

ATTACHMENT I

1ST AMENDED Exhibit C: Scope of Work 2007 – 2009 Regional Water Planning East Texas Regional Water Planning Group

ADMINISTRATION AND PUBLIC PARTICIPATION

1. Scope of Work
2. Public Participation
3. Project Management

STUDY NO. 1 - INTER-REGIONAL COORDINATION WITH REGIONS C, D AND I ON THE TOLEDO BEND PROJECT

Toledo Bend reservoir is a major water source in Region I and an important component of the Sabine River Basin system. The 2006 Region C water plan recommends moving water from Toledo Bend Reservoir in Region I to water providers in Region C. As part of this strategy, water also would be transported from Toledo Bend to Lake Fork for use in Region D by customers of SRA. This project, as currently proposed, involves transporting up to 500,000 acre-feet per year of water from Toledo Bend Reservoir to other lakes in Texas, with the potential to increase this amount to 700,000 acre-feet per year. Further study of this project would include:

1. Coordination with Regions C and D on water supply and locations
2. More detailed routing studies to identify potential conflicts and/or environmental concerns
3. Preliminary assessment of potential impacts on biodiversity, invasive species and water quality of receiving reservoirs
4. Further study of potential impacts to bays and estuaries and instream flows downstream of Toledo Bend Reservoir
5. Updated cost estimates reflecting recent increases in costs for pipelines, pump stations, and electric generation.

TASK 1: DEMAND COORDINATION. ACTIVITIES WOULD INCLUDE:

- a) Meet with the major participants (NTMWD, TRWD, SRA, and DWU) to refine amounts of water to be delivered and the locations of delivery for this project.
- b) Identify other potential entities in Region I that may benefit from water from Toledo Bend.
- c) Coordinate with major participants on the potential for supplying raw water to smaller entities along the proposed pipeline route. Coordination activities will include exchange of information via email, conference calls, meetings with the major participants or their representatives, and if necessary a joint meeting with the Region C and/or D RWPG.
- d) Confirm locations for supply and delivery points.

Task 1 Deliverable: A written report describing the amounts of water to be delivered by this project, where it is to be delivered, and to which entity. Target completion is the 2nd quarter after authorization.

TASK 2: ROUTING STUDIES. ACTIVITIES WOULD INCLUDE:

- a) Review and define pipeline routes based on findings in Task 1. Evaluate potential intake locations and confirm with major participants
- b) Using USGS topographic maps, digital elevation models, and other existing geospatial information, lay out pipeline route and locate pump stations and storage facilities.
- c) Identify potential conflicts and environmental concerns along route.
- d) Meet with major participants to discuss findings and adopt route.

Task 2 Deliverable: A written report describing the routes considered, an evaluation of up to three routes after screening of the routes considered, and recommendation of the route best meeting the requirements of this project as described by Task 1. Target completion is the 3rd quarter after authorization.

TASK 3: IMPACTS ON RECEIVING RESERVOIRS.

- a) Based on Tasks 1 and 2, identify reservoirs that would be receiving raw water from Toledo Bend.
- b) Collect existing water quality, plant and aquatic specie data on Toledo Bend and receiving reservoirs from the owners of those reservoirs and the TPWD. Based on the information available, identify potential impacts of moving Toledo Bend water on biodiversity, invasive species, and water quality of receiving reservoirs.
- c) Identify potential mitigation factors and the need for additional data collection where appropriate.

Task 3 Deliverable: A written report describing the data available, its sources, and the additional data needed will be prepared. The report will also discuss any foreseeable problems related to water quality and/or plant and aquatic species that can be identified from the data available. Target completion is the 3rd quarter after authorization.

TASK 4: BAYS AND ESTUARIES.

Obtain naturalized flows, without the influence of reservoirs, from the Sabine River & Neches River WAMs supplemented with ancillary flow from the coastal basin and precipitation as developed for the Sabine River Authority into Sabine Lake during the drought of record. Compare these naturalized stream flows to those identified as target flows for bay & estuary health by “Freshwater Inflow Recommendation for Sabine Lake Estuary of Texas and Louisiana” by TPWD March, 2005. Determine the recurrence interval for:

- 1. the drought of record naturalized flows without the influence of reservoirs into Sabine Lake, and,
- 2. the recurrence interval for the target flows identified for bay & estuary health both with and without the influence of reservoirs into Sabine Lake.

Task 4 Deliverable: A written report describing the comparison of naturalized flows to target flows for bay and estuary health and their recurrence intervals will be prepared. Target completion is the 3rd quarter after authorization.

TASK 5: COST ESTIMATE

- a) Using the same unit prices as used in the 2006 Regional Water Plans, update the capital cost estimate for the updated Toledo Bend Project.
- b) Develop a 100-year life cycle cost using current electric costs and electric costs at 1.5 and 2 times the current rates. This is to evaluate the sensitivity of the project cost to the uncertain energy market.
- c) Coordinate with other regions and major participants for inclusion of cost estimates in other regional water plans.

Task 5 Deliverable: A report describing the work outlined above will be prepared and submitted. Target completion is the 4th quarter after authorization.

STUDY DELIVERABLES – Prepare a draft and final report to include the following sections: executive summary, purpose of the study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. Draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report. Report will be prepared to include all data developed under Tasks 1 through 5 above. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 East Texas (Region I) Regional Water Plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

SCHEDULE – This work will be completed within 12 months of our authorization to proceed

STUDY NO. 2 - IDENTIFY AND DEVELOP REGIONAL SOLUTIONS FOR SMALL WATER SUPPLIERS THAT CANNOT MEET CURRENT OR FUTURE WATER REQUIREMENTS INCLUDING TCEQ CHAPTER 290 REQUIREMENTS.

There are a number of small municipal water suppliers in the East Texas Region that do not meet the requirements of Texas Administrative Code Chapter 290.

TASK 1: DETERMINE WUGS NEEDING ASSISTANCE.

Work with the TCEQ regional offices in Beaumont and Tyler to identify as many of these entities and their particular deficiencies as possible.

TASK 2: LOCATE WUG'S NEEDING ASSISTANCE AND IDENTIFY NEED.

Once identified, locate the entities on a map of the region to determine if there are two or more of these suppliers close enough in proximity to allow resolution of their deficiencies with a regional approach.

TASK 3: DETERMINE INTEREST OF WATER SUPPLIER IN MEETING NEEDS WITH REGIONAL PROJECT(S)

If a regional approach is potentially feasible, contact the water suppliers identified to confirm their need and their interest in participating in a regional project to solve their problem. Document information received.

TASK 4: DEVELOP AND EVALUATE POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES FOR REGIONAL PROJECTS

If a regional approach is determined potentially feasible in Task 3, develop an appropriate water management strategy for the water suppliers in need, including costs developed according to Exhibit B of the contract.

STUDY DELIVERABLES: A list of the identified participants and associated candidate projects will be submitted to the ETRWPG and the TWDB for approval in the 2nd quarter after authorization. Prepare a draft and final report to include the following sections: executive summary, purpose of the study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. Draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report. Report will be prepared to include all data developed under Tasks 1 through 4 above. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 East Texas (Region I) Regional Water Plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

SCHEDULE – This work will be completed within 12 months of our authorization to proceed.

STUDY NO. 3 - STUDY OF MUNICIPAL WATER USES TO IMPROVE WATER CONSERVATION STRATEGIES AND PROJECTIONS

The scope proposed in this study is intended to enable water suppliers to improve water conservation strategies and projections. Water use for water user groups with 1000 or more connections will be disaggregated into component uses of residential, commercial, light industrial, and institutional uses. The information will be summarized for each water user group and submitted to the water user groups for their use in water conservation planning. The following tasks will be performed:

TASK 1: IDENTIFY AND CONTACT WATER SUPPLIERS

Using information provided in the 2006 Regional Water Plan water user groups serving at least 1000 connections will be identified. A list of these water user groups and contact information for each will be assembled. Other, smaller water user groups may also be included on this list if appropriate. The list will be provided to the technical committee of the Region I Regional Water Planning Group (RWPG-I) and the TWDB for review and comment. The list will be finalized after receiving comments from the Technical Committee and the TWDB. Water User Groups contained in the final list will be contacted to request the following information and data for a recent two-year (or greater) period:

- Water production (i.e., water volume pumped to the distribution system)
- Water sales (i.e., water volume sold to customers)

- Categories of customers receiving water (residential, commercial, industrial, and institutional) and the volume each received
- Number of connections served and (if available) estimates of population served
- Additional relevant information relating to water use by specific types of users (i.e., any recent significant changes in volumes due to new customers, expansions of existing customer uses, etc.)
- Any other information normally a part of the TWDB's Water Use Survey.

Information on the WUG's current conservation program will be collected while contacting the WUGs to collect water use data. Minimum information solicited will include a description and focus of activities: number of full time employees dedicated to the program; the amount of funding devoted to the project; and any results from the conservation activities.

Follow-up contacts will be made, as necessary, to ensure that the information received is as accurate as possible.

Task 1 Deliverable: A compilation of the data collected will be prepared for distribution to the ETRWPG and the TWDB. PDF copies of the submitted survey forms will be submitted to the TWDB for their use and information. Target completion is the 2nd quarter after authorization.

TASK 2: DISAGGREGATE DATA ACCORDING TO TYPES OF WATER USE

Using the information obtained in Task 1, the data for each participating water user group will be disaggregated according to category of water users. The information will be tabularized for each water user group and descriptive statistical analysis will be performed on the data received to determine averages, ranges, etc. A summary of the results will be prepared and presented to the RWPG-I Technical Committee and the TWDB. The results for each water user group will also be provided to the water user group for review and comment. Adjustments to the results will be made, as necessary, based on comments from the water user groups and the Technical Committee and the TWDB.

Target completion for this task is the 4th quarter after authorization.

TASK 3: PREPARE SUMMARY REPORT

Prepare a draft and final report to include the following sections: executive summary, purpose of the study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. Draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report. The report will address water usage for each category of user, for each water user group, and will aggregate the totals for each category of water use. Per-capita water use estimates, based on residential water use and population will be prepared. As appropriate, recommendations for additional study may be made. Disaggregated data will be used to identify specific conservation activities from the Water Conservation Implementation Task Force Recommendations that would be applicable to each area of water use in each city. With these identified conservation activities, water savings will be estimated and current municipal conservation strategies revised accordingly.

Recommendations regarding future use of per-capita water use goals may also be made in the summary report.

The report will be submitted per TWDB requirements and results from this study will be included in the 2011 East Texas (Region I) Regional Water Plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

DELIVERABLES - A draft of the report will be provided to the Technical Committee for review and comment. A final draft of the report will be prepared based on comments from the Technical Committee and the TWDB. The final draft report will be provided to the RWPG-I and to the TWDB for approval. Once approved, report will be finalized and copies provided to the participating water user groups, the RWPG-I, and the TWDB. Target completion for this task is the 4th quarter after authorization.

SCHEDULE – This work will be completed within 12 months of our authorization to proceed.

STUDY NO. 4 - SUPPLY FROM MURVAUL LAKE TO MARTIN LAKE

Lake Murvaul may have available unpermitted yield which could be used by TXU to supply steam electric use at Martin Lake. Lake Murvaul is owned by the City of Carthage, and sale of water from the project could be a potential revenue source for the City. This study is an alternative to supplies from Lake Fork Reservoir or groundwater.

TASK 1 – MEET WITH CARTHAGE AND TXU

Meet with TXU and the City of Carthage to discuss projected water needs at Martin Lake and potential operation of the reservoir if more water became available for the steam electric plant. Establish agreement between the City of Carthage and TXU for completing this study. Agreement for this study to be accomplished will be documented by a letter from the City of Carthage and TXU. If agreement of both parties cannot be obtained this work will be discontinued.

TASK 2 – DETERMINE YIELD OF MURVAUL

Obtain and review the latest permitting run (Run 3) and current conditions scenario (Run 8) of the Water Availability Model of the Sabine River Basin and calculate the firm yield of Lake Murvaul and Martin Lake. If Murvaul Lake has more yield than permitted as calculated by WAM Run 3, with TWDB approval of assumptions, modify the Sabine WAM to represent supply from Murvaul to Martin Lake with operational rules from TXU. Calculate firm yield and reservoir elevation statistics.

Task 2 Deliverable: Prepare a report documenting the water available in Lake Murvaul as established by WAM Run 3 and WAM Run 8. The report should also include information on lake levels to support formulation of conveyance strategies to Martin Lake. Target completion for this task is the 3rd quarter after authorization.

TASK 3 – DEVELOP WMS FOR SUPPLY TO MARTIN LAKE FROM MURVAUL

Calculate costs of conveyance facilities in accordance with guidelines in the updated Exhibit B for this contract. Develop an economic feasibility assessment for the City of Carthage and TXU to establish the cost of the water to TXU and the total cost of this strategy to the City of Carthage.

Task 3 Deliverable: Prepare a report of the information developed in Task 3 for presentation to the ETRWPG, the City of Carthage, TXU, and the TWDB.

Target completion for this task is the 4th quarter after authorization.

TASK 4 – PREPARE REPORT

Prepare a draft and final report to include the following sections: executive summary, purpose of the study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. Draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report. Report will be prepared to include all data developed under Tasks 1 through 3 above. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 East Texas (Region I) Regional Water Plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

Target completion is the 4th quarter after authorization.

SCHEDULE – This work will be completed within 12 months of our authorization to proceed

STUDY NO. 5 - COMPLETE WATER MANAGEMENT STRATEGY FOR LNG FACILITY IN JEFFERSON COUNTY AND DEVELOP WATER MANAGEMENT STRATEGIES TO SUPPLY RECENTLY ANNOUNCED REFINERY EXPANSIONS IN JEFFERSON COUNTY

At least three major refiners in Jefferson County have announced plans to significantly expand their operations. These announcements were made well after our regional plan was submitted to the TWDB as final. These refiners use large amounts of water in their current operations and will require significantly more water to serve these expansions than currently supplied. At present the Lower Neches Valley Authority holds water rights sufficient to supply these demands. However, the infrastructure to deliver the required water is likely not in place. This task would develop the water management strategies needed to for the infrastructure improvements required to meet these needs.

Construction of Golden Pass LNG terminal has been announced. A water management strategy for an LNG facility was included in our regional plan last cycle, but it was similar to Lake Fastrill, very late in the planning period. We need to complete work on this Water Management Strategy to meet the full requirements for water management strategies.

TASK 1 – DETERMINE NEEDS FOR REFINERY EXPANSIONS AND LNG FACILITY.

These needs are considered to be part of the manufacturing water demand projected by the TWDB for Jefferson County. The location of the particular needs can now be identified by the

owners of the expansion projects and existing infrastructure evaluated for its capacity to service these demands. Should existing infrastructure prove to be inadequate, a Water Management Strategy will be developed to address the inadequacies.

The water demand information for this project will be provided to the ETRWPG and the TWDB by LNVA and/or Golden Pass. The information may be reviewed by the TWDB for approval. TWDB approval will be obtained if a change in demands is determined necessary.

TASK 2 – EVALUATE CAPACITY OF INFRASTRUCTURE TO MEET THESE NEEDS.

The Lower Neches Valley Authority holds water rights sufficient to supply these demands. However, the infrastructure to deliver the required water is likely not in place. Water is delivered by the LNVA via earthen canals. The capacity of the canals will be calculated using established engineering methods for comparison to the needed capacity.

TASK 3 – DEVELOP WATER MANAGEMENT STRATEGIES TO SUPPLY NEEDED WATER FOR THESE PROJECTS.

This task would develop the water management strategies needed to for the infrastructure improvements required to meet identified needs. We need to complete work on this Water Management Strategy to meet the full requirements for water management strategies. The work needing to be accomplished is to quantify the environmental impacts likely from construction of the infrastructure needed to deliver the water required by this facility, and to examine the impacts on stream flow.

TASK 4 – PREPARE REPORT ON FINDINGS AND RECOMMENDATIONS.

Prepare a draft and final report to include the following sections: executive summary, purpose of the study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. Draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report. Report will be prepared to detail the information developed adequate to amend the Region I Regional Water Plan if necessary to accommodate these unanticipated water demands. At a minimum the report will provide the information not developed in the 2006 Regional Water Plan for completion of the water management strategy to supply water to the Golden Pass LNG facility. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 East Texas (Region I) Regional Water Plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

STUDY DELIVERABLES – A report detailing the information developed adequate to amend the Region I Regional Water Plan if necessary to accommodate these unanticipated water demands. At a minimum the report will provide the information not developed for completion of the water management strategy to supply water to the Golden Pass LNG facility.

SCHEDULE – Target completion for task 1 is the 2nd quarter after authorization. Target completion for task 2 is the 3rd quarter after authorization. Target completion for tasks 3 and 4 is the 4th quarter after authorization.