

**Exhibit A
Scope of Work**

Task 1: Planning Area Description

- ◆ Update agriculture and economic data summaries to reflect most current information readily available;
- ◆ Update water quality concerns based on 2008 Nueces River Authority's Basin Summary Report;
- ◆ Summarize 2006 Plan activities;
- ◆ Update status of water resources planning, including Groundwater Management Area (GMA) activities in Region N;
- ◆ Add water conservation targets for entities that submitted Water Conservation and Drought Contingency Plans;
- ◆ Add information compiled by TWDB from water loss audits performed by retail public utilities pursuant to [31 TAC §358.6].

Task 2: Review and Revision of Population and Water Demand Projections

There are minimal updates anticipated for this section since the next census is not scheduled until 2010. Population and water demands will generally be the same as those shown in the 2006 Plan.

- ◆ Review, coordination, and integration of new water demand projections for steam-electric power water users, which are estimated to be provided by the TWDB in Fall 2008;
- ◆ Update water demand projections and TWDB database in response to changed conditions.

TASK 3 WATER SUPPLY ANALYSIS

Task 3a: Evaluation of Existing Water Supply

- ◆ Provide technical support to the Coastal Bend RWPG including discussion of available surface water models for the area (TCEQ Water Availability Model (WAM) for the Nueces Basin and City of Corpus Christi Water Supply Model) including hydrologic assumptions, reservoir system operation considerations, and TCEQ 2001 Agreed Order requirements for pass-thru to the Nueces Bay and Estuary. Assist the Coastal Bend RWPG in obtaining Executive Administrator approval to use alternative approach to TCEQ WAM Run 3 (no return flows) to estimate yields of surface water supplies;
- ◆ Provide technical support to the Coastal Bend RWPG in response to TWDB guidance to base existing surface water supplies on firm yield. Based on previous studies of inflow reductions to the Choke Canyon

Reservoir/ Lake Corpus Christi (CCR/LCC) System, the Coastal Bend RWPG selected a safe yield analysis for the 2006 Plan to determine available surface water supplies. This provision of considering safe yield rather than firm yield supplies, allowed a designated amount of water to remain in storage in the event that a future drought event is worse than the drought of record. Assist the Coastal Bend RWPG in obtaining Executive Administrator approval to use safe yield analysis;

- ◆ Update TWDB database for surface water and groundwater supplies.

Task 3b:

Incorporating Managed Available Groundwater Supplies in the Coastal Bend Regional Water Plan

The 2011 Plan will use 2006 Plan groundwater supply estimates unless the TWDB provides managed available groundwater supplies with sufficient time to incorporate in the 2011 Plan. This scope work item is specifically associated with incorporating MAGs in the 2011 Plan, if available.

GMA 16 is in the process of providing desired future conditions for groundwater development. Provided that Region N receives managed available groundwater information from the TWDB by the end of November 2008, revised groundwater supplies will need to be considered for the 2011 Coastal Bend Regional Water Plan.

- ◆ Coordination with Groundwater Management Areas to ensure that new Managed Available Groundwater volumes reflect their desired future conditions and intentions for inclusion in the 2011 Coastal Bend Regional Water Plan.
- ◆ Coordination with the TWDB to address local historical groundwater issues and formatting compatibility with incorporating Managed Available Groundwater in the 2011 Coastal Bend Regional Water Plan.
- ◆ Update groundwater supplies, and recalculate projected water surplus/needs for groundwater water user groups.

TASK 4:

IDENTIFICATION OF WATER NEEDS AND SELECTION OF WATER MANAGEMENT STRATEGIES BASED ON NEEDS

Task 4a: Update Costs, Water Management Strategies, and Needs.

- ◆ Update capital cost estimates per Exhibit C for all water management strategies. Update annual costs to reflect updated power and capital/debt service costs per Exhibit C;
- ◆ Update Stage II Lake Texana evaluation based on studies conducted by Region P;

- ◆ Based upon updated projection of steam-electric demands, revise and update computations of needs (shortages);
- ◆ Update yields of water management strategies and resulting computations of shortages (needs) based on results of Phase I region-specific studies. Revise water management strategy yields for the off-channel reservoir, CCR/LCC pipeline, groundwater supplies in Bee County, and others due to changes in routing, capacity, or system operations based on priority topic studies developed in Phase I of Third Round, as a result of changed conditions since 2006 Plan. Revise recommended water management strategy, as needed.

Task 4b:

Evaluation of Pipeline Inter-connects to Provide Access to Water from the Mary Rhodes Pipeline to Water Providers near Calallen

- b-1. Conduct meetings with Flint Hills, Celanese, and others with intakes in Calallen Pool area that do not currently have access to Mary Rhodes Pipeline supplies to identify specific water quality concerns, obtain records of their water quality data (as available), and collect other pertinent data.
- b-2. Water Quality Analysis
 - ◆ Identify water quality constituents of interest for evaluation;
 - ◆ Perform analysis of available water quality and corresponding streamflow data to determine seasonal or other patterns in water quality.
- b-3. Evaluate up to five scenarios considering existing supplies from Lake Texana, with and without three future water management strategies for delivery by the Mary Rhodes Pipeline (Garwood, Stage II of Lake Texana, and/or Gulf Coast Aquifer). One strategy will consider all four possible sources, up to pipeline capacity.
Determine for each scenario:
 - Estimated water quality improvement
 - Additional water supply and/or improvement to the efficiency of treatment (treated water: raw water ratio)
 - Project costs, including pipeline to connect Mary Rhodes Pipeline to approximate site of intake locations.
- b-4. Conduct follow-up meetings with wholesale water providers and industries to present results and gather feedback and determine interest and project participation. Conduct two meetings with Coastal Bend RWPG to present results and receive feedback.

- b-5. Prepare a draft report for the Initially Prepared Plan and final report for the 2011 Coastal Bend Regional Water Plan to be submitted per TWDB requirements.

Task 4c:

Evaluation of Strategies for Management of Water Supply and Operation of Lake Corpus Christi to Improve Water Quality

- c-1. Compile available water quality data for the Lower Nueces River near intakes and compare to inflows to Lake Corpus Christi, reservoir levels, and Lake Corpus Christi operations.
- c-2. Groundwater Inflow Analysis
- ◆ Research and compile groundwater quality data available from the TWDB database for areas around Lake Corpus Christi and previous groundwater quality study results from the USGS and others;
 - ◆ Perform analysis to develop estimates of seasonal and annual groundwater inflow to Lake Corpus Christi and Calallen Pool;
 - ◆ Identify impact of groundwater inflow on Lake Corpus Christi water quality based on hydrologic conditions, including reservoir levels and/or rainfall events.
- c-3. Meet with the City of Corpus Christi and other interests to discuss groundwater inflow considerations and select up to three target levels for total dissolved solids/chlorides at Lower Nueces River at Calallen Pool.
- c-4. Update model code to include groundwater inflow component to calculate total dissolved solids and chloride concentrations for Lake Corpus Christi and Calallen Pool.
- c-5. Conduct model runs with the Corpus Christi Water Supply Model to determine necessary Lake Corpus Christi releases to meet target levels and resulting impacts to storage capacity (based on total dissolved solid /chloride loading relationships identified in Phase I, on-going Region N Region-Specific Study 4).
- c-6. Update model code in the Corpus Christi Water Supply Model so that Lake Corpus Christi releases increase when water quality in the Calallen Pool is worse than selected targets.
- c-7. Evaluation of Reservoir System Operations
- ◆ Evaluate potential changes to the current operation of Choke Canyon Reservoir/ Lake Corpus Christi System (CCR/LCC), and with potential future water management strategies in the Nueces River Basin (Off-Channel

Reservoir) to improve water quality and increase water supply. Identify additional operational considerations such as evaporation, additional groundwater seepage, and others;

- ◆ Evaluate changes in operations of Mary Rhodes Pipeline.

- c-8. Meet with stakeholders (City of Corpus Christi, Nueces County WCID#3 (Robstown), SPMWD, STWA) to discuss the results of the task, and benefits and potential impacts with changes to their system operations.

- c-9. Compare results of Task 4b and Task 4c with respect to:
 - Estimated water quality improvement
 - Additional system yield and/or improvement to the efficiency of treatment (treated water: raw water ratio)
 - Project costs, including pipeline to connect Mary Rhodes Pipeline to approximate site of intake locations.

- c-10. Conduct two meetings with Coastal Bend RWPG to present results and provide feedback.

- c-11. Prepare a draft report for the Initially Prepared Plan and final report for the 2011 Coastal Bend Regional Water Plan to be submitted per TWDB requirements.

Task 4d:

Updates to CCR/LCC System Yields Through Modification of TCEQ Agreed Order for Reservoir System Operations

- d-1. Compile and review recent Rincon Bayou and Nueces Delta studies, including the City of Corpus Christi Integrated Monitoring Plan (2007) and Allison Wastewater Treatment Plant Effluent Diversion Demonstration Project Report (2006). Consider results of monitoring studies conducted by Texas A&M University at Corpus Christi Center for Coastal Studies and Harte Research Institute, University of Texas Marine Science Institute, and others.

- d-2. Perform a series of model runs to evaluate potential increases in yield of the CCR/LCC reservoir system if multipliers were allowed by Nueces Estuary Advisory Council (NEAC) and TCEQ under Agreed Order for increases in biological productivity associated with treated wastewater return flows or water supplied to the Delta through the City's new Rincon pump station and pipeline.

- Consider recent studies and City's currently permitted wastewater discharges and select a range of multipliers for evaluation.
 - Conduct up to four model simulations for a range of multipliers for 1) discharge of return flows (treated waste-water) to the Nueces River Delta and 2) water to the Delta from the City's Rincon Pipeline and Pump Station. Each diversion project (treated wastewater return flows or water supplied by Rincon Pipeline) and multipliers will be evaluated individually. Up to two analyses will be performed to evaluate the combined effects of impacts of multipliers associated with both treated waste-water discharge to the Delta and water supplied through the City's Rincon Pipeline.
 - Prepare figures to show the relationship of biological productivity multipliers and increases in CCR/LCC reservoir system yield.
- d-3. Summarize results of the task. Conduct one meeting with Coastal Bend RWPG to present results and receive feedback.
- d-4. Update 2006 Plan water management strategy summary with task results.

Task 4e: Evaluation of Opportunities for Brackish Groundwater Desalination

- e-1. Identify drawdown criteria from GMA 16 and other aquifer considerations for brackish groundwater well field(s) consistent with GMA desired future conditions. Conduct an aquifer sensitivity analysis using the Partially Penetrating version of the CGCGAM to determine impacts of groundwater pumping on groundwater levels within proposed well fields or other areas identified by the Coastal Bend RWPG including surrounding area such as the City of Kingsville.
- e-2. Perform analysis using the CGCGAM for two groundwater wellfield sites as identified in the 2006 Plan, or other locations identified by the Coastal Bend RWPG. Update estimates for the amount of brackish groundwater available and estimate water quality using TWDB water quality database. Consider impacts of potential intrusion of saline groundwater and land surface subsidence.
- e-3. Revise proposed location for brackish desalination water treatment plant, if necessary. Evaluate up to two potential sites for groundwater desalination treatment plant, including costs for concentrate disposal.
- e-4. Update capital and annual costs of brackish groundwater desalination. Update previous analysis with combination of groundwater and seawater desalination

based on revised brackish groundwater availability, sizing considerations, and treatment plant locations.

- e-5. Evaluate environmental impacts of brackish groundwater desalination at proposed well field and water treatment plant locations, including concentrate disposal considerations.
- e-6. Two meetings to present results to Coastal Bend RWPG and receive feedback.
- e-7. Prepare a draft report for the Initially Prepared Plan and final report for the 2011 Coastal Bend Regional Water Plan to be submitted per TWDB requirements.

Task 5: Impacts of Water Management Strategies on Water Quality

Incorporate and address water quality results from the Gulf Coast groundwater study for transmission through the Mary Rhodes Pipeline (Region-Specific Study No. 1) and Water Quality Modeling of the Regional Water Supply System (Region-Specific Study No. 4) developed in Phase I of this third round of water planning. Address additional water quality issues associated with water management strategies developed in the second biennium funding cycle (such as Calallen Pool).

Task 6: Conservation and Drought Management

- a. Update the summary of water conservation and drought management recommendations from 2006 Plan, include adding information for current water conservation practices in the region collected from water conservation BMP surveys (21 respondents) from Phase I studies;
- b. Update list of entities that have submitted drought management plans, since development of the 2006 Plan;
- c. Include existing Model Water Conservation and Drought Contingency Plans as appendices in 2011 Plan.

Task 7:

Description of How the Regional Water Plan is Consistent with Long-term Protection of State's Water, Agricultural, and Natural Resources

- a. Update documentation of the consistency of the 2011 Plan with goals of long-term protection of water, agricultural, and natural resources with results from the five Phase I region-specific projects, including project specific updates of environmental impacts;

- b. Assist Coastal Bend RWPG in identifying specific resources important to planning areas and describe how these resources are protected through the regional water planning process;
- c. Update regional initiatives to respond to drought conditions, including those associated with current reservoir operating procedures;
- d. Update description of policy recommendations or resolutions identified or adopted by the CBRWPG since the 2006 Plan for protection of surface or groundwater supplies.

Task 8: Unique Reservoir/ Stream Segments and Other Legislative Recommendations

- a. Assist the Coastal Bend RWPG with consideration of regional policy issues and development of regulatory, administrative, or legislative recommendations to facilitate the evaluation, management, and conservation of water resources in Texas;
- b. Assist the Coastal Bend RWPG with documentation of any unique stream segments or unique reservoir sites for inclusion in the 2011 Plan, including consideration of Palmetto Bend – Stage II and Nueces Off-Channel Reservoir per 2007 State Water Plan.

Task 9: Water Infrastructure Funding

Assist Coastal Bend RWPG with infrastructure funding survey and compilation of responses.

TASK 10 ADOPTION OF PLAN

Task 10.a: Adoption of Plan and Public Participation

- a. Development of one newsletter for public information;
- b. Assemble Initially Prepared 2011 Plan for public review and comment per TWDB rules and guidance;
- c. Assist RWPG with responses to comments and revisions to Initially Prepared Plan;
- d. Assemble 2011 Plan for RWPG adoption and TWDB approval;
- e. Assist the Coastal Bend RWPG in verification of integration of the 2011 Plan into the 2012 State Water Plan.
- f. Project Administration activities, coordination, public notice, and attendance at public participation meetings.

**Task 10.b:
Interregional Coordination with Region L and Additional Surface Water
Availability Runs**

- a. Meeting(s) with Region L Executive Committee members to discuss opportunities for co-operation on seawater desalination and other Corps of Engineers projects including mitigation options for recharge projects;
- b. Review Region L water management strategy updates and results of changes to Nueces and Frio streamflow that may impact Region N, attributable to surface water supply development in the Upper Nueces Basin. Update associated flow files in the City of Corpus Christi Water Supply Model, as necessary;
- c. Provide information to Coastal Bend RWPG regarding opportunities to jointly develop water supplies with Region L, and quantify changes in system yield and potential mitigation options associated with recharge projects.

Task 10.c: Interregional Coordination with Region P

- a. Meeting(s) with Region P Executive Committee members or LNRA management to discuss opportunities for co-operation concerning Stage II of Lake Texana;
- b. Provide information to Coastal Bend RWPG regarding opportunities to jointly develop water supplies with Region P. Conduct two meetings with Coastal Bend RWPG and/or designated subcommittee.

Task 10.d: Scope of Work Development

Develop a detailed scope of work for proposed planning in response to Texas Water Development Board (TWDB) Request for Application for RWP and 33 TexReg 1463 February 15, 2008 Texas Register.

Task 10.e: Administration (Nueces River Authority)

Nueces River Authority administration activities.