August __, 2003

Mr. Bill Mullican
Deputy Executive Administrator, Office of Planning
Texas Water Development Board
P.O. Box 13231
Austin, TX 78711-3231

Re: Draft Response to the TWDB's Review of the Proposed Region C Plan Amendment for the City of Athens

Dear Mr. Mullican:

The Texas Water Development Board (TWDB) provided written comments to the Region C Water Planning Group (RCWPG) regarding the proposed amendment for the City of Athens. The RCWPG's response to each comment is shown in italics.

1. A quantitative analysis of environmental impacts must be completed for the recommended City of Athens reuse water management strategy, as required for all water management strategies pursuant to 31 TAC 357.7(a)(8)(A)(ii).

   We have completed a quantitative analysis on the environmental impacts of each of the recommended and alternative water management strategies included for Athens. We have removed the Lake Athens II project on Flat Creek as part of this amendment request.

   The environmental impacts analysis includes acreage affected by construction, acreage of wetlands disturbed, and the number of threatened and/or endangered species in the area of the project. The acreage affected by construction is simply the length of the pipeline times the right-of-way. At this level of planning, we cannot determine the acreage of forested wetlands that may be impacted by by pipeline construction. A visual survey would need to be performed at each alternative project to determine whether or not forested wetlands are in the path of the proposed pipeline. For now, we are assuming that pipelines will be routed so that no forested wetlands will be impacted. As for the threatened and endangered species, the bald eagle is the only known endangered species in Henderson County. The proposed pipelines can be constructed around any areas containing bald eagle nests. The pipeline must be kept 1,500 feet away from any existing nests. Because the proposed pipelines can be moved to avoid the bald eagle habitat, there are no endangered or threatened species that would prevent the construction of any of the projects.

   The following table summarizes the quantitative environmental analysis:

Project	Acreage Impacted by Pipeline Construction (acres)	Wetlands Impacted by Project (acres)	Number of Endangered or Threatened Species Impacted by Project
Indirect Reuse Project	89	0	none
Forest Grove Project with Treatement Plant	55	0	none
Forest Grove Project to Lake Athens	100	0	none
Pipeline from Lake Palestine to Lake Athens with DWU	5	0	none
Pipeline from Lake Palestine to Lake Athens	184	0	none
Pipeline from Cedar Creek Lake	136	0	none
Water Conservation - Single-Family Irrigation Audit	0	0	none
Water Conservation - Multi-Family Irrigation Audit	0	0	none
Water Conservation - Commercial Irrigation Audit	0	0	none
Water Conservation - Single-Family showerhead and aerator replacement program	0	0	none
Water Conservation - Multi-Family showerhead and aerator replacement program	0	0	none
Water Conservation - Education Programs	0	0	none
Water Conservation - Imposing water conservation rate structure	0	0	none

2. Both proposed amendments require additional work to meet the conservation requirements of 31 TAC 357.7(a)(7)(A). The Cities of Anna and Athens both have water conservation plans that may contain alternative water conservation strategies. Potential conservation strategies should be evaluated according to the required criteria 31 TAC 357.7(a)(8). TWDB staff acknowledges that the per capita estimates utilized to develop water demand projections for the 2001 Regional Water Plan include reductions for conservation through plumbing and public education efforts. The details of these reductions are provided in the attached table.

   The per capita water use for Athens in the 2001 plan no longer represents the expected future per capita water need for Athens. Based on recent water use, the projected per capita municipal water need for Athens would be 185 gpcd without plumbing code reductions or additional conservation measures. The following table shows projected per capita demands with reductions due to plumbing code requirements. With this projected per capita water use, the new demand for

Athens is 3,336 acre-feet in the year 2050, as opposed to the 2,925 acre-feet adopted in the 2001 plan.

The population and water demands will be higher in the second phase of Senate Bill One planning than those presented in this amendment. The Region C Water Planning Group is currently reviewing the projected demands for use in the second phase of planning. However, for the purposes of this amendment, we are using old population estimates with the proposed new per capita values. The population and demands presented in this response will be updated in the second phase of Senate Bill One planning.

Description	Athens' Demands (gpcd)					
	2000	**2010**	**2020**	**2030**	**2040**	**2050**
Proposed demands without reduction	185	185	185	185	185	185
Plumbing code reduction		3	6	9	13	14
Proposed demands with plumbing code reduction	***185***	***182***	***179***	***176***	***172***	***171***

On top of the reduction due to the plumbing code, we are assuming that Athens will implement additional water conservation measures, including irrigation audits, a showerhead and aerator replacement program, public education programs, and water rates that encourage water conservation. These measures are shown in the attached water supply measures tables.

3. Please address the following concerns that would result in over allocation or overdraft of resources:

   a. The strategy for Anna to drill an additional well in the Woodbine aquifer would result in an overdraft of the Woodbine aquifer in Collin County, Trinity Basin.

      This strategy does not apply to Athens.

   b. Lake Forest Grove cannot be used as a supply for a water management strategy because the supply volume from that source is already allocated to the Steam Electric WUG for Henderson County.

      Forest Grove Reservoir can be used as a water management strategy for Athens. The water is currently allocated to Steam Electric Power in Henderson County. However, steam electric has plenty of water to meet the needs over the 50 year planning period. Thus, TXU may choose to sell the water from Forest Grove Reservoir to Athens. However, we are no longer naming Forest Grove water as a recommended water management strategy. We are keeping the Forest Grove strategies as alternative water management strategies. Athens's proposed reuse project will meet the needs as presented in the attached summary table.

   c. Strategies to use Lake Athens result in an over allocation of the reservoir in 2000. This overallocation results in needs for the City of Athens and Henderson County Manufacturing.

The amount of water used in the year 2000 actually exceeded the revised yield of Lake Athens. Thus, we have added a water management strategy to overdraft Lake Athens in the year 2000. The amount of water available to Athens in TWDB Table 5 has been decreased by the 38 acre-feet Athens has already committed to Henderson County Manufacturing. Thus, the shortage all falls on Athens, and Henderson County Manufacturing does not show any shortages resulting from the decreased yield in Lake Athens.

In addition to the above statements, the TWDB also submitted the following comments to improve the clarity of the proposed amendments:

1. Proposed demand and supply numbers for the City of Athens, as listed in the text and tables, appear inconsistent with one another.

   The supply and demand numbers have been corrected in the text.

2. Staff was unable to duplicate cost estimates listed in the text for both amendments based on the information provided in the tables. Please confirm that numbers are correct as cited in the text and table. It would be helpful if the text referred to specific cost estimate tables.

   The cost estimates were prepared by Velvin and Weeks for the Athens Municipal Water Authority in their response to the Region C Water Planning Group's population survey last fall. Velvin and Weeks developed the capital costs. The water costs were based on quotes between parties, available purchase costs, and take or pay information as presented to AMWA. Operation and Maintenance costs were based on the experience of the public works director for AMWA. The text was adjusted to reference specific cost tables being added to Appendix R.

3. Cost estimate pay offs vary among the amendments. Please clarify how these pay off periods were selected for each strategy.

   The cost estimates were prepared by Velvin and Weeks in cooperation with Athens Municipal Water Authority. The pay off periods were based on the Athens' specific plans for project development.

4. Please indicate price index year and basis used for development of construction costs for all amendments.

   The cost estimates were developed based on year 2002 dollars. The price index year has been added to the heading of each cost estimate table being added to Appendix R.

5. Estimates for 50-year Operation and Maintenance in Table R-218 through R-224 appear low compared to TWDB guidelines.

   The cost estimates were developed by Velvin and Weeks in cooperation with Athens Municipal Water Authority.

6. Please clarify terms used in Tables R-218 through R-224, such as "Development Included – 'no'", "Tex Pool Yield", and "TXU Fee."

The term "Holding Fee" refers to the cost for water that will be set up as a take or pay scenario. "Cost per k gallons" refers to the assumed purchase price of raw water in scenarios where water is purchased from another water supplier. The term has been renamed as "Cost to purchase water (per 1,000 gal)". "Tex Pool Yield" refers to the Tex Pool mutual fund available to municipalities that has a higher rate of return than some of the other investment options. The Tex Pool rate was used to develop the net present value of each project. "Tex Pool Yield" has been renamed "Interest Rate". The term "Discount Date" has been removed from the tables. The term "16 year TXU fee" refers to a contract that TXU has with Tarrant Regional Water District for standby cooling water. TXU pays TRWD a fee every year for the right to pump water from Cedar Creek Reservoir to Forest Grove for cooling purposes. This amount is assumed to be zero for both of the Forest Grove alternatives to which it applies. "Development Included" refers to whether or not a private entity develops the land while Athens MWA develops the water. In the Forest Grove Reservoir alternatives, the development of each project assumed that no private participation is included and Athens pays for the development of the entire project.

7. The City of Athens strategy for reuse should be listed as either indirect or direct reuse in Table 12.

   The reuse strategy for Athens is an indirect reuse project. The term indirect has been added to the description in TWDB Tables 11 and 12.

8. The Henderson County Livestock WUG shows a need as a result of new demand numbers, however no strategies were included to meet this need.

   Athens has a contract with the Texas Parks and Wildlife Fish Hatchery for 3,023 acre-feet per year. This contract is considered a livestock water demand. The resulting water need will be met by Athens water supply in Lake Athens. This strategy has been added to TWDB Tables 11 and 12. The strategy had already been included in the summary table.

If you have additional questions concerning our responses, please contact Tom Gooch, the Region C consultant, at (817) 735-7314 or myself at (972) 442-5405.

Sincerely,

James M. Parks
Region C Water Planning Group Chair

c: Roy Eaton, Region C Water Planning Group Secretary
Tom Gooch, Freese and Nichols, Inc.
Harold Petrini, Director, Water Resources Planning Division, TWDB

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