 Supply amounts for POTTER Co.	na	3-27							73,155							72,833		
A	2060 Supply amounts for RANDALL Co.	na	3-27							42,008							41,307		
A	2060 Supply amounts for Grand Total Co.	na	3-27							798,357							797,190		
A	Hartley Irrigation Conservation WMS Volume	4-6	4-2				98,786		110,553	111,772				98,787		110,554	111,773	corrected DB12	
A	Hutchinson Co Irrigation Cons. WMS Volume	4-6	4-2				7,514			16,128				7,513			16,127	corrected DB12	
A	Mfg-Hutchinson Co. - Conservation WMS volume	4-6	4-2		na									0	500	1,000	1,000	1,000	Deleted from DB12
A	Mfg-Hutchinson Co. - Purchase from Borger WMS Volume	4-6	4-2							1,752							2,252	DB12 correct with 1752.	
A	Moore C-O Voluntary Transfer from Other Users WMS volume	4-6	4-2		na	na	na	na	na	na		0	0	50	100	100	100	added to Table 4-2	
A	Dumas - Moore New Wells WMS Volume	4-6	4-2														2,500	Corrected table	
A	Irrigation - Moore - Conservation WMS Volume	4-6	4-2				59,485							58,995				Corrected Table 4-2	
A	Manufacturing - Moore - Conservation WMS volume	4-6	4-2		na	na	na	na	na	na			254	446	469	489	522	Deleted from DB12	
A	Manufacturing - Moore - Purchase water from Cactus WMS Volume	4-6	4-2		173		1,033		1,396	1,718		200		1,100	1,400	1,800	2,100	Corrected table 4-1	
A	Sunray - New Wells Ogallala WMS Volume	4-6	4-2				800		800	800				500	500	500	500	corrected DB12	
A	Sunray - New Wells WMS volume	4-6	4-2			600	600	600	1,200	1,200		na	na	na	na	na	na	Corrected table	

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	Page number	Table number	non-decadal number	2010	2020	2030	2040	2050	2060	non-decadal number	2010	2020	2030	2040	2050	2060			
A	C-O Potter Canadian basin - New Wells WMS Volume	4-6	4-2			0							1,000				Corrected table		
A	C-O Potter Red Basin - New Wells WMS Volume	4-6	4-2	na	na	na	na	na	na	na	na	na	600	600	1,200	1,200	Corrected table		
A	Manufacturing-Potter-Canadian Purchase from Amarillo WMS Volume	4-6	4-2				33	57	35	43			200	328	313	225	Corrected table		
A	Manufacturing-Potter-Red Conservation WMS volume	4-6	4-2	na	na	na	na	na	na	na	0	120	150	150	150	150	deleted from DB12		
A	Mfg.Potter-Red Purchase from Amarillo WMS volume	4-6	4-2			0	602	1,333	2,155				444	1,087	1,846	2,638	Corrected table		
A	C-O Randall - Voluntary Transfer from Other Users WMS volume	4-6	4-2	na	na	na	na	na	na	na	0	0	3	4	7	9	Corrected DB12		
A	Irrigation - Sherman Conservation WMS volume	4-6	4-2		41,128		2,454	2,640	2,842	3,009		41,127	2,453	2,639	2,841	3,012	Corrected DB13		
A	Amarillo Conservation WMS volume	4-6	4-2				10,667	11,495	12,387	13,348			9,467	10,292	11,182	11,141	10,831	Corrected table	
A	Amarillo Potter Well Field WMS volume	4-6	4-2																
A	Borger - Conservation WMS compared to WWP table			0	72	118	114	107	102		na	na	na	na	na	na	This supply is shown on the WUG, not WWP. Added to WWP.		
A	Palo Duro River Authority - Transmission system WMS volume	4-6	4-2				3,875	3,833	3,792				3,758	3,758	3,758		Corrected table		
A	Sunray - New Wells Ogallala WMS Volume	4-27	WMS Table				800	800	800	800			500	500	500	500	Corrected DB12		
A	Moore C-O Voluntary Transfer from Other Users WMS Volume	4-31 & 4-32	WMS Table										0	0	50	100	100	Deleted in DB12	
A	Co. Other - Moore -new Ogallala Capital Cost	4-32		\$	3,114,800.00						\$	8,218,000					Corrected DB12		
A	Randall C-O Voluntary Transfer from Other Users WMS volume	4-35 & 4-36	WMS Table		na	na	na	na	na	na			0	0	3	4	7	9	Corrected DB12
A	Hall C-O New Wells Ogallala - Briscoe Co & Donley Co WMS Volume	4-37 & 4-38	WMS Table	150	600	200	200	200	200	200	50	50	50	100	100	100	100	Added Turkey in DB12 and corrected table.	
A	Dallam County Irrigation Total WMS volume	4-48	4.8		77,900	127,101	140,186	141,582	141,582			59,275	108,476	121,561	122,958	122,958			
A	Hansford County Irrigation Total WMS volume	4-49	4-9		33,246	55,074	61,026	61,762	61,762			24,436	45,264	51,215	51,951	51,951			
A	Hartly County Irrigation Total WMS volume	4-50	4-10		70,010	115,042	126,809	128,028	128,028			53,755	98,797	110,554	111,773	111,773			
A	Moore County Irrigation Total WMS volume	4-51	4-12		42,950	70,343	78,343	79,194	79,194			31,602	58,995	66,995	67,846	67,846			
A	Sherman County Irrigation Total WMS volume	4-52	4-13		55,693	91,668	101,369	102,462	102,462			41,127	77,102	86,803	87,896	87,896			
A	CRMWA Robert County Well Field WMS supply	4-55	4-15								0	0	15,000	15,000	15,000	15,000	added to Table 4-15		
A	Amarillo - Roberts County Well Field WMS Volume	4-58	4-16		10,667	11,495	12,387	13,348	14,384			9,467	10,292	11,182	11,141	10,831	Corrected table		
A	Borger - Conservation WMS volume	4-60	4-17	0	24	71	71	71	71		na	na	na	na	na	na	This supply is shown on the WUG, not WWP. Added to WWP.		
A	Hutchinson County Irrigation Cons. WMS volume	4-72	4-21		7,514			16,128	16,128				7,513		16,127	16,127	Corrected DB12.		
A	Hartley Irrigation Conservation WMS volume	4-72	4-21			98,786	110,553	111,772	111,772				98,787	110,554	111,773	111,773	Corrected DB12.		
A	Irrigation - Precipitation Enhancement WMS	4-43	4-5	Alternative							Recommended						It is both.		
A	Carson Co., Agriculture Conservation Savings	6-6	6.3		23,537	24,179	25,333	25,975	26,616			23,554	24,207	25,361	26,000	26,639	DB12 is correct.		
A	Gray Co., Agriculture Conservation Savings	6-6	6.3		7,166	7,361	7,711	7,905	8,100			7,168	7,365	7,715	7,909	8,104	Corrected table as needed.		
A	Hutchinson Co., Ag. Conservation Savings	6-6	6.3		10,478	17,009	18,870	19,092	19,092			11,002	18,080	19,941	20,163	20,163	Corrected table as needed.		
A	Potter Co., Agriculture Conservation Savings	6-6	6.3		1,298	1,335	1,402	1,439	1,476			2,266	3,011	3,206	3,382	3,536	Corrected table as needed.		
A	Roberts Co., Agriculture Conservation Savings	6-6	6.3		3,965	4,087	4,307	4,429	4,551			3,966	4,087	4,308	4,430	4,551	Corrected table as needed.		
A	Wheeler Co., Agriculture Conservation Savings	6-6	6.3		2,291	2,355	2,469	2,532	2,595			2,300	2,370	2,484	2,547	2,610	Corrected table as needed.		
A	New GW (Ogallala Aquifer) - Dumas WMS	Appendix A	WMS Summary					800	800	800				500	500	500	Corrected DB12		
A	New GW (Ogallala Aquifer) - Sunray WMS	Appendix A	WMS Summary							2,600					1,800	2,400			
A	New GW (Ogallala Aquifer) - County-Other Potter-Canadian	Appendix A	WMS Summary				600	600	1,200	1,200				1,600	1,600	2,200	2,200	Corrected Appendix to match DB12	
A	New GW (Ogallala Aquifer) - C-O Hall - Red is listed twice in the table.	Appendix A	WMS Summary	\$	2,522,400.00	100	100	100	100	100									
A	New GW (Ogallala Aquifer) - C-O Moor - Capital Cost	Appendix A	WMS Summary	\$	3,114,800.00						\$	8,218,000.00						Corrected DB12.	
A	New GW (Ogallala Aquifer) - Cactus Capital Cost	Appendix A	WMS Summary	\$	5,446,700.00						\$	10,893,400							
A	New GW (Ogallala Aquifer) - C-O Potter (Canadian) WMS Volume	Appendix A	WMS Summary							0				1,000					
A	New GW (Ogallala Aquifer) - C-O Randall Capital Cost & WMS Volume	Appendix A	WMS Summary	\$	7,276,100.00					2,600	2,600	\$	10,888,220			1,800	2,400		
A	New GW (Ogallala Aq)-Amarillo (Potter Co. Well Field) Supply	Appendix A	WMS Summary			10,667	11,495	12,387	13,348	14,384			9,467	10,292	11,182	11,141	10,831		
A	Municipal Conservation - Amarillo WMS Volume	Appendix A	WMS Summary			2,454	2,640	2,842	3,009	3,009			2,453	2,639	2,841	3,012			
A	Municipal Conservation - Borger WMS Volume	Appendix A	WMS Summary			72	118	114	107	102			24	71	71	71	71		
A	Municipal Conservation - Canyon WMS Volume	Appendix A	WMS Summary			81	146	159	174	186			80	176	191	208	227		
A	Municipal Conservation - Amarillo WMS Volume	Appendix A	WMS Summary																
A	Municipal Conservation total Supply	Appendix A	WMS Summary		1,996	3,593	3,881	4,179	4,419			2,061	3,771	4,069	4,374	4,624			
A	Voluntary Transfer - Hutchinson Co Mfg. WMS Volume	Appendix A	WMS Summary						1,752						2,252				
A	Voluntary Transfer - Moor Co Mfg. WMS Volume	Appendix A	WMS Summary		173	800	1,033	1,396	1,718	2,067		0	0	50	100	100	100		
A	Voluntary Transfer - Borger (Capital Cost & WMS Volume	Appendix A	WMS Summary	\$	4,399,400.00		1,000	1,000	1,000	1,000	\$	-		0	0	500	50		
A	Voluntary Transfer - Potter Co. Mfg. (Canadian) WMS Volume	Appendix A	WMS Summary				33	57	35	43				200	328	313	225		
A	Voluntary Transfer - Potter Co. Mfg. (Red) WMS Volume	Appendix A	WMS Summary			0	602	1,333	2,155				444	1,087	1,846	2,638			
A	Municipal conservation strategies volume	AppA, p1-2	app 4A		1,996	3,593	3,881	4,179	4,419			2,061	3,771	4,069	4,374	4,624			
A	Amarillo, new groundwater volume	AppA, p1-2	app 4A		10,667	11,495	12,387	13,348	14,384			9,467	10,292	11,182	11,141	10,831			
A	New groundwater volume and capital cost	AppA, p1-2	app 4A	\$308,730,400	1,550	16,404	38,108	43,459	60,477	63,372	\$	298,547,020	1,450	15,104	22,505	27,854	42,070	44,241	
A	Irrigation conservation strategies volume	AppA, p1-2	app 4A			217,709	403,157	453,032	458,551	458,551			297,112	485,081	540,862	549,383	552,385		
A	Municipal conservation strategies volume	AppA, p1-2	app 4A		1,996	3,593	3,881	4,179	4,419			2,061	3,771	4,069	4,374	4,624			
A	Voluntary transfer strategies volume	AppA, p1-2	app 4A		173	800	2,830	4,538	5,938	7,815		200	800	2,561	4,263	6,918	7,672		
A	Palo Duro Transmission system supply volume	AppA, p1-2	app 4A				3,875	3,833	3,792	3,750				3,758	3,758	3,758			

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	Page number	Table number	non-decadal number	2010	2020	2030	2040	2050	2060	non-decadal number	2010	2020	2030	2040	2050		2060
	Item																
A	Dallam C-O Municipal WMS volume	A-3	WUG Table		0	0	0	0	0	0			6	10	10	10	10
A	Dallam C-O WMS Total volume	A-3	WUG Table		0	0	0	0	0	0			6	10	10	10	10
A	Hall C-O New Ogallala Wells in Briscoe Co. volume	A-3	WUG Table		100	100	100	100	100	100		na	na	na	na	na	na
A	Hall C-O WMS Total volume	A-3	WUG Table		150	150	150	200	200	200		50	50	50	100	100	100
A	Hartley C-O Municipal Conservation WMS volume	A-3	WUG Table		na	na	na	na	na	na		0	16	28	28	27	26
A	Hartley C-O WMS Total volume	A-3	WUG Table		0	0	0	0	0	0		0	16	28	28	27	26
A	Moore C-O Voluntary Transfer From Other Users volume	A-4	WUG Table		na	na	na	na	na	na		0	0	50	100	100	100
A	Moore C-O WMS Total volume	A-4	WUG Table				563	575	1,083	1,087				613	675	1,183	1,187
A	Porter C-O New Wells WMS volume	A-5	WUG Table				600							1,600			
A	Porter C-O Total WMS volume	A-5	WUG Table				743							1,743			
A	Randall C-O New Wells WMS volume	A-5	WUG Table						2,600	2,600						1,800	2,400
A	Randall C-O Voluntary Transfer From Other Users volume	A-5	WUG Table		na	na	na	na	na	na		0	0	3	4	7	9
A	Randall C-O WMS Total volume	A-5	WUG Table				797	1,431	2,868	2,899				800	1,435	2,075	2,708
A	Sherman C-O Municipal Conservation WMS volume	A-5	WUG Table		na	na	na	na	na	na		0	7	12	13	13	13
A	Sherman C-O WMS Total volume	A-5	WUG Table		0	0	0	0	0	0		0	7	12	13	13	13
A	Dalhart WMS Total volume	A-6	WUG Table		0	0	0	0	0	0		0	64	110	111	110	104
A	Stratford WMS (Municipal Conservation) volume	A-10	WUG Table		0	0	0	0	0	0			20	35	36	37	38
A	Sunray - New Wells WMS volume	A-10	WUG Table				800	800	800	800				500	500	500	500
A	Sunray - WMS Total volume	A-10	WUG Table				834	836	838	839				534	536	538	539
A	Texline WMS Total volume	A-10	WUG Table			7	12	12	12	11			257	262	262	262	261
A	Wheeler WMS Total volume	A-11	WUG Table						15	15						215	215
A	City of Cactus - new well filed capital cost	H-17	H-6	\$	5,446,700.00						\$	-					
A	City of Wheeler - new Ogallala wells capital cost	H-28	H-17	\$	2,233,300.00						\$	2,108,700					
A	Co Other WUGS - new wells capital cost; Co-Other not specified, matches DBProjectID 194 Source: Ogallala/Donley/Red County-Other Hall	H-30	H-19	\$	2,522,400.00						na						
A	Co Other WUGS - new wells capital cost; Co-Other not specified, matches DBProjectID 194 Source: Ogallala/Potter/Canadian County-Other Potter	H-31	H-20	\$	2,722,300.00						na						
A	Co Other WUGS - new wells capital cost; Co-Other not specified, matches DBProjectID 194 Source: Ogallala/Potter/Canadian County-Other Potter	H-32	H-21	\$	3,114,800.00						na						