

ATTACHMENT 1

TWDB Contract No. 0704830691

Region F, Region-Specific Contract Studies 1-6

- 1) Refinement of Supplied and Potential Projects to Use Fresh and Brackish Groundwater
- 2) Irrigation Survey for Region F in Glasscock, Midland, Reagan, Pecos, Reeves, and Tom Green Counties
- 3) Study of the Economics of Rural Water Distribution and Integrated Water Supply Study
- 4) Evaluation of Water Supplies in the Pecan Bayou Watershed
- 5) Municipal Water Conservation
- 6) Inter-Regional Coordination on the Refinement of Colorado Basin Water Availability

TWDB Comments on Draft Final Region-Specific Study Reports

Region-Specific Study 1, Refinement of Supplied and Potential Projects to Use Fresh and Brackish Groundwater

1. Task 6 in the contract scope of work requires the contractor to “evaluate potential environmental, agricultural and rural issues, and other natural resource issues associated with implementation of the potential projects.” Since this requirement is not addressed specifically for any of the projects analyzed, please include this evaluation in the report or provide justification for not completing the scope of work tasks as required by the contract.

Response: This discussion is included in Section 6.2 of the report. No changes made.

2. Task 6 in the contract scope of work states that cost estimates for potential projects will include "treatment facilities, concentrate management options, and storage facilities." However, since Appendix A cost estimates do not appear to include these items, please include them in the report.

Response: The costs developed for this study include: 1) conceptual projects with no specific well field location or definitive recipient, and 2) potential co-development opportunities for specific entities. Appendix A does include storage facilities in the cost estimates for both types of cost estimates. Minimum treatment costs are included for the co-development options. There are insufficient data to develop treatment costs for conceptual projects. Site specific data are needed to accurately assess treatability issues. This also applies to the potential co-development scenarios. No changes made.

3. The report states on page 38 that “costs for water purchase and treatment are not included”. Please provide an explanation for this omission in the report.

Response: The costs for the conceptual projects were developed to better understand the cost feasibility of the different source options. This analysis provides a high level assessment of potential sources for future sources of water for the region. It is not intended to develop a specific water management strategy. Water purchase costs and treatment costs are site specific. Without specific locations, these costs would be applied the same for all scenarios and would not provide any differentiating aspects. Therefore, the costs shown for the conceptual projects are development and transmission costs.

4. Page 38 of the report should precisely define the items that are included in calculating the unit costs, and please justify the reason for excluding engineering costs from the calculation of unit costs. This page should also provide the definition for unit costs both 'during' and 'after' debt (see Table 6-2). Please make the requested revisions to the final report.

Response: Appendix A summarizes the cost assumptions used for this report. The unit costs referenced on Page 38 refer to the standard unit costs for calculating construction costs, not unit cost of water. Page 38 specifically states that engineering costs are included in the project costs, which is in accordance with the TWDB guidance. A note explaining costs during and after debt repayment was added to Table 6-2.

5. Task 6 in the contract scope of work states that the purpose of the study including how the study supports regional water planning, and the results of the study will be included in the draft and final reports. The purpose of study and the results sections are not specifically labeled as such. Please revise the section titles to specifically identify which sections include the purpose of the study and results.

Response: A heading called Section 2.1, Authorization and Objectives, was added to page 5. The results sections include Sections 4, 5 and 6. No changes were made to the headings for these sections.

6. Appendix A of the report references TWDB's General Guidelines for Regional Water Planning Development, 2007-2012, Section 4.1.2. The correct section for referencing costs is 4.1.6. Please make the appropriate revision to Appendix A.

Response: The reference was changed.

Region-Specific Study 2, Irrigation Survey for Region F in Glasscock, Midland, Reagan, Pecos, Reeves, and Tom Green Counties

1. In Task 3, the report doesn't "identify data that could refine demand locations in the Edwards-Trinity GAM and other GAMs" as required by the contract scope of work. Please include a more complete discussion in the report or provide justification for not completing the scope of work tasks as required by the contract.

Response: A review of the Edwards-Trinity GAM pumping data was conducted; however, the GAM data could not be assessed by use type (i.e., irrigation pumpage). Since the study found that the data reported by the TWDB is consistent with other reporting data, it is unlikely that

significant refinements to the GAM pumpage are needed. Discussions of this are included in the new Section 4.6.

2. In Task 3, the contract scope of work states that “results from this study will be included in the 2011 Region F Water Plan.” However, the study recommendations indicate that the study results concerning irrigation water use will not be included in the 2011 regional water plan. Please provide a more complete explanation of why the study results were inadequate for consideration for use in the 2011 Region F water plan.

Response: The study recommends that the irrigation demands not be changed in the 2011 plan. The study will be part of the 2011 regional water plan, and findings from this study will be used to update irrigation conservation strategies.

3. In section 3.1, page 6, please change Glasscock County GCD to Glasscock GCD; Lipan Kickapoo GCD to Lipan-Kickapoo WCD; and Santa Rita Underwater GCD to Santa Rita UWCD in the report.

Response: These changes were made.

4. The graphs in Appendix A for Pecos and Reeves counties include the crop alfalfa, however that is not included as one of the five crops identified for analysis on page 8, section 3.2. Please provide an explanation or revise the report.

Response: Alfalfa was added for Pecos and Reeves counties due to the significant amount of irrigated acres of this crop in those counties. This is noted on page 8 of the report.

5. Please consider labeling the axes for the graphs in Appendix A of the report.

Response: This was done.

Region-Specific Study 3, Study of the Economics of Rural Water Distribution and Integrated Water Supply Study

1. Task 1 in the contract scope of work requires identifying gaps in data. One particular data gap mentioned is that agricultural income is not taken into consideration but the report fails to explain why it is not. Since one of the conclusions in the report is that the rural communities in the region do not have a sufficient income base to finance needed water infrastructure improvements (p. 49, paragraph # 1), it would appear that inclusion of agricultural income would be necessary in the analysis. Please explain this omission in the report and whether or not there are other relevant gaps in the data.

Response: The comment on agricultural income refers only to Table 2, which is a summary of the U.S. Census Bureau payroll data. A new table with information on agricultural income from the USDA has been added to the report.

2. Task 2 in the contract scope of work requires developing costs of livestock water. It is possible that local supplies are used exclusively, but there is still an associated cost with this supply. Please include costs of providing livestock water in the report or provide justification for not completing the scope of work tasks as required by the contract.

Response: The data in the report includes water provided by rural systems for livestock water. However, the utilities contacted were unable to provide a breakdown of water by type of use. A statement regarding this fact was added on page 23 of the report.

3. Task 2 in the contract scope of work requires an evaluation of the impact of the advanced water treatment costs, and this is briefly mentioned in the correlations on pages 24-25 of the report. Please include a more complete evaluation in the report.

Response: This information is included on pages 40-41 of the report. No changes made.

Region-Specific Study 4, Evaluation of Water Supplies in the Pecan Bayou Watershed

1. In the Executive Summary, p. iv, second paragraph, the heading is “scenario 3: priority call when Lake Brownwood is **below** 50%.” However the text in the same paragraph states that this occurs when the lake is **above** 50%. Please make the appropriate corrections everywhere they appear in the report (e.g. p. 8).

*Response: The wording is correct. The paragraph refers to when the upstream lakes can impound water, which is when Brownwood is **above** 50% full. Priority calls, which mean that the upstream reservoirs pass water, occur when Brownwood is **below** 50%. No changes made.*

2. In the Executive Summary, p. iv, last paragraph, safe yield is discussed. Please define this term, as applied in this study, here or refer to the definition on page 9 of the report. Please note that reservoir water supply volumes are required to be expressed in terms of firm yield (General Guidelines for Regional Water Planning Development, 2007-2012). In addition to safe yield water supply volumes, please include firm yield volumes in the final report.

Response: Firm yields will be reported in the 2011 Regional Water Plan. This study evaluates operation scenarios based on safe yield. Reporting firm yields for each study scenario is not relevant to the study results. Reference was added to the definition of safe yield in the Executive Summary.

3. Task 1 in the contract scope of work requires an evaluation of “historical long-term channel losses in the watershed.” Since this evaluation is not present in the report, please include it or provide justification for not completing the scope of work tasks as required by the contract.

Response: This analysis was conducted and discussions were added to Appendix B.

4. Task 2 of the contract scope of work involves coordination with regions G and K about assumptions used in the report and any impacts on water supplies. Likewise, Task 3 involves coordination with Brown Co. WID, Coleman and Clyde. Please document results of all relevant coordination undertaken for these tasks in the report.

Response: Coordination meetings were held with Brown County WID #1 and the City of Coleman. Coordination with the City of Clyde was through the Brazos G consultants. Technical memoranda on the impacts of the study were provided to Regions G and K. Discussion of the coordination efforts was added as Section 2.3.

5. Task 3 of the contract scope of work requires selection of the most likely reservoir operation scenario as the basis for possible revision of water supplies for the 2011 regional water plan. It also requires evaluation of potential environmental, agricultural and rural issues, and other natural resource issues associated with implementation of these scenarios. Please state which scenario was chosen as the most likely in the conclusions and recommendations section of the report and explain the choice. Please include the evaluation of natural resource issues in the report, as well.

Response: The planning group chose not to select a preferred scenario at this time. Based on the current operation and the proposed scenarios outlined in this study, it is likely that there will be little to no impacts to natural resources for any of the scenarios that supply sufficient water for projected needs. If the Region F Planning Group selects a preferred scenario for the 2011 Regional Water Plan, a more detailed analysis of the potential impacts to natural resources will be conducted at that time. Discussion of this was added as Section 4.3.

6. There appears to be an inconsistency between the text on p. 8 and Table 4 on p. 10. In the conclusions and recommendations section, scenario 1 is described as that which includes the prior appropriation doctrine, whereas the table describes this as the "base scenario". Please clarify in the report.

Response: This is correct. The prior appropriation doctrine (WAM Run 3) is the base scenario. This was clarified in the report.

Region-Specific Study 5, Municipal Water Conservation

1. On page 2, first paragraph, the second sentence states "the TWDB has ensured that conservation be included in the planning process through their requirement for future reductions in per capita water use". The statutory requirement is only that regional planning groups "consider" conservation as a water management strategy. Please make this correction in the final report.

Response: The wording was changed to reflect that TWDB has ensured that conservation is included in the planning process through the reductions in per capita use associated with plumbing fixture rules. A statement was added to clarify that the TWDB requires planning groups to consider other conservation.

2. Task 3 of the contract scope of work requires identification of municipal conservation practices that may be appropriate for Region F with an estimated range of potential water savings for each applicable practice. Since these practices and estimated savings are not present in the report, please include them or provide justification for not completing the scope of work tasks as required by the contract.

Response: There was insufficient data from the surveys to develop water savings.

3. In section 4.4.3, Figure 8, p. 19 shows normalized water savings by practice for several different BMPs. Please consider including costs per acre-foot in the report, especially for those BMPs currently being utilized in Region F.

Response: Costs per acre-foot for BMPs utilized in region F were added as Table 3.

4. In section 4.4.3, Figure 8, p. 19 suggests that many conservation practices yield no water savings. Please notate the graph to indicate whether a “zero” savings bar actually means no savings are achieved or that it does not apply (NA) because there was no meaningful data available.

Response: A note was added to Figure 8.

5. Task 4 of the contract scope of work states that the report will include recommendations, if applicable. The report contains a conclusions section but does not make actual recommendations. Please include recommendations along with the conclusions section in the report.

Response: There is insufficient data to develop recommendations. The findings from this study will be used to develop recommendations for the 2011 Regional Water Plan.

Region-Specific Study 6, Inter-Regional Coordination on the Refinement of Colorado Basin Water Availability

1. On page 4, second paragraph, it states that the Llano River flows into Lake Travis. Please correct the report to state that the Llano River flows into Lake LBJ.

Response: This change was made.