

*Amendment Request to Scope of Work for Task 4C  
(TWDB Contract No. 0904830873)*

Summary

The TWDB provided funding to the Coastal Bend Regional Water Planning Group (CBRWPG) for studies associated with evaluating Lower Nueces River water quality from Lake Corpus Christi to Calallen. One of the studies funded was Task 4C- Evaluation of Strategies for Management of Water Supply and Operation of Lake Corpus Christi to Improve Water Quality. Based on draft results of the groundwater inflow analysis and extensive analysis of available water quality data (Tasks C-1 through C-3), the results indicate possible stratification of stored water in Lake Corpus Christi that may impact the water quality of water supply releases at Wesley Seale Dam. Based on the results of the analysis, the effort previously identified in the Scope of Work approved by the TWDB on November 20, 2008 for updating model code for operation of Lake Corpus Christi would be better delayed to subsequent planning cycles so that a more extensive study of Lake Corpus Christi, including mass balance water budget study and water quality study of possible stratification can be performed.

The proposed study will help to assess water quality of LCC releases that directly impacts water supply diversions in Calallen Pool prior to the development of water management strategies to improve water quality in the Lower Nueces River Basin.

The following substitution of project work for TWDB Contract No. 0904830873 is recommended:

**<DELETE> FORMER SCOPE OF WORK ITEMS**

*Task 4C: Evaluation of Strategies for Management of Water Supply and Operation of Lake Corpus Christi to Improve Water Quality*

- c-4. Update model code to include groundwater inflow component to calculate total dissolved solids and chloride concentrations from 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

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additional operational considerations such as evaporation, additional groundwater seepage, and others; Evaluate changes in operations of MRP.

- 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:
  - o Estimated water quality improvement
  - o Additional system yield and/or improvement to the efficiency of treatment (treated water: raw water ratio)
  - o Project costs, including pipeline to connect Mary Rhodes Pipeline to approximate site of intake locations.

**<ADDED> REQUESTED REVISION TO SCOPE OF WORK**

*Task 4C: Evaluation of Strategies for Management of Water Supply and Operation of Lake Corpus Christi to Improve Water Quality*

- c-4. Perform mass balance and water budget assessment of Lake Corpus Christi (LCC) to include the last 20 years of data (from 1989-2009) for updated hydrologic period from 1959-2008 to evaluate hydrologic influences of LCC stored water, Goliad Sands groundwater aquifer system, and Nueces River channel below the Three Rivers USGS gage. Compare findings to previous work prior to 1989.
- c-5. Coordinate a sampling program with Nueces River Authority and City of Corpus Christi to measure water quality at various depths of LCC near Wesley Seale Dam.
- c-6. Conduct field sampling effort on a monthly basis to collect water quality measurements for at least 6 sampling events from February 2010- July/August 2010. Depth recorder will be used to locate deepest areas upstream of the dam approximating the stream channel. The following data will be collected for each field event at each 1 meter interval from water surface to about 1 foot from the bottom: depth, water temperature, pH, DO, and conductivity. Events will be scheduled, when possible, prior to and after precipitation events to gain key information.
- c-7. Compile water quality results and perform assessment of water quality results.
- c-8. Evaluate water quality results and impacts on water supply releases based on Wesley Seale Dam Operations.
- c-9. Summarize results for inclusion as Appendix in the 2011 Final Plan.