REGION C WATER PLANNING GROUP

Senate Bill One Fourth Round of Regional Water Planning - Texas Water Development Board

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Kevin Patteson Texas Water Development Board 1700 North Congress Austin, Texas 78711-3231

RE: Revision to the 2011 Region C Water Plan

Dear Mr. Patteson:

As directed by the TWDB Order dated January 8, 2015, Region C has revised its *2011 Region C Water Plan*. This revision is attached. In its January 8, 2015 Order, TWDB ordered that:

"The Region C Regional Water Planning Group shall revise, pursuant to TWC Section 16.053(h)(6), Chapter 10 of its 2011 RWP, related to the Plan Approval Process to reflect the mediation, this Board action, and other actions taken to effectuate this decision. Region C shall adopt the revisions and submit its revised RWP and supporting documents to the Board on or before March 20, 2015, for Board Consideration."

In addition to the changes to Chapter 10, Region C also added a new section to Chapter 7 to reflect the addition of the "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State". Appendices CC and DD were also added to include material related to this revision.

A Public Hearing was held on February 27, 2015 to receive comment on this revision. The Region C Water Planning Group approved this revision to the *2011 Region C Water Plan* through an action item at the March 2, 2015 Region C Water Planning Group public meeting.

Please call me if you have any questions regarding this information.

Sincerely,

Joth Puchet

Jo M. Puckett Chairman, Region C Water Planning Group

cc: Connie Townsend, TWDB PM for Region C Temple McKinnon, Manager, TWDB Regional Water Planning Attachment: Revision to the 2011 Region C Water Plan including: Chapter 7.7, Chapter 10.6, Appendix CC, Appendix DD

7.7 Quantitative Analysis of the Marvin Nichols Reservoir Water Management Strategy

As part of the resolution of the conflict between the 2011 Regions C & D Plans regarding the Marvin Nichols Reservoir Water Management Strategy (described further in Chapter 10.6 of this report), on August 8, 2014 the TWDB ordered that:

"Region C conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agriculture and natural resources of Region D and the State, pursuant to Sections 16.051 and 16.053 of the Texas Water Code and Chapters 357 and 358 of Board rules."

This analysis was conducted by Region C and submitted to the TWDB on October 29, 2014. This analysis produced a report entitled "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State" and is included as Appendix CC to this report.

The report is also available electronically at the URL below:

http://www.regioncwater.org/Documents/Final/Quantitative%20Analysis%20of%20Marvin%20Nichols%2 0Reservoir.pdf

10.6 Interregional Conflict between Regions C and D regarding the Marvin Nichols Reservoir Water Management Strategy

10.6.1 Background on the Interregional Conflict

The following text related to the background of the interregional conflict was copied from pages 2 and 3 of TWDB's Memorandum dated May 19, 2014 with the subject "Resolution of the Interregional Conflict between the 2011 Region C and the Region D Regional Water Plans." A copy of the memorandum is in Appendix DD.

"Senate Bill 1 (SB 1) in 1997 created the current state water planning process. Before the implementation of SB 1, Marvin Nichols Reservoir was recommended as a water management strategy in the 1968 State Water Plan, the 1984 State Water Plan, and the 1997 State Water Plan. Under SB 1, the first Region D Regional Water Plan in 2001 recommended that Marvin Nichols be developed to provide a source of future water supply for water users both within Region D and in Region C. The 2001 Plan was later amended to remove support for the development of Marvin Nichols, however. The 2006 Region D Regional Water Planning Group took the position that Marvin Nichols should not be included in any regional plan or in the State Water Plan as a water management strategy. Further, the Region D Regional Water Planning Group expressed the opinion that the inclusion of Marvin Nichols in the Region C Regional Water Plan constituted an interregional conflict. Following the policy established with the first series of water plans, the Texas Water Development Board (TWDB) approved both the Region C and Region D 2006 Regional Water Plans because it did not find an over-allocation of a source of supply--the TWDB's definition of an interregional conflict.

In 2007, the 80th Legislature established a study commission on Region C Water Supply that consisted of members appointed by the regional water planning groups of Regions C and D. The Study Commission was charged with reviewing the water supply alternatives available to the Region C Regional Water Planning Area. But the Study Commission was unable to reach a consensus on its findings and recommendations, so a final report was not delivered to the 82nd Legislature.

In 2011, the Region C Regional Water Planning Group again adopted Marvin Nichols as a recommended strategy and Region D reiterated concerns it had raised previously. Region D again expressed the opinion that including Marvin Nichols in the Region C Regional Water Plan constituted an interregional conflict. The TWDB approved the Region D Regional Water Plan in October 2010, and the Region C Regional Water Plan in December 2010, finding again that there was no over-allocation of supply sources. To date, Marvin Nichols has not been constructed and no permits for its development have been sought from the Texas Commission on Environmental Quality (TCEQ) or the U.S. Corps of Engineers.

Private parties in Region D filed suit in District Court in Travis County in January 2012, seeking judicial review of the TWDB's decision approving the Region C Regional Water Plan. In its order issued on December 5, 2011, the District Court declared that an interregional conflict existed, reversed the TWDB's decisions approving the two regional plans, and remanded the case to the TWDB for resolution. The TWDB appealed. The 11th Court of Appeals heard the case and affirmed the district court's ruling on May 23, 2013. No further motions were filed.

The TWDB contracted for a mediator and arranged for a mediation between Region C and Region D members appointed by their respective regional planning groups. The mediator reported on December 17, 2013 that the parties did not reach agreement in the mediation. Thus, under the statute and the Court's Order, the TWDB was to resolve the conflict.

The core dispute between Region C and Region D is whether Marvin Nichols should be developed in the north-central part of Region D to serve the water needs in Region C."

10.6.2 Timeline for the Interregional Conflict

Subsequent to the unsuccessful mediation in December 2013, the following timeline of events occurred. The <u>underlined</u> documents referenced below are included in Appendix DD.

March 4, 2014 - The <u>Preliminary Recommendation of Conflict Resolution</u> from TWDB Executive Administrator was posted on the agency website and provided to the chairs of the C and D Regional Water Planning Groups and the parties to the Ward Timber litigation through their attorney. The TWDB began receiving comments on this recommendation.

April 29 and 30, 2014 - Public hearings were held in Region D and Region C to accept comment on the Preliminary Recommendation.

May 2, 2014 - Comment period on Preliminary Recommendation was closed.

May 19 and 20, 2014 - The Executive Administrator submitted a <u>Final Recommendation</u> to the Board and issued a <u>letter soliciting legal briefs</u>.

June and July 2014 – Regions C and D submitted <u>Legal Briefs and Response Briefs</u> related to TWDB Final Recommendation.

August 7, 2014 - Board considered TWDB Executive Administrator's Final Recommendation regarding the interregional conflict between the Region C and Region D Regional Water Plans. The

Board determined that there was inadequate analysis and quantification in the Region C Plan of the impact of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State.

August 8, 2014 – TWDB issued an <u>Interim Order</u> instructing Region C to conduct an analysis and quantification of the impact of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State and submit it to the Board by November 3, 2014. It was further ordered that upon receipt of the analysis and quantification, the Executive Administrator and Region D would be given the opportunity to submit a written response to the submission, and the matter would be scheduled for Board consideration.

October 29, 2014 - Region C submitted "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State". See Appendix CC for this document.

December 17, 2014 - Region D submitted <u>Response to "Analysis and Quantification of the Impacts</u> of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural <u>Resources of Region D and the State"</u>.

December 17, 2014 – TWDB Executive Administrator published a <u>memo related to Region C's</u> <u>Response to Interim Order of August 8, 2014.</u>

January 8, 2015 - Texas Water Development Board heard oral arguments from representatives of Region C and Region D and the TWDB Executive Administrator at a public TWDB Board meeting.

January 8, 2015 - Texas Water Development Board published an <u>Order</u> concerning the Interregional Conflict, which resolved the conflict with the inclusion of the Marvin Nichols Reservoir Project as a recommended water management strategy in the 2011 Region C Regional Water Plan. The Board directed Regions C and D to amend their 2011 Plans as detailed in Section 10.6.3 below.

February 27, 2015 – A Public Meeting was held to receive public comment on the revision to the Region C Plan pursuant to the January 8, 2015 TWDB Order. Region C developed a <u>transcript of this</u> <u>public hearing</u> and received one <u>written comment</u> related to the revision to the 2011 Plan.

March 2, 2015 – At its regularly scheduled public meeting, the Region C Water Planning Group approved the Revision to the *2011 Region C Water Plan* to incorporate the TWDB Final Ruling on the Resolution of Interregional Conflict.

March 11, 2015 – Region C submitted the Revision to the *2011 Region C Water Plan* to TWDB (prior to March 20, 2015 deadline).

10.6.3 Resolution of Interregional Conflict

On January 8, 2015 the Texas Water Development Board issued an Order (included in Appendix DD) resolving the Interregional Conflict between Region C and Region D. The resolution of the conflict is as follows:

"The Board finds that Region C's 2011 Regional Water Plan together with the analysis and quantification submitted on October 29, 2014, meet the applicable statutory and regulatory criteria. Further, the Board finds that in accordance with Texas Water Code (TWC) Sections 16.051 and 16.053, the interregional conflict asserted by Region D is hereby resolved with the inclusion of the Marvin Nichols Reservoir Project as a recommended water management strategy in the 2011 Region C Regional Water Plan."

TWDB's Ordered Region C as follows:

"The Region C Regional Water Planning Group shall revise, pursuant to TWC Section 16.053(h)(6), Chapter 10 of its 2011 RWP, related to the Plan Approval Process to reflect the mediation, this Board action, and other actions taken to effectuate this decision. Region C shall adopt the revisions and submit its revised RWP and supporting documents to the Board on or before March 20, 2015, for Board Consideration."

On March 2, 2015 the Region C Water Planning Group adopted the revision to the *2011 Region C Water Plan* according to the TWDB's final determination of this interregional conflict resolution.

Appendix CC

Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State



Innovative approaches Practical results Outstanding service

Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State

Prepared for:

Region C Water Planning Group

For Submittal to:

Texas Water Development Board

Prepared by:

Freese and Nichols, Inc. 4055 International Plaza, Suite 200 Fort Worth, Texas 76109 817-735-7300

NTD11336



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Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State

1. Introduction

In 1997, the Texas Legislature passed Senate Bill One, which initiated a regional water planning process for Texas. The planning process was implemented by the Texas Water Development Board (TWDB), which set up rules governing planning and established 16 water planning regions across the state. (See Figure 1.) Planning in each region is overseen by a regional water planning group, which develops a water supply plan addressing the future water needs of the region. The 16 regional plans are reviewed and approved by the Texas Water Development Board and assembled into a state water plan.





The water planning process is conducted on a five-year cycle. Regional water plans were approved in 2001, 2006, and 2011, and the fourth round of planning is currently underway. State water plans based on the regional plans were developed in 2002, 2007, and 2012.

The Region C Regional Water Planning Area includes all or part of 16 counties and includes the Dallas-Fort Worth Metropolitan area. Region C has over 1/4 of the state's population and is the most populous of the 16 planning regions. The population of Region C is increasing rapidly, and the *2011 Region C Water Plan*¹ included a number of water management strategies to supply additional water to meet growing needs. Figure 2 shows the location of Region C, the North East Texas Regional Water Planning Group (Region D), and the proposed Marvin Nichols Reservoir. One of the water management strategies included in the *2011 Region C Water Plan* is the proposed Marvin Nichols Reservoir, which would be located in Red River, Titus, and Franklin Counties in the Sulphur River Basin. The proposed reservoir would be developed to meet needs in Region C, but it is located in The North East Texas Regional Water Planning Area (also known as Region D). Marvin Nichols Reservoir would have a firm yield of 612,300 acre-feet per year, of which 489,840 acre-feet per year would be used to meet needs in Region C and the rest left for local use. The remainder of this report includes additional information on the proposed Marvin Nichols Reservoir.

The *Regional Water Plan* for the North East Texas Regional Water Planning Group² "expressed the opinion that including the Marvin Nichols Reservoir in the Region C Regional Water Plan constituted an interregional conflict" ³ [between the Region C and Region D plans]. The TWDB initially approved the 2011 Region C and Region D plans, indicating that the inclusion of Marvin Nichols Reservoir in the 2011 Region C plan and the opposition to the reservoir expressed in the 2011 Region D plan did not constitute an interregional conflict under TWDB rules. (The rules define an interregional conflict as the overallocation of water from a particular source of supply.³)

¹ Superscripted numbers refer to the list of references in Appendix A.





If there is a conflict between regional water plans, TWDB is required to initiate mediation to resolve the issue. If the mediation fails, TWDB is required to take action to resolve the interregional conflict. After the Region C and Region D 2011 regional water plans were approved, private parties in Region D filed suit seeking judicial review of TWDB's decision to approve the 2011 Region C plan. In December 2011, "the District Court declared that an interregional conflict existed, reversed the TWDB's decision approving the two regional plans, and remanded the case to the TWDB for resolution."³ The District Court's decision was upheld on appeal by the 11th Court of Appeals in May 2013.³

Following these court decisions, the TWDB provided a mediator and arranged for mediation between representatives of the Region C and Region D regional water planning groups in an effort to resolve the conflict, but the two sides did not reach agreement. Therefore, the TWDB is required to resolve the conflict.

On August 7, 2014, the TWDB Board met to consider the interregional conflict and requested additional information from Region C. The Board action is reflected in the Interim Order of August 8, 2014, which included the following language:

"Region C is directed to conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State, pursuant to Sections 16.051 and 16.053 of the Texas Water Code and Chapters 357 and 358 of Board rules. Region C should submit this analysis and quantification to the Board by November 3, 2014. Upon receipt of the analysis and quantification, the Executive Administrator and Region D will be given the opportunity to submit a written response to the submission, and the matter will be scheduled for Board consideration. If no submittal is received by the Board on or before November 3, 2014, this matter will set for a Board Meeting to direct the Regions to revise their regional water plans reflecting the removal of the Marvin Nichols Reservoir Water Management Strategy from the 2011 Region C Plan, without prejudice."

The full Interim Order of August 8, 2014, is included as Appendix B to this report. The sections of the Texas Water Code and chapters of Board rules mentioned in the order are also included as appendices:



- Section 16.051 of the Texas Water Code is Appendix C.
- Section 16.053 of the Texas Water Code is Appendix D.
- Chapter 357 of TWDB rules (Texas Administrative Code §357) is Appendix E.
- Chapter 358 of TWDB rules (Texas Administrative Code §358) is Appendix F.

This report provides the information requested by the TWDB Board in the Interim Order of August 8, 2014. Reviewing the sections of the Texas Water Code and the chapters of TWDB rules listed above, the requirement for quantification of impacts on agricultural and natural resources is in Board rules, reflected in Texas Administrative Code §§357.34(d)(3)(B) and 357.34(d)(3)(C):

"357.34(d) Evaluations of potentially feasible water management strategies shall include the following analyses:... (3) A quantitative reporting of:

(B) Environmental factors including effects on environmental water needs, wildlife habitat, cultural resources, and effect of upstream development on bays, estuaries, and arms of the Gulf of Mexico. Evaluations of effects on environmental flows will include consideration of the Commission's adopted environmental flow standards under 30 TAC Chapter 298 (relating to Environmental Flow Standards for Surface Water). If environmental flow standards have not been established, then environmental information from existing site-specific studies, or in the absence of such information, state environmental planning criteria adopted by the Board for inclusion in the state water plan after coordinating with staff of the Commission and the Texas Parks and Wildlife Department to ensure that water management strategies are adjusted to provide for environmental water needs including instream flows and bays and estuaries inflows.

(C) Impacts to agricultural resources."

. . .

The information in this report is intended to supplement the *2011 Region C Water Plan*, with emphasis on the quantification and analysis of the impact of Marvin Nichols Reservoir on agricultural and natural resources requested in the Board's Interim Order of August 8, 2014.

Section 2 of this report provides the analysis and quantification of the impacts of Marvin Nichols Reservoir on natural resources. Section 3 provides the analysis and quantification of



the impacts of the project on agricultural resources. Section 4 discusses potential mitigation requirements for the project and how they might affect impacts on natural and agricultural resources. Section 5 provides additional information, and the Appendices include supporting material.

FREESE NICHOLS

2. Analysis and Quantification of the Impacts on Natural Resources

2.1 Requirements of Texas Water Code and Texas Water Development Board Rules

The requirements for quantitative reporting on the impacts of water management strategies on natural resources are included in the Board rules in Texas Administrative Code §357, included in Appendix E. Specifically §357.34(d)(3)(B), requires that the quantitative reporting address impacts on certain specific aspects of natural resources:

- Environmental water needs
- Wildlife habitat
- Cultural resources
- Effect on bays, estuaries, and arms of the Gulf of Mexico

A quantitative reporting of impacts on each of these areas is provided below, as is additional information on impacts on threatened and endangered species.

2.2 Available Data for Impacts on Natural Resources

Data on impacts of the proposed Marvin Nichols Reservoir on environmental flow needs is taken from the hydrologic analyses of the reservoir conducted for the 2011 Region C Water Plan.¹ Data on impacts on other natural resources is taken from the Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment.⁴ The environmental evaluation is a recent report developed for the U.S. Army Corps of Engineers as part of an on-going basin-wide assessment of the Sulphur River Basin. It was completed in June 2013 and was not available when the 2011 Region C Water Plan was developed. The report includes environmental analyses of Marvin Nichols Reservoir and other potential water supply projects in the Sulphur Basin.



2.3 Impacts on Environmental Water Needs

Texas Administrative Code §357.34(d)(3)(B) includes specific requirements for the evaluation of environmental water needs:

"Evaluations of effects on environmental flows will include consideration of the Commission's adopted environmental flow standards under 30 TAC Chapter 298 (relating to Environmental Flow Standards for Surface Water). If environmental flow standards have not been established, then environmental information from existing site-specific studies, or in the absence of such information, state environmental planning criteria adopted by the Board for inclusion in the state water plan after coordinating with staff of the Commission and the Texas Parks and Wildlife Department to ensure that water management strategies are adjusted to provide for environmental water needs including instream flows and bays and estuaries inflows."

The Texas Commission on Environmental Quality (TCEQ) has not yet adopted environmental flow standards under 30 TAC Chapter 298 for the Sulphur Basin, and environmental instream flow information from existing site-specific studies is not available for the proposed Marvin Nichols Reservoir. As required by TWDB rules, the operation of the proposed reservoir was evaluated using state environmental planning criteria adopted by the Board for inclusion in the state water plan. Table 1 and Figure 3 summarize the flow-frequency relationship for the Sulphur River immediately below the proposed Marvin Nichols Reservoir with and without the reservoir. It is likely that the detailed studies required for reservoir permitting will result in different streamflow bypass requirements and different impacts on downstream flows. The results in Table 1 and Figure 3 reflect current TWDB requirements.



% of Months Flow is	Flow in CFS			
Exceeded	Without Marvin Nichols	With Marvin Nichols		
5%	393,333	195,908		
10%	249,393	104,035		
20%	153,060	20,928		
30%	95,124	11,488		
40%	54,579	5,712		
50%	30,492	2,748		
60%	12,993	1,550		
70%	6,057	943		
80%	2,135	486		
90%	615	104		
95%	425	79		

 Table 1

 Monthly Flow Frequency Relationship with and without Marvin Nichols Reservoir

Figure 3 Flow-Frequency Relationship of Sulphur River at Marvin Nichols Dam Site with and without the Reservoir





2.4 Impacts on Wildlife Habitat

The primary impact of the proposed Marvin Nichols Reservoir on wildlife habitat would be the inundation of habitat by the reservoir. This impact was evaluated as part of the *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*,⁴ prepared for the U.S. Army Corps of Engineers as part of an on-going basin-wide assessment of the Sulphur River Basin. The *Environmental Evaluation Interim Report* used the existing Texas Parks and Wildlife Ecological Systems Classification data set, which was developed by analysis of color infra-red and multi-spectral satellite imagery. The data set was considered to be the most recent, readily available data on land cover types in the Sulphur River Basin. The cover types determined from the Ecological Systems Data set were grouped into larger categories based on EPA's Level One National Land Cover Data classifications. U.S. Fish and Wildlife Service National Wetlands Inventory data were used to further refine the classifications. The approach used in the *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴ is described in greater detail in Appendix G, which reproduces Sections 2.1 and 2.2 of that report.

Table 2 shows the acreage of each cover type within the footprint of the proposed Marvin Nichols Reservoir. For comparison, the area of each cover type in all of Region D is also included. (Cover areas in Region D were developed for this study using the database developed in the *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment.*⁴) Appendix H is a map of the cover types in the Marvin Nichols Reservoir site, taken from *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment.*⁴

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	Area (A	(cres)	Marvin Nichols	
Cover Type	Marvin Nichols Region D Reservoir		as a Percent of Region D	
Barren	<1	8,437	0.0%	
Bottomland Hardwood Forest	10,156	417,265	2.4%	
Forested Wetland	21,444	414,573	5.2%	
Grassland/Old Field	18,241	2,843,656	0.6%	
Herbaceous Wetland	1,244	32,011	3.9%	
Open Water	1,162	211,761	0.5%	
Row Crops	706	314,184	0.2%	
Shrub Wetland	1,405	16,445	8.5%	
Shrubland	444	47,485	0.9%	
Upland Forest	11,223	2,869,079	0.4%	
Urban	78	158,878	0.0%	
Total	66,103	7,333,774	0.9%	

Table 2Quantitative Reporting on Impacts on Wildlife Habitat

The area for Marvin Nichols Reservoir in Table 2 differs from the area in the 2011 Region C Water Plan¹ (68,854 acres) for two reasons:

- The area in the Region C plan includes ancillary facilities, whereas the data in Table 2 are for the land inundated by the reservoir only.
- The area inundated by the reservoir is slightly different in *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴ due to the use of different elevation databases.

Table 2 presents the impact of the proposed Marvin Nichols Reservoir on wildlife habitat in terms of the acreage of different types of habitat inundated by the reservoir. The reservoir will affect 5.2 percent of the forested wetlands, 2.4 percent of the bottomland hardwood forests, and 0.4 percent of the upland forests in Region D. Bottomland hardwoods and forested



wetlands are often lumped together as bottomland hardwoods, and they are considered to be particularly important as wildlife habitat. The total of these two types in the proposed Marvin Nichols Reservoir represents 3.8 percent of the area in Region D. The 31,600 acres that would be inundated by the proposed reservoir represents about 0.5 percent of the estimated 5,973,000 acres⁵ of bottomland hardwoods in Texas. As a part of permitting for the project, there will be more detailed assessments of the quality of the wildlife habitat that would be affected by the project, which will aid in the development of mitigation plans.

2.5 Impacts on Cultural Resources

The impacts of Marvin Nichols Reservoir on cultural resources would result from the inundation of cultural resource sites. The *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴ collected the following data on potential cultural resource impacts from Marvin Nichols Reservoir site and other proposed reservoir sites in the Sulphur River Basin:

- Number of known cultural resources
- Presence of known human remains/burials
- Acres of zones of archaeological potential
- Percentage of reservoir footprint with previous cultural resource surveys
- Surveyed site density

Table 3 is a quantitative reporting of known cultural resources in the Marvin Nichols Reservoir footprint. Table 4 is a quantitative reporting of other measures of potential impacts on cultural resources. The data in both tables is taken from *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴.



Table 3
Quantitative Reporting of Impacts on Cultural Resources – Known Cultural Resources

Likely Eligibility of Sites for the National Register of Historic Properties (NHRP)	Historic	Pre- historic	Caddo	Multi- Component	Prehisoric Multi- Component	Total*
Likely NRHP Eligible	0	20	9	2	3	34
Possibly NRHP Eligible - Fair Chance	0	4	2	0	0	6
Possibly NRHP Eligible - Poor Chance	0	4	1	0	0	5
Not Likely NRHP Eligible	0	15	1	2	0	18

* Total for likely NRHP eligible is corrected from 31 in *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴.

Table 4Quantitative Reporting of Impacts on Cultural Resources – Other Factors

Measurement of Impact on Cultural Resources	Value for Measurement
Ratio of High Value Sites to Low Value Sites	1.7*
Number of Known Cemeteries	1 (57 graves)
Acres with High Potential for Archaeological Sites	51,654
Percentage of Project Area Previously Surveyed for Cultural Resources	1.3%
Number of Acres Surveyed per Site Found in Survey	90.1

* Ratio of high value sites to low value sites is corrected from 1.6 in *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴.

In general, impacts on cultural resources are mitigated through coordination with the Corps of Engineers and the Texas State Historical Commission during permitting. Coordination with Indian tribes on archeological issues would also be a part of the permitting process. Mitigation is accomplished by investigating and recording archaeological sites and proper relocation of cemeteries. This process of archaeological mitigation adds to project costs, and it has been considered in costs developed for the proposed Marvin Nichols Reservoir.



2.6 Impacts on Bays, Estuaries and Arms of the Gulf of Mexico

The proposed Marvin Nichols Reservoir would generally reduce flows discharging to bays, estuaries and arms of the Gulf of Mexico. The Sulphur River, on which the Marvin Nichols Reservoir would be located, is a tributary of the Red River, which does not flow to any bay, estuary or arm of the Gulf of Mexico in Texas. According to the U.S. Geological Survey, the Red River discharges to the Atchafalaya River, which flows to the Gulf of Mexico in Lousiana^{6,7}. Natural discharges from the Atchafalaya to the Gulf of Mexico average 58,000 cubic feet per second, or 42 million acre-feet per year^{6,7}. In addition, human diversions of flood flows from the Mississippi River to the Atchafalaya River add about 167,000 cfs, or 121 million acre-feet per year, to the discharge of the Atchafalaya^{6,7}, making a total discharge of 163 million acre-feet per year.

Assuming full use of Marvin Nichols Reservoir and no return flows, the project would reduce flows by about 670,000 acre-feet per year. This would reduce the discharge from the Atchafalaya River to the Gulf of Mexico in Louisiana by about 0.4%. It should be noted that reducing the discharge from the Atchafalaya is moving toward natural conditions, offsetting a very small part of the flows added to the Atchafalaya by human diversion from the Mississippi River. The impact of Marvin Nichols Reservoir on bays, estuaries and arms of the Gulf of Mexico would be negligible.

2.7 Impacts on Threatened and Endangered Species

The Texas Water Development Board rules do not require reporting on potential impacts to threatened and endangered species. However, data on potential impacts to endangered and threatened species are available in the *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment*⁴ and are presented here. The U.S. Fish and Wildlife Service maintains lists of federally endangered and threatened species by county. The Texas Parks and Wildlife Department maintains a separate Texas, or State, list of endangered and



 Table 5

 Quantitative Reporting of Potential Impacts on Endangered and Threatened Species

Classification of Endangered and Threatened Species	Potential for Impact Due to Marvin Nichols Reservoir	Number Present in Counties Where Marvin Nichols Reservoir Would be Located
	No Potential to Low Potential	3
Federal Endangered Species	Moderate Potential	0
	High Potential	0
	No Potential to Low Potential	0
Federal Threatened Species	Moderate Potential	0
	High Potential	0
	No Potential to Low Potential	4
Texas Endangered Species	Moderate Potential	0
	High Potential	0
	No Potential to Low Potential	14
Texas Threatened Species	Moderate Potential	3
	High Potential	0

Of the Federally listed species, there are three potential species that are listed in the counties where Marvin Nichols would be located, but none of these species are expected to be impacted by the reservoir. There are a total of 21 threatened or endangered State-listed species within these counties, but only three threatened species have moderate potential to be impacted by the reservoir, and none have high potential. Because there are three State-listed threatened species potentially present in the counties in which Marvin Nichols Reservoir would be located, additional studies may be required to assess the impact on these species, if any, as reservoir development continues. According to the *Environmental Evaluation Interim*



Report – Sulphur River Basin – Comparative Assessment, "The Texas Endangered Species Act does not protect wildlife species from indirect or incidental take (e.g., destruction of habitat, unfavorable management practices, etc.). The TPWD has a Memorandum of Understanding with every state agency to conduct a thorough environmental review of state initiated and funded projects, such as highways, reservoirs, land acquisition, and building construction, to determine their potential impact on state endangered or threatened species."⁴



3. Analysis and Quantification of the Impacts on Agricultural Resources

3.1 Requirements of Texas Water Code and Texas Water Development Board Rules

The requirements for quantitative reporting on the impacts of water management strategies on agricultural resources are included in the Board rules in Texas Administrative Code §357, included in Appendix E. Specifically, §357.34(d)(3)(C) requires that the quantitative reporting address impacts on agricultural resources. The rules do not include any more detailed description of what quantitative reporting is required. To respond to this requirement, this report provides the following quantitative reporting on the impacts of the proposed Marvin Nichols Reservoir on agricultural resources:

- Inundation of land potentially useful as agricultural resources
- Loss of timber harvests
- Inundation of prime farmlands.

3.2 Available Data for Impacts on Agricultural Resources

Data on impacts to land cover types potentially useful as agricultural resources is based on a land classification developed for the *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment.*⁴ The data available from that report has been adapted by a simplified re-classification that expands the geographic scope of the analysis for purposes of comparison within this study. Data on the loss of timber harvests is developed from data maintained by the Texas A&M Forestry Service. In the early 2000s, two analyses of the proposed Marvin Nichols reservoir's impacts on timber resources were performed, which reached radically different conclusions^{8,9}. Both reports consider the impacts of a previous concept for the proposed Marvin Nichols Reservoir that differs in both size and location from the current concept for the reservoir and which is no longer being considered. Because these studies analyze a different project, they are not considered to be relevant for the current



analysis. Data on inundation of prime farmlands is developed from prime farmland data maintained by the U.S. Department of Agriculture Natural Resources Conservation Service.

3.3 Impacts Due to Inundation of Land Potentially Useful as Agricultural Resources

The development of land cover type information for the proposed Marvin Nichols Reservoir is discussed in Section 2.4 and Appendices G and H. Five of the land cover types present in the footprint of the reservoir are potentially useful as agricultural resources. Forested wetlands, bottomland hardwoods, and upland forests might be useful in the growth and harvesting of timber (silvicultural activities). Row crops represent current farming activities. Grassland/old field would potentially include land used for grazing of livestock, although it would also include grassland not currently used for agricultural purposes. Table 6 includes information on the area of these land cover types that would be inundated by the Marvin Nichols Reservoir. To allow consideration of the impacts to agricultural resources of Region D and Texas, the areas of these cover types for Region D are included in the table.

	Area (A	Acres)	Marvin Nichols Reservoir Area as a Percent of Region D	
Cover Type	Marvin Nichols Reservoir	Region D		
Bottomland Hardwood Forest	10,156	417,265	2.4%	
Forested Wetland	21,444	414,573	5.2%	
Grassland/Old Field	18,241	2,872,649	0.6%	
Row Crops	706	314,184	0.2%	
Upland Forest	11,223	2,689,079	0.4%	
Other Land Cover Types	4,333	626,024	0.7%	
Total	66,103	7,333,774	0.9%	

Table 6
Quantitative Reporting on Impacts on Agricultural Resources -
Land Potentially Useful for Agriculture



The most significant impacts to agricultural resources relative to the resources of Region D and of Texas are on resources that could potentially be useful to the silviculture industry. These impacts are discussed further (in terms of impacts on timberland and timber sales) in Section 3.4 below.

3.3 Impacts Due to Inundation of Prime Farmland

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) maintains data on prime farmland, which is defined as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses.¹⁰" Prime farmland is not necessarily currently in agricultural use, but it must be available for agricultural use. For example, prime farmland soils underlying an urban area would not be counted as prime farmland because they are not available for agricultural uses. Table 7 shows the acreage of prime farmland that would be inundated by the proposed Marvin Nichols Reservoir compared to prime farmland area in Region D and Texas. Marvin Nichols Reservoir would inundate 0.76 percent of the prime farmland in Region D and 0.04 percent of the prime farmland in Texas.

Table 7Quantitative Reporting on Impacts on Agricultural Resources – Prime Farmland

Cover Type	Area (Acres)			Marvin Nichols Reservoir Area as a Percent of Area in:	
	Marvin Nichols Reservoir	Region D	Texas	Region D	Texas
Prime Farmland	14,893	1,949,929	35,087,200	0.76%	0.04%

3.4 Impacts on Timberland and Timber Harvests

Agricultural use of the land that would be inundated by the proposed Marvin Nichols Reservoir includes the production of timber. The Texas A&M Forest Service maintains data on



timberland, timber harvest, and the stumpage value of harvests by county. As part of this study, Freese and Nichols contacted the Texas A&M Forest Service to obtain information on the impact of the proposed Marvin Nichols Reservoir on timber resources. Unfortunately, the Texas A&M Forest Service database was not designed to provide information for relatively small areas like the proposed Marvin Nichols Reservoir. The Texas A&M Forest Service indicated that analysis of the data at the county level and above would be most meaningful.

The Texas A&M Forest Service produces annual reports of Harvest Trends for timber products in East Texas, which includes most of the timberland and timber production in Texas. Figure 4 shows the area covered by the Harvest Trends reports, as well as the location of the proposed Marvin Nichols Reservoir and the boundaries of Region D. Most of Region D (except for the western counties) is covered by the Harvest Trends Reports.

Although information on the inundation of timberland by the proposed reservoir cannot be gathered directly from data maintained by the Texas A&M Forest Service, it is possible to estimate the magnitude of impacts by looking at county data. Almost all of the footprint of the proposed Marvin Nichols Reservoir is located in Red River, Titus and Franklin Counties. (There are extremely small areas of the reservoir in Delta and Lamar Counties, but they are contained on the Sulphur River floodway channel and would not have forested land.) The total timberland in these three counties is 523,629 acres, and the total of the bottomland hardwood, forested wetland, and upland forest cover types is slightly more, at 531,200 acres. If we treat these three land cover types as a close approximation of timberland, the proposed Marvin Nichols Reservoir will inundate about 42,823 acres of timberland (Table 8), or about 8.2 percent of the 523,629 acres of timberland in Red River, Titus and Franklin Counties.

Table 8 provides data on potential timberland in Marvin Nichols Reservoir and timberland in Region D¹¹ and East Texas.¹² Note that the data for Region D and East Texas include only the area shown in Figure 4. The data for Region D and East Texas were obtained from the Texas Forest Service data set.^{11,12}

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Figure 4 **Region D and Area Covered by Harvest Trends Report**





	Area (Acres)	Fraction in Marvin Nichols
Potential Timberland in Marvin Nichols Reservoir		
Bottomland Hardwoods	10,156	N/A
Forested Wetlands	21,444	N/A
Upland Forest	11,223	N/A
Total Potential Timberland	42,823	N/A
Total Timberland in Region D	2,698,272	1.6%
Total Timberland in East Texas	11,906,539	0.4%

Table 8Potential Timberland in Marvin Nichols Reservoir

Table 9
Estimated Impact of Marvin Nichols Reservoir on Timber Harvest Values

County	Volume H	Stumpage Value		
County	Pine	Hardwood	Total	of the Harvest
Franklin	326,276	1,144,085	1,470,361	\$539
Red River	4,509,199	5,140,016	9,649,215	\$3,546
Titus	1,001,683	1,566,883	2,568,566	\$1,077
Total for Marvin Nichols	5 927 159	7,850,984	13,688,142	\$5,162
Counties	5,657,156			
Estimated Stumpage				
Value for Marvin				\$423
Nichols (8.2% of Total				
for Counties)				
Total for Region D (not		44,420,920	112,130,822	\$46,138
including Hunt, Lamar,	67 700 002			
Delta, Hopkins and Rains	07,709,902			
Counties)				
Total for East Texas (See	410 569 624	101,963,374	521,531,998	\$232,606
Figure 3)	419,308,624			



Table 9 is a summary of data on timber sales taken from the Texas A&M Forest Service report *Harvest Trends 2013*.¹³ These data are available only on a county-wide basis. Note that the potential timberland inundated by the proposed Marvin Nichols Reservoir is estimated to be 8.2 percent of the timberland in Red River, Titus and Franklin Counties. As a result, the timber harvest volume and stumpage value from the reservoir area is assumed to be about 8.2 percent of the total value for the three counties. (The stumpage value is the value of the timber harvested, not including the costs of processing and delivering the timber.) The estimated stumpage value of the timber harvests in the Marvin Nichols Reservoir pool is less than one percent of the total for Region D and less than 0.2 percent of the total for East Texas. (None of the 23 East Texas Counties with the highest timber harvest values (all over \$4,000,000) would be affected by Marvin Nichols Reservoir.)
FREESE NICHOLS

4. Mitigation and the Effect of Mitigation on Impacts to Natural and Agricultural Resources

Developers of a new reservoir project are often required to provide mitigation for the impacts on natural resources in the form of land set aside, protected from development, and managed to enhance ecological value. Mitigation is generally only required for specific types of resources that would be impacted such as waters of the U.S. and the state, including wetlands. The developer of a project gets mitigation credit for improving the environmental functions of the land used for mitigation. The usual approach is to purchase degraded areas with limited environmental value and improve them through restoration, enhancement and careful management to achieve desired compensatory results at minimum cost.

Table 10 gives information on historical mitigation requirements for Texas reservoirs. Two additional reservoirs, Lower Bois d'Arc Creek Reservoir and Lake Ralph Hall, are currently in the permitting process, and mitigation requirements have not yet been finalized. Significant land has been acquired for mitigation for Lower Bois d'Arc Creek Reservoir, and the transaction was on a willing buyer-willing seller basis, with no condemnation of land.

Mitigation offsets the impacts of a project on natural resources by improving the ecological functions of other land. Mitigation would be expected to offset the impacts of the proposed Marvin Nichols Reservoir on natural resources. On the other hand, mitigation to protect natural resources may increase the impact on agricultural resources if the land acquired for mitigation is currently in agricultural use. (Because of the management of mitigation land to enhance ecological values, farming is unlikely to be allowed. Other agricultural uses, like timbering, would probably also be impossible or face significant controls and restrictions.)

Mitigation requirements for new reservoirs are generally determined during the permitting process, and the requirements for the proposed Marvin Nichols Reservoir are not yet known. Estimates of mitigation requirements have been developed as part of cost estimates for the project.¹⁴ The mitigation acreage required is estimated as twice the acreage of waters of the United States, other than non-stream open waters, that are impacted by the project. For the



proposed Marvin Nichols Reservoir, the acreage of potential waters of the U.S., other than nonstream open waters, was estimated to be 23,530 acres. The estimated mitigation requirement is twice that amount, or 47,060 acres. This is consistent with historical mitigation requirements for reservoirs in Texas. In the case of Marvin Nichols Reservoir, the land acquired for mitigation would probably include a large percentage of forested wetlands, which makes up most of the acreage of waters of the U.S. that would be affected by the reservoir. It should be emphasized that this is only an estimate. Actual mitigation requirements and location will be developed as permitting for the proposed reservoir proceeds. As discussed above, mitigation is intended to offset impacts on natural resources but may increase impacts to agricultural resources.

Project	Date Impounded	Conservation Pool Area (Acres)	Required Mitigation Area (Acres)	Mitigation Ratio	Comments	
Alan Henry	1993	2,884	3,000	1.04 to 1	Mitigation Downstream	
Applewhite	Not completed (permitted in 1989)	2,500	2,500	1.0 to 1	Planned mitigation downstream	
Chapman	1991	19,200	35,500	1.85 to 1	Mitigation next to reservoir and downstream	
Gilmer	1997	1,010	1,557	1.54 to 1		
Joe Pool	1986	7,470	0	None		
Mitchell County	1993	1,463	0	None		
O.H. Ivie	1990	19,149	5,990	0.31 to 1	Mitgation next to reservoir	
Palo Duro	1989	2,413	0	None		
Ray Roberts	1986	29,350	0	None		
Richland- Chambers	1987	44,752	13,700	0.31 to 1	Mitigation Downstream	

Table 10Mitigation Requirements for Texas Reservoirs



5. Additional Information

Table 11 shows the needs for additional water supplies in the Trinity and Sulphur Basins, taken from the Texas Water Development Board database for the 2011 regional water plans¹⁵. The Texas Water Development Board defines needs as the difference between the supply currently available and the projected demands for a water user group. Table 11 shows the sum of net needs by river basin and planning group. For suppliers that have a surplus, needs are set at zero. As the table shows, there is need for considerable additional water supply in the Trinity Basin, particularly in Region C.

Basin	Region	Sum of Supply Needs for All Suppliers (Acre-Feet)						
		2010	2020	2030	2040	2050	2060	
Trinity Basin	В	282	307	322	324	295	296	
	С	68,871	392,545	671,835	932,746	1,215,968	1,549,685	
	D	0	0	21	32	59	126	
	G	307	2,253	5,978	9,836	14,508	19,526	
	Н	32,364	39,404	45,526	51,129	57,515	64,565	
	I	21	116	466	846	1,265	1,802	
	Total	101,845	434,625	724,148	994,913	1,289,610	1,636,000	
Sulphur Basin	С	3	260	462	608	793	1,055	
	D	977	1,215	1,554	2,209	3,314	5,058	
	Total	980	1,475	2,016	2,817	4,107	6,113	

Table 11Needs for Additional Water Supply in the Trinity and Sulphur Basins

Appendix A

List of References

List of References

- 1. Freese and Nichols, Inc., Alan Plummer Associates, Inc., CP&Y, Inc., and Cooksey Communications, Inc. 2011 Region C Water Plan. October 2010.
- 2. Bucher Willis & Ratliff Corporation, Hayter Engineering, Inc., Hayes Engineering Company, Bob Bowman Associates, and LBG Guyton Associates. *Regional Water Plan Prepared for the Region D - North East Texas Regional Water Planning Group.* September 1, 2010.
- 3. Patteson, Kevin. Memo on *Resolution of the Interregional Conflict between the 2011 Region C and the Region D Regional Water Plans*. Austin: Texas Water Development Board, 19 May 2014. PDF.
- 4. Freese and Nichols, Inc. Environmental Evaluation Interim Report Sulphur River Basin Comparative Assessment. 2013.
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- 6. U.S. Geological Survey: Open-File Report 87-242, *Water Fact Sheet Largest Rivers in the United States*, Washington D.C., May 1990.
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- 8. Xu, Ph.d. Weihuan, and Publication 162. *The Economic Impact of the Proposed Marvin Nichols I Reservoir to the Northeast Texas Forest Industry* (n.d.): n. pag. Texas Forest Service, Aug. 2002. Web. 15 Oct. 2014.
- 9. Weinstein, Bernard L., Ph.D., and Terry L. Clower, Ph.D. The Economic, Fiscal, and Developmental Impacts of the Proposed Marvin Nichols Reservoir Project (n.d.): n. pag. The Sulphur River Basin Authority, Mar. 2003. Web. 15 Oct. 2014.
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- 13. Texas A&M Forest Service. *Harvest Trends 2013*. Texas A&M Forest Service. Sept. 2014. Web. 9 Oct. 2014.
- 14. Freese and Nichols, Inc., and MTG Engineers and Surveyors. *Sulphur River Basin Feasibility Study Cost Rollup Report*. Rep. N.p.: Sulphur Basin Group, n.d. Print.
- 15. 2012 Regional Water Planning Database (DB12). Texas Water Development Board, 2012. Downloaded 8 Oct. 2014.

Appendix B

Texas Water Development Board Interim Order of August 8, 2014

TEXAS WATER DEVELOPMENT BOARD



AN INTERIM ORDER

concerning the interregional conflict between the 2011 North Central Texas Regional Planning Area Regional Water Plan and the 2011 North East Texas Regional Planning Area Regional Water Plan in accordance with Texas Water Code § 16.053.

On August 7, 2014, the Texas Water Development Board (Board) considered the interregional conflict between the 2011 North Central Texas Regional Planning Area (Region C) Regional Water Plan and the 2011 North East Texas Regional Planning Area (Region D) Regional Water Plan.

After considering the oral argument of the parties and the filings in this matter, the Board determined that there was inadequate analysis and quantification of the impact of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS WATER DEVELOPMENT BOARD that:

1. Region C is directed to conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agriculture and natural resources of Region D and the State, pursuant to Sections 16.051 and 16.053 of the Texas Water Code and Chapters 357 and 358 of Board rules. Region C should submit this analysis and quantification to the Board by November 3, 2014. Upon receipt of the analysis and quantification, the Executive Administrator and Region D will be given the opportunity to submit a written response to the submission, and the matter will be scheduled for Board consideration. If no submittal is received by the Board on or before November 3, 2014, this matter will set for a Board Meeting to direct the Regions to revise

their regional water plans reflecting the removal of the Marvin Nichols Reservoir Water Management Strategy from the 2011 Region C Plan, without prejudice.

- 2. The Executive Administrator is directed to undertake an examination of current rules and guidance pertaining to the development of regional water plans, and identify any opportunities for: ensuring that future regional and state water planning efforts include all statutorily-required analyses; and defining "interregional conflict" in a manner that is consistent with the ruling of the 11th Court of Appeals in *Texas Water Development Board vs. Ward Timber, Ltd.,* 411 S.W.3d 554 (Tex. App.-Eastland 2013, no pet.).
- 3. The Region C and Region D regional water planning groups are encouraged to continue to participate in the Sulphur River Basin Study.

Issue Date: August 8, 2014

TEXAS WATER DEVELOPMENT BOARD

Carlos Rubinstein, Chairman

Appendix C

Texas Water Code Section 16.051

WATER CODE

TITLE 2. WATER ADMINISTRATION

SUBTITLE C. WATER DEVELOPMENT

CHAPTER 16. PROVISIONS GENERALLY APPLICABLE TO WATER DEVELOPMENT

SUBCHAPTER C. PLANNING

SEC. 16.051. STATE WATER PLAN: DROUGHT, CONSERVATION, DEVELOPMENT, AND MANAGEMENT; EFFECT OF PLAN.

(a) Not later than January 5, 2002, and before the end of each successive five-year period after that date, the board shall prepare, develop, formulate, and adopt a comprehensive state water plan that incorporates the regional water plans approved under Section 16.053. The state water plan shall provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions, in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the entire state.

(a-1) The state water plan must include:

(1) an evaluation of the state's progress in meeting future water needs, including an evaluation of the extent to which water management strategies and projects implemented after the adoption of the preceding state water plan have affected that progress; and

(2) an analysis of the number of projects included in the preceding state water plan that received financial assistance from the board.

(a-2) To assist the board in evaluating the state's progress in meeting future water needs, the board may obtain implementation data from the regional water planning groups.

(b) The state water plan, as formally adopted by the board, shall be a guide to state water policy. The commission shall take the plan into consideration in matters coming before it.

(c) The board by rule shall define and designate river basins and watersheds.

(d) The board, in coordination with the commission, the Department of Agriculture, and the Parks and Wildlife Department, shall adopt by rule guidance principles for the state water plan which reflect the public interest of the entire state. When adopting guidance principles, due consideration shall be given to the construction and improvement of surface water resources and the application of principles that result in voluntary redistribution of water resources. The board shall review and update the guidance principles, with input from the commission, the Department of Agriculture, and the Parks and Wildlife Department, as necessary but at least every five years to coincide with the five-year cycle for adoption of a new water plan as described in Subsection (a).

(e) On adoption the board shall deliver the state water plan to the governor, the lieutenant governor, and the speaker of the house of representatives and present the plan for review to the appropriate legislative committees. The plan shall include legislative recommendations that the board believes are needed and desirable to facilitate more voluntary water transfers. The plan shall identify river and stream segments of unique ecological value and sites of unique value for the construction of reservoirs that the board recommends for protection under this section.

(f) The legislature may designate a river or stream segment of unique ecological value. This designation solely means that a state agency or political subdivision of the state may not finance the actual construction of a reservoir in a specific river or stream segment designated by the legislature under this subsection.

(g) The legislature may designate a site of unique value for the construction of a reservoir. A state agency or political subdivision of the state may not obtain a fee title or an easement that would significantly prevent the construction of a reservoir on a site designated by the legislature under this subsection.

(g-1) Notwithstanding any other provisions of law, a site is considered to be a designated site of unique value for the construction of a reservoir if the site is recommended for designation in the 2007 state water plan adopted by the board and in effect on May 1, 2007. The designation of a unique reservoir site under this subsection terminates on September 1, 2015, unless there is an affirmative vote by a proposed project sponsor to make expenditures necessary in order to construct or file applications for permits required in connection with the construction of the reservoir under federal or state law.

(h) The board, the commission, or the Parks and Wildlife Department or a political subdivision affected by an action taken in violation of Subsection (f) or (g) may bring a cause of action to remedy or prevent the violation. A cause of action brought under this subsection must be filed in a district court in Travis County or in the county in which the action is proposed or occurring.

(i) For purposes of this section, the acquisition of fee title or an easement by a political subdivision for the purpose of providing retail public utility service to property in the reservoir site or allowing an owner of property in the reservoir site to improve or develop the property may not be considered a significant impairment that prevents the construction of a reservoir site under Subsection (g). A fee title or easement acquired under this subsection may not be considered the basis for preventing the future acquisition of land needed to construct a reservoir on a designated site.

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, Sec. 1, eff. Sept. 1, 1977; Acts 1985, 69th Leg., ch. 795, Sec. 1.046, eff. Sept. 1, 1985; Acts 1991, 72nd Leg., ch. 516, Sec. 4, eff. Sept. 1, 1991; Acts 1997, 75th Leg., ch. 1010, Sec. 1.01, eff. Sept. 1, 1997; Acts 1999, 76th Leg., ch. 456, Sec. 4, eff. June 18, 1999; Acts 1999, 76th Leg., ch. 1223, Sec. 2, eff. June 18, 1999; Acts 1999; Acts 2001, 77th Leg., ch. 966, Sec. 2.16, eff. Sept. 1, 2001.

Amended by:

Acts 2007, 80th Leg., R.S., Ch. 1430 (S.B. 3), Sec. 3.01, eff. September 1, 2007.

Acts 2007, 80th Leg., R.S., Ch. 1430 (S.B. 3), Sec. 4.01, eff. June 16, 2007.

Acts 2011, 82nd Leg., R.S., Ch. 1233 (S.B. 660), Sec. 8, eff. September 1, 2011.

Appendix D

Texas Water Code Section 16.053

WATER CODE

TITLE 2. WATER ADMINISTRATION

SUBTITLE C. WATER DEVELOPMENT

CHAPTER 16. PROVISIONS GENERALLY APPLICABLE TO WATER DEVELOPMENT

SUBCHAPTER C. PLANNING

SEC. 16.053. REGIONAL WATER PLANS.

(a) The regional water planning group in each regional water planning area shall prepare a regional water plan, using an existing state water plan identified in Section 16.051 of this code and local water plans prepared under Section 16.054 of this code as a guide, if present, that provides for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of that particular region.

(b) No later than September 1, 1998, the board shall designate the areas for which regional water plans shall be developed, taking into consideration such factors as river basin and aquifer delineations, water utility development patterns, socioeconomic characteristics, existing regional water planning areas, political subdivision boundaries, public comment, and other factors the board deems relevant. The board shall review and update the designations as necessary but at least every five years.

(c) No later than 60 days after the designation of the regions under Subsection (b), the board shall designate representatives within each regional water planning area to serve as the initial coordinating body for planning. The initial coordinating body may then designate additional representatives to serve on the regional water planning group. The initial coordinating body shall designate additional representatives if necessary to ensure adequate representation from the interests comprising that region, including the public, counties, municipalities, industries, agricultural interests, environmental interests, small businesses, electric generating utilities, river authorities, water districts, and water utilities. The regional water planning group shall maintain adequate representation from those interests. In addition, the groundwater conservation districts located in each management area, as defined by Section 36.001, located in the regional water planning area shall appoint one representative of a groundwater

conservation district located in the management area and in the regional water planning area to serve on the regional water planning group. In addition, representatives of the board, the Parks and Wildlife Department, and the Department of Agriculture shall serve as ex officio members of each regional water planning group.

(d) The board shall provide guidelines for the consideration of existing regional planning efforts by regional water planning groups. The board shall provide guidelines for the format in which information shall be presented in the regional water plans.

(e) Each regional water planning group shall submit to the development board a regional water plan that:

(1) is consistent with the guidance principles for the state water plan adopted by the development board under Section 16.051(d);

(2) provides information based on data provided or approved by the development board in a format consistent with the guidelines provided by the development board under Subsection (d);

(2-a) is consistent with the desired future conditions adopted under Section 36.108 for the relevant aquifers located in the regional water planning area as of the date the board most recently adopted a state water plan under Section 16.051 or, at the option of the regional water planning group, established subsequent to the adoption of the most recent plan;

(3) identifies:

(A) each source of water supply in the regional water planning area, including information supplied by the executive administrator on the amount of modeled available groundwater in accordance with the guidelines provided by the development board under Subsections (d) and (f);

(B) factors specific to each source of water supply to be considered in determining whether to initiate a drought response;

(C) actions to be taken as part of the response; and

(D) existing major water infrastructure facilities that may be used for interconnections in the event of an emergency shortage of water;

(4) has specific provisions for water management strategies to be used during a drought of record;

(5) includes but is not limited to consideration of the following:

(A) any existing water or drought planning efforts addressing all or a portion of the region;

 (B) approved groundwater conservation district management plans and other plans submitted under Section 16.054;

(C) all potentially feasible water management strategies, including but not limited to improved conservation, reuse, and management of existing water supplies, conjunctive use, acquisition of available existing water supplies, and development of new water supplies;

(D) protection of existing water rights in the region;

(E) opportunities for and the benefits of developing regional water supply facilities or providing regional management of water supply facilities;

(F) appropriate provision for environmental water needs and for the effect of upstream development on the bays, estuaries, and arms of the Gulf of Mexico and the effect of plans on navigation;

(G) provisions in Section 11.085(k)(1) if interbasin transfers are contemplated;

(H) voluntary transfer of water within the region using, but not limited to, regional water banks, sales, leases, options, subordination agreements, and financing agreements; and

(I) emergency transfer of water under Section 11.139, including information on the part of each permit, certified filing, or certificate of adjudication for nonmunicipal use in the region that may be transferred without causing unreasonable damage to the property of the nonmunicipal water rights holder;

(6) identifies river and stream segments of unique ecological value and sites of unique value for the construction of reservoirs that the regional water planning group recommends for protection under Section 16.051;

(7) assesses the impact of the plan on unique river and stream segments identified in Subdivision(6) if the regional water planning group or the legislature determines that a site of unique ecological value exists;

(8) describes the impact of proposed water projects on water quality; and

(9) includes information on:

(A) projected water use and conservation in the regional water planning area; and

(B) the implementation of state and regional water plan projects, including water conservation strategies, necessary to meet the state's projected water demands.

(e-1) On request of the Texas Water Advisory Council, a regional planning group shall provide the council a copy of that planning group's regional water plan.

(f) No later than September 1, 1998, the board shall adopt rules:

(1) to provide for the procedures for adoption of regional water plans by regional water planning groups and for approval of regional water plans by the board; and

(2) to govern procedures to be followed in carrying out the responsibilities of this section.

(g) The board shall provide technical and financial assistance to the regional water planning groups in the development of their plans. The board shall simplify, as much as possible, planning requirements in regions with abundant water resources. The board, if requested, may facilitate resolution of conflicts within regions.

(h)(1) Prior to the preparation of the regional water plan, the regional water planning group shall, after notice, hold at least one public meeting at some central location within the regional planning area to gather suggestions and recommendations from the public as to issues that should be addressed in the plan or provisions that should be considered for inclusion in the plan.

(2) The regional water planning group shall provide an ongoing opportunity for public input during the preparation of the regional water plan.

(3) After the regional water plan is initially prepared, the regional water planning group shall, after notice, hold at least one public hearing at some central location within the regional water planning area. The group shall make copies of the plan available for public inspection at least one month before the hearing by providing a copy of the plan in the county courthouse and at least

one public library of each county having land in the region. Notice for the hearing shall include a listing of these and any other location where the plan is available for review.

(4) After the regional water plan is initially prepared, the regional water planning group shall submit a copy of the plan to the board. The board shall submit comments on the regional water plan as to whether the plan meets the requirements of Subsection (e) of this section.

(5) If no interregional conflicts exist, the regional water planning group shall consider all public and board comments; prepare, revise, and adopt the final plan; and submit the adopted plan to the board for approval and inclusion in the state water plan.

(6) If an interregional conflict exists, the board shall facilitate coordination between the involved regions to resolve the conflict. If conflict remains, the board shall resolve the conflict. On resolution of the conflict, the involved regional water planning groups shall prepare revisions to their respective plans and hold, after notice, at least one public hearing at some central location within their respective regional water planning areas. The regional water planning groups shall consider all public and board comments; prepare, revise, and adopt their respective plans; and submit their plans to the board for approval and inclusion in the state water plan.

(7) The board may approve a regional water plan only after it has determined that:

(A) all interregional conflicts involving that regional water planning area have been resolved;

(B) the plan includes water conservation practices and drought management measures incorporating, at a minimum, the provisions of Sections 11.1271 and 11.1272; and

(C) the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles adopted under Section 16.051(d).

(8) Notice required by Subdivision (1), (3), or (6) of this subsection must be:

(A) published once in a newspaper of general circulation in each county located in whole or in part in the regional water planning area before the 30th day preceding the date of the public meeting or hearing; and

(B) mailed to:

(i) each mayor of a municipality with a population of 1,000 or more that is located in whole or in part in the regional water planning area;

(ii) each county judge of a county located in whole or in part in the regional water planning area;

(iii) each special or general law district or river authority with responsibility to manage or supply water in the regional water planning area;

(iv) each retail public utility that:

(a) serves any part of the regional water planning area; or

(b) receives water from the regional water planning area; and

(v) each holder of record of a permit, certified filing, or certificate of adjudication for the use of surface water the diversion of which occurs in the regional water planning area.

(9) Notice published or mailed under Subdivision (8) of this subsection must contain:

(A) the date, time, and location of the public meeting or hearing;

(B) a summary of the proposed action to be taken;

(C) the name, telephone number, and address of the person to whom questions or requests for additional information may be submitted; and

(D) information on how the public may submit comments.

(10) The regional water planning group may amend the regional water plan after the plan has been approved by the board. Subdivisions (1)-(9) apply to an amendment to the plan in the same manner as those subdivisions apply to the plan.

(11) This subdivision applies only to an amendment to a regional water plan approved by the board. This subdivision does not apply to the adoption of a subsequent regional water plan for submission to the board as required by Subsection (i). Notwithstanding Subdivision (10), the regional water planning group may amend the plan in the manner provided by this subdivision if the executive administrator makes a written determination that the proposed amendment qualifies for adoption in the manner provided by this subdivision before the regional water planning group votes on adoption of the amendment. A proposed amendment qualifies for

adoption in the manner provided by this subdivision only if the amendment is a minor amendment, as defined by board rules, that will not result in the overallocation of any existing or planned source of water, does not relate to a new reservoir, and will not have a significant effect on instream flows or freshwater inflows to bays and estuaries. If the executive administrator determines that a proposed amendment qualifies for adoption in the manner provided by this subdivision, the regional water planning group may adopt the amendment at a public meeting held in accordance with Chapter 551, Government Code. The proposed amendment must be placed on the agenda for the meeting, and notice of the meeting must be given in the manner provided by Chapter 551, Government Code, at least two weeks before the date the meeting is held. The public must be provided an opportunity to comment on the proposed amendment at the meeting.

(i) The regional water planning groups shall submit their adopted regional water plans to the board by January 5, 2001, for approval and inclusion in the state water plan. In conjunction with the submission of regional water plans, each planning group should make legislative recommendations, if any, to facilitate more voluntary water transfers in the region. Subsequent regional water plans shall be submitted at least every five years thereafter. Public participation for revised regional plans shall follow the procedures under Subsection (h).

(j) The board may provide financial assistance to political subdivisions under Subchapters E and F of this chapter, Subchapters C, D, E, F, J, O, Q, and R, Chapter 15, and Subchapters D, I, K, and L, Chapter 17, for water supply projects only if:

(1) the board determines that the needs to be addressed by the project will be addressed in a manner that is consistent with the state water plan;

(2) beginning January 5, 2002, the board:

(A) has approved a regional water plan as provided by Subsection (i), and any required updates of the plan, for the region of the state that includes the area benefiting from the proposed project; and

(B) determines that the needs to be addressed by the project will be addressed in a manner that is consistent with that regional water plan; and

(3) the board finds that the water audit required under Section16.0121 has been completed and filed.

(k) The board may waive the requirements of Subsection (j) of this section if the board determines that conditions warrant the waiver.

(I) A political subdivision may contract with a regional water planning group to assist the regional water planning group in developing or revising a regional water plan.

(m) A cause of action does not accrue against a regional water planning group, a representative who serves on the regional water planning group, or an employee of a political subdivision that contracts with the regional water planning group under Subsection (I) for an act or omission in the course and scope of the person's work relating to the regional water planning group.

(n) A regional water planning group, a representative who serves on the regional water planning group, or an employee of a political subdivision that contracts with the regional water planning group under Subsection (I) is not liable for damages that may arise from an act or omission in the course and scope of the person's work relating to the regional water planning group.

(o) The attorney general, on request, shall represent a regional water planning group, a representative who serves on the regional water planning group, or an employee of a political subdivision that contracts with the regional water planning group under Subsection (I) in a suit arising from an act or omission relating to the regional water planning group.

(p) If a groundwater conservation district files a petition with the development board stating that a conflict requiring resolution may exist between the district's approved management plan developed under Section 36.1071 and an approved state water plan, the development board shall provide technical assistance to and facilitate coordination between the district and the involved region to resolve the conflict. Not later than the 45th day after the date the groundwater conservation district files a petition with the development board, if the conflict has not been resolved, the district and the involved region shall mediate the conflict. The district and the involved region may seek the assistance of the Center for Public Policy Dispute Resolution at The University of Texas School of Law or an alternative dispute resolution system established under Chapter 152, Civil Practice and Remedies Code, in obtaining a qualified impartial third party to mediate the conflict. The cost of the mediation services must be specified in the agreement between the parties and the Center for Public Policy Dispute Resolution system. If the district and the involved region cannot resolve the conflict through mediation, the development board shall resolve the conflict not later than the 60th day after the date the mediation is completed as provided by Subsections (p-1) and (p-2).

(p-1) If the development board determines that resolution of the conflict requires a revision of an approved regional water plan, the development board shall suspend the approval of that plan and provide information to the regional water planning group. The regional water planning group shall prepare any revisions to its plan specified by the development board and shall hold, after notice, at least one public hearing at some central location within the regional water planning area. The regional water planning group shall consider all public and development board comments, prepare, revise, and adopt its plan, and submit the revised plan to the development board for approval and inclusion in the state water plan.

(p-2) If the development board determines that resolution of the conflict requires a revision of the district's approved groundwater conservation district management plan, the development board shall provide information to the district. The groundwater district shall prepare any revisions to its plan based on the information provided by the development board and shall hold, after notice, at least one public hearing at some central location within the district. The groundwater district shall consider all public and development board comments, prepare, revise, and adopt its plan, and submit the revised plan to the development board.

(p-3) If the groundwater conservation district disagrees with the decision of the development board under Subsection (p), the district may appeal the decision to a district court in Travis County. Costs for the appeal shall be set by the court hearing the appeal. An appeal under this subsection is by trial de novo.

(p-4) On the request of the involved region or groundwater conservation district, the development board shall include discussion of the conflict and its resolution in the state water plan that the development board provides to the governor, the lieutenant governor, and the speaker of the house of representatives under Section 16.051(e).

(q) Each regional planning group shall examine the financing needed to implement the water management strategies and projects identified in the group's most recent approved regional plan and, not later than June 1, 2002, shall report to the board regarding:

(1) how local governments, regional authorities, and other political subdivisions in the region propose to pay for water infrastructure projects identified in the plan; and

(2) what role the regional planning group proposes for the state in financing projects identified in the plan, giving particular attention to proposed increases in the level of state participation in funding for regional projects to meet needs beyond the reasonable financing capability of local governments, regional authorities, and other political subdivisions involved in building water infrastructure.

Text of subsection as added by Acts 2005, 79th Leg., R.S., Ch. 1200 (H.B. 578), Sec. 1

(r) Information described by Subsection (e)(3)(D) that is included in a regional water plan submitted to the board is excepted from required disclosure under the public information law, Chapter 552, Government Code.

Text of subsection as added by Acts 2005, 79th Leg., R.S., Ch. 1097 (H.B. 2201), Sec. 8 and amended by Acts 2007, 80th Leg., R.S., Ch. 1430 (S.B. 3), Sec. 2.15

(r) The board by rule shall provide for reasonable flexibility to allow for a timely amendment of a regional water plan, the board's approval of an amended regional water plan, and the amendment of the state water plan. If an amendment under this subsection is to facilitate planning for water supplies reasonably required for a clean coal project, as defined by Section 5.001, the rules may allow for amending a regional water plan without providing notice and without a public meeting or hearing under Subsection (h) if the amendment does not:

- (1) significantly change the regional water plan, as reasonably determined by the board; or
- (2) adversely affect other water management strategies in the regional water plan.

Amended by Acts 1977, 65th Leg., p. 2207, ch. 870, Sec. 1, eff. Sept. 1, 1977; Acts 1985, 69th Leg., ch. 795, Sec. 1.047, eff. Sept. 1, 1985; Acts 1997, 75th Leg., ch. 1010, Sec. 1.02, eff. Sept. 1, 1997; Acts 1999, 76th Leg., ch. 456, Sec. 5, eff. June 18, 1999; Acts 1999, 76th Leg., ch. 979, Sec. 5, eff. June 18, 1999; Acts 1999, 76th Leg., ch. 1180, Sec. 1, eff. June 18, 1999; Acts 1999, 76th Leg., ch. 1222, Sec. 2, eff. June 18, 1999; Acts 1999; Acts 1999, 76th Leg., ch. 1222, Sec. 2, eff. June 18, 1999; Acts 1999; Acts 1999, 76th Leg., ch. 1223, Sec. 3, eff. June 18, 1999; Acts 2001, 77th Leg., ch. 966, Sec. 2.17 to 2.19, eff. Sept. 1, 2001; Acts 2001, 77th Leg., ch. 1234, Sec. 25, eff. Sept. 1, 2001; Acts 2003, 78th Leg., ch. 1057, Sec. 5, eff. June 20, 2003; Acts 2003, 78th Leg., ch. 1275, Sec. 3(45), eff. Sept. 1, 2003.

Amended by:

Acts 2005, 79th Leg., Ch. 970 (H.B. 1763), Sec. 1, eff. September 1, 2005.

Acts 2005, 79th Leg., Ch. 1097 (H.B. 2201), Sec. 8, eff. June 18, 2005.

Acts 2005, 79th Leg., Ch. 1200 (H.B. 578), Sec. 1, eff. September 1, 2005.

Acts 2007, 80th Leg., R.S., Ch. 1430 (S.B. 3), Sec. 2.14, eff. September 1, 2007.

Acts 2007, 80th Leg., R.S., Ch. 1430 (S.B. 3), Sec. 2.15, eff. September 1, 2007.

Acts 2011, 82nd Leg., R.S., Ch. 595 (S.B. 181), Sec. 1, eff. June 17, 2011.

Acts 2011, 82nd Leg., R.S., Ch. 1233 (S.B. 660), Sec. 9, eff. September 1, 2011.

Appendix E

Texas Administrative Code Title 31 Part 10 Chapter 357: Regional Water Planning Rules

Next Rule>>

Texas Administrative Code

<u>TITLE 31</u>	NATURAL RESOURCES AND CONSERVATION
<u>PART 10</u>	TEXAS WATER DEVELOPMENT BOARD
<u>CHAPTER 357</u>	REGIONAL WATER PLANNING
SUBCHAPTER A	GENERAL INFORMATION
RULE §357.10	Definitions and Acronyms

The following words, used in this chapter, have the following meanings.

(1) Alternative water management strategy--A fully evaluated water management strategy that may be substituted into a regional water plan in the event that a recommended water management strategy is no longer recommended.

(2) Availability--Maximum amount of water available from a source during the drought of record, regardless of whether the supply is physically or legally available to water user groups.

(3) Board--The Texas Water Development Board.

(4) Collective Reporting Unit--A grouping of utilities located in the Regional Water Planning Area. Utilities within a Collective Reporting Unit must have a logical relationship, such as being served by common wholesale water providers, having common sources, or other appropriate associations.

(5) Commission--The Texas Commission on Environmental Quality.

(6) Consistency between a regional water plan and a desired future condition--A regional water plan is consistent with a desired future condition if the groundwater availability amount in the regional water plan and on which an existing water supply or recommended water management strategy relies does not exceed the modeled available groundwater amount associated with the desired future condition for the relevant aquifers. The desired future condition must be either the desired future condition adopted as of the date the Board most recently adopted a state water plan or, at the option of the regional water planning group, a desired future condition adopted on a subsequent date. (7) County-other--An aggregation of residential, commercial, and institutional water users in cities with less than 500 people or utilities that provide less than an average of 250,000 gallons per day, as well as unincorporated rural areas in a given county.

(8) Drought contingency plan--A plan required from wholesale and retail public water suppliers and irrigation districts pursuant to Texas Water Code §11.1272 (relating to Drought Contingency Plans for Certain Applicants and Water Right Holders). The plan may consist of one or more strategies for temporary supply and demand management and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies as required by the Commission.

(9) Drought management measures--Demand management activities to be implemented during drought that may be evaluated and included as water management strategies.

(10) Drought of record--The period of time when natural hydrological conditions provided the least amount of water supply.

(11) Executive administrator (EA)--The executive administrator of the Board or a designated representative.

(12) Existing water supply--Maximum amount of water available from existing sources for use during drought of record conditions that is physically and legally available for use by a water user group.

(13) Firm yield--Maximum water volume a reservoir can provide each year under a repeat of the drought of record using reasonable sedimentation rates and assuming that all senior water rights will be totally utilized.

(14) Interbasin transfer of surface water--Defined and governed in Texas Water Code §11.085 (relating to Interbasin Transfers) as the diverting of any state water from a river basin and transfer of that water to any other river basin.

(15) Interregional conflict--An interregional conflict exists when more than one regional water plan relies upon the same water source, so that there is not sufficient water available to fully implement both plans and would create an over-allocation of that source.

(16) Intraregional conflict--A conflict between two identified, quantified, and recommended water management strategies in the same adopted regional water plan that rely upon the same

water source, so that there is not sufficient water available to fully implement both water management strategies and thereby creating an over-allocation of that source.

(17) Initially Prepared Plan (IPP)--Draft regional water plans that are presented at a public hearing in accordance with §357.21(d) of this title (relating to Notice and Public Participation) and submitted for Board review and comment.

(18) Political subdivision--City, county, district, or authority created under the Texas Constitution, Article III, §52, or Article XVI, §59, any other political subdivision of the state, any interstate compact commission to which the state is a party, and any nonprofit water supply corporation created and operating under Texas Water Code Chapter 67 (relating to Nonprofit Water Supply or Sewer Service Corporations).

(19) Regional water plan (RWP)--The plan adopted or amended by a regional water planning group pursuant to Texas Water Code §16.053 (relating to Regional Water Plans) and this chapter.

(20) Regional water planning area (RWPA)--Area designated pursuant to Texas Water Code §16.053.

(21) Regional water planning group (RWPG)--Group designated pursuant to Texas Water Code §16.053.

(22) Retail public utility--Defined in Texas Water Code §13.002 (relating to Water Rates and Services) as "any person, corporation, public utility, water supply or sewer service corporation, municipality, political subdivision or agency operating, maintaining, or controlling in this state facilities for providing potable water service or sewer service, or both, for compensation."

(23) State Drought Preparedness Plan--A plan, separate from the state water plan, that is developed by the Drought Preparedness Council for the purpose of mitigating the effects of drought pursuant to Texas Water Code §16.0551 (relating to State Drought Preparedness Plan).

(24) State Drought Response Plan--A plan prepared and directed by the chief of the Texas Division of Emergency Management for the purpose of managing and coordinating the drought response component of the State Water Plan and the State Drought Preparedness Plan pursuant to Texas Water Code §16.055 (relating to Drought Response Plan).

(25) State Water Plan--The most recent state water plan adopted by the Board under the Texas Water Code §16.051 (relating to State Water Plan).

(26) Water conservation measures--Practices, techniques, and technologies that will reduce the consumption of water, reduce the loss of waste or water, or improve the efficiency in the use of water that may be presented as water management strategies.

(27) Water Conservation Plan--The most current plan required by Texas Water Code §11.1271 (relating to Water Conservation Plans) from an applicant for a new or amended water rights permit and from any holder of a permit, certificate, etc. who is authorized to appropriate more than 1,000 acre-feet per year or more for municipal, industrial, and other non-irrigation uses and for those who are authorized to appropriate 10,000 acre-feet per year or more for irrigation, and the most current plan required by Texas Water Code §13.146 from a retail public utility that provides potable water service to 3,300 or more connections These plans must include specific, quantified 5-year and 10-year targets for water savings.

(28) Water Management Strategy--A plan or specific project to meet a need for additional water by a discrete user group, which can mean increasing the total water supply or maximizing an existing supply, including through reducing demands.

(29) Water User Group (WUG)--Identified user or group of users for which water demands and water supplies have been identified and analyzed and plans developed to meet water needs. These include:

(A) Incorporated Census places of a population greater than 500, including select
Census Designated Places, such as significant military bases or cases in which the Census
Designated Place is the only Census place in the county;

(B) Retail public utilities providing more than 280 acre-feet per year for municipal use;

(C) Collective Reporting Units, or groups of retail public utilities that have a common association;

(D) Municipal and domestic water use, referred to as county-other, not included in subparagraphs (A) - (C) of this paragraph; and

(E) Non-municipal water use including manufacturing, irrigation, steam electric power generation, mining, and livestock watering for each county or portion of a county in a RWPA.

(30) Wholesale Water Provider (WWP)--Any person or entity, including river authorities and irrigation districts, that has contracts to sell more than 1,000 acre-feet of water wholesale in any one year during the five years immediately preceding the adoption of the last regional water plan. The regional water planning groups shall include as wholesale water providers other persons and entities that enter or that the regional water planning group expects or recommends to enter contracts to sell more than 1,000 acre-feet of water wholesale during the period covered by the plan.

RULE §357.11 **Designations**

(a) The Board shall review and update the designations of RWPAs as necessary but at least every five years, on its own initiative or upon recommendation of the executive administrator. The Board shall provide 30 days notice of its intent to amend the designations of RWPAs by publication of the proposed change in the *Texas Register* and by mailing the notice to each mayor of a municipality with a population of 1,000 or more or which is a county seat that is located in whole or in part in the RWPAs proposed to be impacted, to each water district or river authority located in whole or in part in the RWPA based upon lists of such water districts and river authorities obtained from the Commission, and to each county judge of a county located in whole or in part in the RWPAs proposed to be impacted. After the 30 day notice period, the Board shall hold a public hearing at a location to be determined by the Board before making any changes to the designation of a RWPA.

(b) If upon boundary review the Board determines that revisions to the boundaries are necessary, the Board shall designate areas for which regional water plans shall be developed, taking into consideration factors such as:

- (1) River basin and aquifer delineations;
- (2) Water utility development patterns;
- (3) Socioeconomic characteristics;
- (4) Existing regional water planning areas;
- (5) Political subdivision boundaries;

(6) Public comment; and

(7) Other factors the Board deems relevant.

(c) After an initial coordinating body for a regional water planning group is named by the Board, the RWPGs shall adopt, by two-thirds vote, bylaws that are consistent with provisions of this chapter. Within 30 days after the Board names members of the initial coordinating body, the executive administrator shall provide to each member of the initial coordinating body a set of model bylaws which the RWPG shall consider. The RWPG shall provide copies of its bylaws and any revisions thereto to the executive administrator. The bylaws adopted by the RWPG shall at a minimum address the following elements:

(1) definition of a quorum necessary to conduct business;

(2) method to be used to approve items of business including adoption of regional water plans or amendments thereto;

(3) methods to be used to name additional members;

(4) terms and conditions of membership;

(5) methods to record minutes and where minutes will be archived as part of the public record; and

(6) methods to resolve disputes between RWPG members on matters coming before the RWPG.

(d) RWPGs shall maintain at least one representative of each of the following interest categories as voting members of the RWPG. However, if a RWPA does not have an interest category below, then the RWPG shall so advise the EA and no membership designation is required.

(1) Public, defined as those persons or entities having no economic interest in the interests represented by paragraphs (2) - (12) of this subsection other than as a normal consumer;

(2) Counties, defined as the county governments for the 254 counties in Texas;

(3) Municipalities, defined as governments of cities created or organized under the general, home-rule, or special laws of the state;

(4) Industries, defined as corporations, partnerships, sole proprietorships, or other legal entities that are formed for the purpose of making a profit and which produce or manufacture goods or services and which are not small businesses;

(5) Agricultural interests, defined as those persons or entities associated with production or processing of plant or animal products;

(6) Environmental interests, defined as those persons or groups advocating the conservation of the state's natural resources, including but not limited to soil, water, air, and living resources;

(7) Small businesses, defined as corporations, partnerships, sole proprietorships, or other legal entities that are formed for the purpose of making a profit, are independently owned and operated, and have fewer than 100 employees or less than \$1 million in gross annual receipts;

(8) Electric generating utilities, defined as any persons, corporations, cooperative corporations, or any combination thereof, meeting each of the following three criteria: own or operate for compensation equipment or facilities which produce or generate electricity; produce or generate electricity for either wholesale or retail sale to others; and are neither a municipal corporation nor a river authority;

(9) River authorities, defined as any districts or authorities created by the legislature which contain areas within their boundaries of one or more counties and which are governed by boards of directors appointed or designated in whole or part by the governor or board, including, without limitation, San Antonio River Authority and Palo Duro River Authority;

(10) Water districts, defined as any districts or authorities, created under authority of either Texas Constitution, Article III, §52(b)(1) and (2), or Article XVI, §59 including districts having the authority to regulate the spacing of or production from water wells, but not including river authorities;

(11) Water utilities, defined as any persons, corporations, cooperative corporations, or any combination thereof that provide water supplies for compensation except for municipalities, river authorities, or water districts; and (12) Groundwater management areas, defined as a single representative for each groundwater management area that is at least partially located within a RWPA. Defined as a representative from a groundwater conservation district that is appointed by the groundwater conservation districts within the associated groundwater management area.

(e) The RWPGs shall add the following non-voting members, who shall receive meeting notifications and information in the same manner as voting members:

(1) Staff member of the Board to be designated by the EA;

(2) Staff member of the Texas Parks and Wildlife Department designated by its executive director;

(3) Member designated by each adjacent RWPG to serve as a liaison;

(4) One or more persons to represent those entities with headquarters located in another RWPA and which holds surface water rights authorizing a diversion of 1,000 acre-feet a year or more in the RWPA, which supplies water under contract in the amount of 1,000 acre-feet a year or more to entities in the RWPA, or which receives water under contract in the amount of 1,000 acre-feet a year or more from the RWPA; and

(5) Staff member of the Texas Department of Agriculture designated by its commissioner.

(f) Each RWPG shall provide a current list of its members to the EA; the list shall identify the interest represented by each member including interests required in subsection (d) of this section.

(g) Each RWPG, at its discretion, may at any time add additional voting and non-voting representatives to serve on the RWPG for any new interest category, including additional representatives of those interests already listed in subsection (d) of this section that the RWPG considers appropriate for water planning.

(h) Each RWPG, at its discretion, may remove individual voting or non-voting members or eliminate RWPG representative positions in accordance with the RWPG bylaws as long as

minimum requirements of RWPG membership are maintained in accordance with subsection (d) of this section.

(i) RWPGs may enter into formal and informal agreements to coordinate, avoid conflicts, and share information with other RWPGs or any other interests within any RWPA for any purpose the RWPGs consider appropriate including expediting or making more efficient water planning efforts. These efforts may involve any portion of the RWPG membership. Any plans or information developed through these efforts by RWPGs or by committees may be included in a RWP only upon approval of the RWPG.

(j) Upon request, the EA will provide technical assistance to RWPGs, including on water supply and demand analysis, methods to evaluate the social and economic impacts of not meeting needs, and regarding drought management measures and water conservation practices.

RULE §357.12 General Regional Water Planning Group Responsibilities and Procedures

(a) Prior to the preparation for the RWPs, in accordance with the public participation requirements in §357.21 of this title (relating to Notice and Public Participation), the RWPGs shall:

(1) hold at least one public meeting to gather suggestions and recommendations from the public as to issues that should be addressed or provisions that should be included in the next regional or state water plan;

(2) prepare a scope of work that includes a detailed description of tasks to be performed, identifies responsible parties for task execution, a task schedule, task and expense budgets, and describes interim products, draft reports, and final reports for the planning process;

(3) approve any amendments to the scope of work only in an open meeting of the RWPG where notice of the proposed action was provided in accordance with §357.21 of this title; and

(4) designate a political subdivision as a representative of the RWPG eligible to apply for financial assistance for scope of work and RWP development pursuant to Chapter 355, Subchapter C of this title (relating to Regional Water Planning Grants).

(b) A RWPG shall hold a public meeting to determine the process for identifying potentially feasible water management strategies; the process shall be documented and shall include input received at the public meeting; after reviewing the potentially feasible strategies using the documented process, then the RWPG shall list all possible water management strategies that are potentially feasible for meeting a need in the region. The public meeting under this subsection shall be in accordance with the requirements of §357.21(b) of this title.

(c) If applicable, and approved by the EA, implement simplified planning in accordance with guidance to be provided by the EA. If a RWPG determines in its analysis of water needs that it has sufficient supplies in the RWPA to meet water needs for the 50-year planning period, RWPGs may conduct simplified regional water planning as follows:

(1) identify water supplies that are available for voluntary redistribution in a RWPA or to other RWPAs;

(2) where appropriate, adopt previous RWP or state water plan information, updated as necessary, as the RWP; and

(3) other activities upon approval of the EA necessary to complete a RWP that meets rule and statute requirements.

RULE §357.20 Guidance Principles for State and Regional Water Planning

Development of the state water plan and of RWPs shall be guided by the principles stated in §358.3 of this title (relating to Guidance Principles).

RULE §357.21 Notice and Public Participation

(a) RWPGs shall conduct all business in meetings posted and held in accordance with the Texas Open Meetings Act, Texas Government Code Chapter 551, with a copy of all materials presented or discussed available for public inspection prior to and following the meetings and shall meet the additional notice requirements when specifically referenced as required under other subsections.

(b) All public notices required by this subsection shall comply with this section and shall meet the following requirements:

(1) These notice requirements apply to the following RWPG actions: regular RWPG meetings; amendments to the regional water planning scope of work or budget; process of identifying potentially feasible water management strategies; meetings to replace RWPG members or addition of new RWPG members; and adoption of regional water plans.

(2) Published 72 hours prior to the meeting.

(3) Notice shall include:

- (A) a date, time, and location of the meeting;
- (B) a summary of the proposed action to be taken; and
- (C) the name, telephone number, and address of the person to whom questions or requests for additional information may be submitted.
- (4) Entities to be notified include:

(A) all voting and non-voting RWPG members;

(B) any person or entity who has requested notice or RWPG activities either in writing or email, as requested by the person or entity; and

(C) each County Clerk, in writing, within the RWPA.

(5) Notice and agenda to be posted:

(A) On the website of the host political subdivision or on the Board website if requested by the RWPG; and

(B) Texas Secretary of State website.

(6) Documents to be made available on the internet or in hard copy for public inspection prior to and following meeting include:
(A) Agenda of meeting; and

(B) Copies of all materials presented or discussed at the meeting.

(c) Notice under this subsection shall meet the following requirements:

(1) These notice requirements apply to the following RWPG actions: population projection and water demand projection revision requests to officially adopted Board projections; substitution of alternative water management strategies; and minor amendments to RWPs.

(2) Notice of meetings under this subsection shall be published/postmarked on the internet, emailed, and mailed to the public before the 14th day preceding the date of the meeting.

(3) Notice shall include:

(A) a date, time, and location of the meeting;

(B) a summary of the proposed action to be taken;

(C) the name, telephone number, and address of the person to whom questions or requests for additional information may be submitted; and

(D) information that the RWPG will accept written and oral comments at the meetings and information on how the public may submit written comments separate from such meetings. The RWPG shall specify a deadline for submission of public written comments of not earlier than 14 days after the meeting.

(4) Entities to be notified include:

(A) all voting and non-voting RWPG members;

(B) any person or entity who has requested notice of RWPG activities either in writing or email, as requested by the person or entity;

(C) each County Clerk, in writing, within the RWPA; and

(D) each County Clerk in counties outside the RWPA where a recommended or alternative water management strategy being considered would be located.

(5) Notice and associated meeting agenda to be posted:

(A) On the website of the host political subdivision or on the Board website if requested by the RWPG; and

(B) Texas Secretary of State website.

(6) Documents to be made available on the internet or in hard copy for public inspection prior to and following meeting include:

(A) Agenda of meeting; and

(B) Copies of all materials, reports, plans presented or discussed at the meeting.

(7) Public comments to be accepted as follows:

(A) Written comments for 14 days prior to meeting with comments considered by RWPG members prior to action;

(B) Oral and written public comment during meeting; and

(C) Written comments must also be accepted for 14 days following the meeting and all comments received during the comment period must be submitted to the Board by the RWPG.

(d) Notice under this subsection shall meet the following requirements:

(1) These notice requirements apply to the following RWPG actions: holding a preplanning public meeting to obtain public input on development of the next RWP; major amendments to RWPs; holding hearings for IPPs; and requesting research and planning funds from the Board.

(2) Notice shall be published in a newspaper of general circulation in each county located in whole or in part in the RWPA as follows:

(A) before the 30th day preceding the date of the public meeting or hearing; and

(B) when applying for Board funding, at least 30 days prior to Board consideration of funding applications.

(3) Notice of the public meetings and public hearings shall include:

(A) a date, time, and location of the public meeting or hearing;

(B) a summary of the proposed action to be taken;

(C) the name, telephone number, and address of the person to whom questions or requests for additional information may be submitted; and

(D) information that the RWPG will accept written and oral comments at the hearings and information on how the public may submit written comments separate from such hearings. The RWPG shall specify a deadline for submission of public written comments as specified in paragraph (8)(A) of this subsection.

(4) If applying for Board funding, the notice shall include the name and address of the eligible applicant and the name of the applicant's manager or official representative; a brief description of the regional water planning area; the purposes of the planning project; the Board's name, address, and the name of a contact person with the Board; a statement that any comments must be filed with the EA and the applicant within 30 days of the date on which the notice is mailed or published. Prior to action by the Board, the applicant must provide one copy of the notice sent, a list of those to which the notice was sent, the date on which the notice was sent, copies of all notices as published showing name of the newspaper and the date on which the notice was published.

(5) RWPGs shall make copies of the IPP available for public inspection at least 30 days before a public hearing required or held by providing a copy of the IPP in at least one public library in each county and either the county courthouse's law library, the county clerk's office, or some other accessible place within the county courthouse of each county having land in the RWPA and include locations of such copies in the notice for public hearing. For distribution of the IPP and adopted RWP, the RWPG may consult and coordinate with county and local officials in determining the most appropriate location in the county courthouse to ensure maximum accessibility to the public during business hours. Additionally, the RWPG may consult with local and county officials in determining which public library in the county can provide maximum accessibility to the public. According to the capabilities of the facility, the RWPG may provide the copy electronically, on an electronic disc or drive, or in hard copy. The RWPG shall make an effort to ensure ease of access to the public, including where feasible, posting the IPP on websites and providing notice of such posting.

(6) Notice shall be mailed to, at a minimum, the following:

(A) Notification of all entities that are to be notified under subsection (c)(4) of this section;

(B) Each mayor of a municipality with a population of 1,000 or more or which is a county seat that is located in whole or in part in the RWPA;

(C) Each county judge of a county located in whole or in part in the RWPA;

(D) Each special or general law district or river authority with responsibility to manage or supply water in the RWPA based upon lists of such water districts and river authorities obtained from the Commission;

(E) Additionally, for public hearings or meetings to obtain input on development of a future RWP or a meeting or hearing associated with IPPs or major RWP amendments:

(i) each retail public utility, defined as a community water system, that serves any part of the RWPA or receives water from the RWPA based upon lists of such entities obtained from the Commission; and

(ii) each holder of record of a water right for the use of surface water the diversion of which occurs in the RWPA based upon lists of such water rights holders obtained from the Commission; and

(F) Additionally, a RWPG that intends to request Board funds for regional water planning must provide written notice to all other RWPGs.

(7) Notice and associated hearing and meeting agenda shall also be posted:

(A) On the website of the host political subdivision or on the Board website if requested by the RWPG;

(B) Texas Secretary of State website; and

(C) In the Texas Register.

(8) Public comments to be accepted as follows:

(A) Written comments submitted immediately following 30-day public notice posting and prior to and during meeting or hearing; and

(i) Until not earlier than 30-days following the date of the public hearing on a major amendment to a RWP.

(ii) Until not earlier than 60 days following the date of the public hearing on an IPP.

(B) Verbal public comments at the noticed meeting or hearing;

(C) Comments received must be considered as follows:

(i) Comments associated with hearings must be considered by RWPG members when adopting a RWP or adopting a major amendment to a RWP.

(ii) Comments associated with a preplanning meeting, scope of work development, and an application for funding to the Board must be considered prior to taking RWPG action.

RULE §357.22 General Considerations for Development of Regional Water Plans

(a) RWPGs shall consider existing local, regional, and state water planning efforts, including water plans, information and relevant local, regional, state and federal programs and goals when developing the regional water plan. The RWPGs shall also consider:

(1) water conservation plans;

(2) drought management and drought contingency plans;

(3) information compiled by the Board from water loss audits performed by retail public utilities pursuant to §358.6 of this title (relating to Water Loss Audits);

(4) publicly available plans for major agricultural, municipal, manufacturing and commercial water users;

(5) local and regional water management plans;

(6) water availability requirements promulgated by a county commissioners court in accordance with Texas Water Code §35.019 (relating to Priority Groundwater Management Areas);

(7) the Texas Clean Rivers Program;

(8) the U.S. Clean Water Act;

(9) water management plans;

(10) other planning goals including, but not limited to, regionalization of water and wastewater services where appropriate;

(11) approved groundwater conservation district management plans and other plans submitted under Texas Water Code §16.054 (relating to Local Water Planning);

(12) approved groundwater regulatory plans; and

(13) any other information available from existing local or regional water planning studies.

(b) The RWP shall contain a separate chapter for the contents of §§357.30, 357.31, 357.32, 357.33, 357.42, 357.43, 357.44, 357.45, and 357.50 of this title and shall also contain a separate chapter for the contents of §357.34 and §§357.35, 357.40 and 357.41 of this title for a total of eleven separate chapters.

RULE §357.30 Description of the Regional Water Planning Area

RWPGs shall describe their regional water planning area including the following:

(1) social and economic aspects of a region such as information on current population, economic activity and economic sectors heavily dependent on water resources;

(2) current water use and major water demand centers;

(3) current groundwater, surface water, and reuse supplies including major springs that are important for water supply or protection of natural resources;

(4) wholesale water providers;

(5) agricultural and natural resources;

(6) identified water quality problems;

(7) identified threats to agricultural and natural resources due to water quantity problems or water quality problems related to water supply;

(8) summary of existing local and regional water plans;

(9) the identified historic drought(s) of record within the planning area;

(10) current preparations for drought within the RWPA;

(11) information compiled by the Board from water loss audits performed by retail public utilities pursuant to §358.6 of this title (relating to Water Loss Audits); and

(12) an identification of each threat to agricultural and natural resources and a discussion of how that threat will be addressed or affected by the water management strategies evaluated in the plan.

RULE §357.31 Projected Population and Water Demands

(a) RWPs shall present projected population and water demands by WUG as defined in §357.10 of this title (relating to Definitions and Acronyms). If a WUG lies in one or more counties or RWPA or river basins, data shall be reported for each river basin, RWPA, and county split.

(b) RWPs shall present projected water demands associated with WWPs by category of water use, including municipal, manufacturing, irrigation, steam electric power generation, mining, and livestock for each county or portion of a county in the RWPA. If a county or portion of a county is in more than one river basin, data shall be reported for each river basin.

(c) RWPs shall report the current contractual obligations of WUG and WWPs to supply water in addition to any demands projected for the WUG or WWP. Information regarding obligations to supply water to other users must also be incorporated into the water supply analysis in §357.32 of this title (relating to Water Supply Analysis) in order to determine net existing water supplies available for each WUG's own use.

(d) Municipal demands shall be adjusted to reflect water savings due to plumbing fixture requirements identified in the Texas Health and Safety Code, Chapter 372. RWPGs will determine and report how changes in plumbing fixtures would affect projected municipal water demands using projections with plumbing code savings provided by the Board or by methods approved by the EA.

(e) Source of population and water demands. In developing RWPs, RWPGs shall use:

(1) Population and water demand projections developed by the EA that will be contained in the next state water plan and adopted by the Board after consultation with the RWPGs, Commission, Texas Department of Agriculture, and the Texas Parks and Wildlife Department. (2) RWPGs may request revisions of Board adopted population or water demand projections if the request demonstrates that population or water demand projections no longer represents a reasonable estimate of anticipated conditions based on changed conditions and or new information. Before requesting a revision to population and water demand projections, the RWPG shall discuss the proposed revisions at a public meeting for which notice has been posted in accordance with §357.21(c) of this title (relating to Notice and Public Participation). The RWPG shall summarize public comments received on the proposed request for projection revisions. The EA shall consult with the requesting RWPG and respond to their request within 45 days after receipt of a request from a RWPG for revision of population or water demand projections.

(f) Population and water demand projections shall be presented for each planning decade for each of the above reporting categories.

RULE §357.32 Water Supply Analysis

(a) RWPGs shall evaluate:

(1) source water availability during drought of record conditions; and

(2) existing water supplies that are legally and physically available to WUGs and wholesale water suppliers within the RWPA for use during the drought of record.

(b) Evaluations shall consider surface water and groundwater data from the state water plan, existing water rights, contracts and option agreements relating to water rights, other planning and water supply studies, and analysis of water supplies existing in and available to the RWPA during drought of record conditions.

(c) Evaluation of the existing surface water available during drought of record shall be based on firm yield. The analysis may be based on justified operational procedures other than firm yield. The EA shall consider a written request from a RWPG to use procedures other than firm yield. For surface water supply analysis, RWPGs will use most current Water Availability Models from the Commission to evaluate the adequacy of surface water supplies. RWPGs will assume full utilization of existing water rights and no return flows when using Water Availability Models. RWPGs may use other water availability modeling assumptions or better site-specific information with written approval from the EA. Information available from the Commission shall be incorporated by RWPGs unless better site-specific information is available.

(d) RWPGs shall use modeled available groundwater volumes for groundwater availability, as issued by the Board, and incorporate such information in its RWP unless no modeled available groundwater volumes are provided. Groundwater availability used in the RWP must be consistent with the desired future conditions as of the date the Board most recently adopted a state water plan or, at the discretion of the RWPG, established subsequent to the adoption of the most recent state water plan.

(e) RWPGs shall evaluate the existing water supplies for each WUG and WWP.

(f) Water supplies based on contracted agreements will be based on the terms of the contract, which may be assumed to renew upon contract termination if the contract contemplates renewal or extensions.

(g) Evaluation results shall be reported by WUG in accordance with §357.31(a) of this title (relating to Projected Population and Water Demands) and WWPs in accordance with §357.31(b) of this title.

RULE §357.33 Needs Analysis: Comparison of Water Supplies and Demands

(a) RWPs shall include comparisons of existing water supplies and projected water demands to identify water needs.

(b) RWPGs shall compare projected water demands, developed in accordance with §357.31 of this title (relating to Projected Population and Water Demands), with existing water supplies available to WUGs and WWPs in a planning area, as developed in accordance with §357.32 of this title (relating to Water Supply Analysis), to determine whether WUGs will experience water surpluses or needs for additional supplies. Results will be reported for WUGs and for WWPs by categories of use including municipal, manufacturing, irrigation, steam electric, mining, and livestock watering for each county or portion of a county in a RWPA.

(c) The social and economic impacts of not meeting water needs will be evaluated by RWPGs and reported for each RWPA.

(d) Results of evaluations will be reported by WUG in accordance with §357.31(a) of this title and WWPs in accordance with §357.31(b) of this title.

(e) RWPGs shall perform a secondary water needs analysis for all WUGs and WWPs for which conservation water management strategies or direct reuse water management strategies are recommended. This secondary water needs analysis will calculate the water needs that would remain after assuming all recommended conservation and direct reuse water management strategies are fully implemented. The resulting secondary water needs volumes shall be presented in the RWP by WUG and WWP and decade.

RULE §357.34 Identification and Evaluation of Potentially Feasible Water Management Strategies

(a) RWPGs shall identify and evaluate potentially feasible water management strategies for all WUGs and WWPs with identified water needs.

(b) RWPGs shall identify potentially feasible water management strategies to meet water supply needs identified in §357.33 of this title (relating to Needs Analysis: Comparison of Water Supplies and Demands) in accordance with the process in §357.12(b) of this title (relating to General Regional Water Planning Group Responsibilities and Procedures). Strategies shall be developed for WUGs and WWPs. The strategies shall meet new water supply obligations necessary to implement recommended water management strategies of WWPs and WUGs. RWPGs shall plan for water supply during Drought of Record conditions. In developing RWPs, RWPGs shall provide WMSs to be used during a drought of record.

(c) Potentially feasible water management strategies may include, but are not limited to:

(1) Expanded use of existing supplies including system optimization and conjunctive use of water resources, reallocation of reservoir storage to new uses, voluntary redistribution of water resources including contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements, subordination of existing water rights through voluntary agreements, enhancements of yields of existing sources, and improvement of water quality including control of naturally occurring chlorides. (2) New supply development including construction and improvement of surface water and groundwater resources, brush control, precipitation enhancement, desalination, water supply that could be made available by cancellation of water rights based on data provided by the Commission, rainwater harvesting, and aquifer storage and recovery.

(3) Conservation and drought management measures including demand management.

(4) Reuse of wastewater.

(5) Interbasin transfers of surface water.

(6) Emergency transfers of surface water including a determination of the part of each water right for non-municipal use in the RWPA that may be transferred without causing unreasonable damage to the property of the non-municipal water rights holder in accordance with Texas Water Code §11.139 (relating to Emergency Authorizations).

(d) Evaluations of potentially feasible water management strategies shall include the following analyses:

(1) For the purpose of evaluating potentially feasible water management strategies, the Commission's most current Water Availability Model with assumptions of no return flows and full utilization of senior water rights, is to be used. Alternative assumptions may be used with written approval from the EA who will consider a written request from a RWPG to use assumptions other than no return flows and full utilization of senior water rights.

(2) An equitable comparison between and consistent evaluation and application of all water management strategies the RWPGs determine to be potentially feasible for each water supply need.

(3) A quantitative reporting of:

(A) The net quantity, reliability, and cost of water delivered and treated for the end user's requirements during drought of record conditions, taking into account and reporting anticipated strategy water losses, incorporating factors used calculating infrastructure debt payments and may include present costs and discounted present value costs. Costs do not include distribution of water within a WUG after treatment. (B) Environmental factors including effects on environmental water needs, wildlife habitat, cultural resources, and effect of upstream development on bays, estuaries, and arms of the Gulf of Mexico. Evaluations of effects on environmental flows will include consideration of the Commission's adopted environmental flow standards under 30 TAC Chapter 298 (relating to Environmental Flow Standards for Surface Water). If environmental flow standards have not been established, then environmental information from existing site-specific studies, or in the absence of such information, state environmental planning criteria adopted by the Board for inclusion in the state water plan after coordinating with staff of the Commission and the Texas Parks and Wildlife Department to ensure that water management strategies are adjusted to provide for environmental water needs including instream flows and bays and estuaries inflows.

(C) Impacts to agricultural resources.

(4) Discussion of the plan's impact on other water resources of the state including other water management strategies and groundwater and surface water interrelationships.

(5) A discussion of each threat to agricultural or natural resources identified pursuant to §357.30(7) of this title (relating to Description of the Regional Water Planning Area) including how that threat will be addressed or affected by the water management strategies evaluated.

(6) If applicable, consideration and discussion of the provisions in Texas Water Code §11.085(k)(1) for interbasin transfers of surface water. At minimum, this consideration will include a summation of water needs in the basin of origin and in the receiving basin.

(7) Consideration of third-party social and economic impacts resulting from voluntary redistributions of water including analysis of third-party impacts of moving water from rural and agricultural areas.

(8) A description of the major impacts of recommended water management strategies on key parameters of water quality identified by RWPGs as important to the use of a water resource and comparing conditions with the recommended water management strategies to current conditions using best available data. (9) Consideration of water pipelines and other facilities that are currently used for water conveyance as described in §357.22(a)(3) of this title (relating to General Considerations for Development of Regional Water Plans).

(10) Other factors as deemed relevant by the RWPG including recreational impacts.

(e) RWPGs shall evaluate and present potentially feasible water management strategies with sufficient specificity to allow state agencies to make financial or regulatory decisions to determine consistency of the proposed action before the state agency with an approved RWP.

(f) Conservation, Drought Management Measures, and Drought Contingency Plans shall be considered by RWPGs when developing the regional plans, particularly during the process of identifying, evaluating, and recommending water management strategies. RWPs shall incorporate water conservation planning and drought contingency planning in the regional water planning area.

(1) Drought management measures including water demand management. RWPGs shall consider drought management measures for each need identified in §357.33 of this title and shall include such measures for each user group to which Texas Water Code §11.1272 (relating to Drought Contingency Plans for Certain Applicants and Water Right Holders) applies. Impacts of the drought management measures on water needs must be consistent with guidance provided by the Commission in its administrative rules implementing Texas Water Code §11.1272. If a RWPG does not adopt a drought management strategy for a need it must document the reason in the RWP. Nothing in this paragraph shall be construed as limiting the use of voluntary arrangements by water users to forgo water usage during drought periods.

(2) Water conservation practices. RWPGs must consider water conservation practices, including potentially applicable best management practices, for each identified water need.

(A) RWPGs shall include water conservation practices for each user group to which Texas Water Code §11.1271 and §13.146 (relating to Water Conservation Plans) apply. The impact of these water conservation practices on water needs must be consistent with requirements in appropriate Commission administrative rules related to Texas Water Code §11.1271 and §13.146.

(B) RWPGs shall consider water conservation practices for each WUG beyond the minimum requirements of subparagraph (A) of this paragraph, whether or not the WUG is subject to Texas Water Code §11.1271 and §13.146. If RWPGs do not adopt a water conservation strategy to meet an identified need, they shall document the reason in the RWP.

(C) For each WUG or WWP that is to obtain water from a proposed interbasin transfer to which Texas Water Code §11.085 (relating to Interbasin Transfers) applies, RWPGs will include a water conservation strategy, pursuant to Texas Water Code §11.085(1), that will result in the highest practicable level of water conservation and efficiency achievable. For these strategies, RWPGs will determine and report projected water use savings in gallons per capita per day based on its determination of the highest practicable level of water conservation and efficiency achievable. RWPGs will develop conservation strategies based on this determination. In preparing this evaluation, RWPGs will seek the input of WUGs and WWPs as to what is the highest practicable level of conservation and efficiency achievable, in their opinion, and take that input into consideration. RWPGs will develop water conservation strategies consistent with guidance provided by the Commission in its administrative rules that implement Texas Water Code §11.085. When developing water conservation strategies, the RWPGs must consider potentially applicable best management practices. Strategy evaluation in accordance with this section will include a quantitative description of the quantity, cost, and reliability of the water estimated to be conserved under the highest practicable level of water conservation and efficiency achievable.

(D) RWPGs shall consider strategies to address any issues identified in the information compiled by the Board from the water loss audits performed by retail public utilities pursuant to §358.6 of this title (relating to Water Loss Audits).

(g) RWPs shall include a subchapter consolidating the RWPG's recommendations regarding water conservation. RWPGs shall include in the RWPs model water conservation plans pursuant to Texas Water Code §11.1271.

RULE §357.35 Recommended and Alternative Water Management Strategies

(a) RWPGs shall recommend water management strategies to be used during a drought of record based on the potentially feasible water management strategies evaluated under §357.34 of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies).

(b) RWPGs shall recommend specific water management strategies based upon the identification, analysis, and comparison of water management strategies by the RWPG that the RWPG determines are potentially feasible so that the cost effective water management strategies that are environmentally sensitive are considered and adopted unless a RWPG demonstrates that adoption of such strategies is inappropriate. To determine cost-effectiveness and environmental sensitivity, RWPGs will follow processes described in §357.34 of this title. The RWP may include alternative water management strategies evaluated by the processes described in §357.34 of this title.

(c) Strategies will be selected by the RWPGs so that cost effective water management strategies, which are consistent with long-term protection of the state's water resources, agricultural resources, and natural resources are adopted.

(d) RWPGs shall identify and recommend water management strategies for all WUGs and WWPs with identified water needs and that meet all water needs during the drought of record except in cases where:

(1) no water management strategy is feasible. In such cases, RWPGs must explain why no management strategies are feasible; or

(2) a political subdivision that provides water supply other than water supply corporations, counties, or river authorities explicitly does not participate in the regional water planning process for needs located within its boundaries or extraterritorial jurisdiction.

(e) Specific recommendations of water management strategies to meet an identified need will not be shown as meeting a need for a political subdivision if the political subdivision in question

objects to inclusion of the strategy for the political subdivision and specifies its reasons for such objection. This does not prevent the inclusion of the strategy to meet other needs.

(f) Recommended strategies shall protect existing water rights, water contracts, and option agreements, but may consider potential amendments of water rights, contracts and agreements, which would require the eventual consent of the owner.

(g) RWPGs shall report the following:

(1) Recommended water management strategies and the associated results of all the potentially feasible water management strategy evaluations by WUG and WWP. If a WUG or WWP lies in one or more counties or RWPAs or river basins, data will be reported for each river basin, RWPA, and county.

(2) Calculated planning management supply factors for each WUG and WWP included in the RWP assuming all recommended water management strategies are implemented. This calculation shall be based on the sum of: the total existing water supplies, plus all water supplies from recommended water management strategies for each entity; divided by that entity's total projected water demand, within the planning decade. The resulting calculated safety factor shall be presented in the plan by entity and decade for every WUG and WWP.

(3) Fully evaluated Alternative Water Management Strategies included in the adopted RWP shall be presented together in one place in the RWP.

RULE §357.40 Impacts of Regional Water Plan

(a) RWPs shall include a quantitative description of the socioeconomic impacts of not meeting the identified water needs pursuant to §357.33(c) of this title (relating to Needs Analysis: Comparison of Water Supplies and Demands).

(b) RWPs shall include a description of the impacts of the RWP regarding:

(1) Agricultural resources pursuant to §357.34(d)(3)(C) of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies);

(2) Other water resources of the state including other water management strategies and groundwater and surface water interrelationships pursuant to §357.34(d)(4) of this title;

(3) Threats to agricultural and natural resources identified pursuant to §357.34(d)(5) of this title;

(4) Third-party social and economic impacts resulting from voluntary redistributions of water including analysis of third-party impacts of moving water from rural and agricultural areas pursuant to §357.34(d)(7) of this title;

(5) Major impacts of recommended water management strategies on key parameters of water quality pursuant to §357.34(d)(8) of this title; and

(6) Effects on navigation.

(c) RWPs shall include a summary of the identified water needs that remain unmet by the RWP.

RULE §357.41Consistency with Long-Term Protection of Water
Resources, Agricultural Resources, and Natural
Resources

RWPGs shall describe how RWPs are consistent with the long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles in §358.3(4) and (8) of this title (relating to Guidance Principles).

RULE §357.42 Drought Response Information, Activities, and Recommendations

(a) RWPs shall consolidate and present information on current and planned preparations for, and responses to, drought conditions in the region including, but not limited to, drought of record conditions based on the following subsections.

(b) RWPGs shall conduct an overall assessment of current preparations for drought within the RWPA including a description of how water suppliers in the RWPA identify and respond to the onset of drought. This may include information from local drought contingency plans.

(c) RWPGs shall develop drought response recommendations regarding the management of existing groundwater and surface water sources in the RWPA designated in accordance with §357.32 of this title (relating to Water Supply Analysis), including:

(1) Factors specific to each source of water supply to be considered in determining whether to initiate a drought response for each water source including specific recommended drought response triggers;

(2) Actions to be taken as part of the drought response by the manager of each water source and the entities relying on each source, including the number of drought stages; and

(3) Triggers and actions developed in paragraphs (1) and (2) of this subsection may consider existing triggers and actions associated with existing drought contingency plans.

(d) RWPGs will collect information on existing major water infrastructure facilities that may be used for interconnections in event of an emergency shortage of water. In accordance with Texas Water Code §16.053(r), this information is CONFIDENTIAL INFORMATION and cannot be disseminated to the public. The associated information is to be collected by a subgroup of RWPG members in a closed meeting and submitted separately to the EA in accordance with guidance to be provided by EA.

(e) RWPGs will provide general descriptions of local drought contingency plans that involve making emergency connections between water systems or WWP systems that do not include locations or descriptions of facilities that are disallowed under subsection (d) of this section.

(f) RWPGs may designate recommended and alternative drought management water management strategies and other recommended drought measures in the RWP including:

(1) List and description of the recommended drought management water management strategies and associated WUGs and WWPs, if any, that are recommended by the RWPG. Information to include associated triggers to initiate each of the recommended drought management water management strategies;

(2) List and description of alternative drought management water management strategies and associated WUGs and WWPs, if any, that are included in the plan.

Information to include associated triggers to initiate each of the alternative drought management water management strategies;

(3) List of all potentially feasible drought management water management strategies that were considered or evaluated by the RWPG but not recommended; and

(4) List and summary of any other recommended drought management measures, if any, that are included in the RWP, including associated triggers if applicable.

(g) The RWPGs shall evaluate potential emergency responses to local drought conditions or loss of existing water supplies; the evaluation shall include identification of potential alternative water sources that may be considered for temporary emergency use by WUGs and WWPs in the event that the existing water supply sources become temporarily unavailable to the WUGs and WWPs due to unforeseeable hydrologic conditions such as emergency water right curtailment, unanticipated loss of reservoir conservation storage, or other localized drought impacts. RWPGs shall evaluate, at a minimum, municipal WUGs that:

(1) have existing populations less than 7,500;

(2) rely on a sole source for its water supply regardless of whether the water is provided by a WWP; and

(3) all county-other WUGs.

(h) RWPGs shall consider any relevant recommendations from the Drought Preparedness Council.

(i) RWPGs shall make drought preparation and response recommendations regarding:

(1) Development of, content contained within, and implementation of local drought contingency plans required by the Commission;

(2) Current drought management preparations in the RWPA including:

(A) drought response triggers; and

(B) responses to drought conditions;

(3) The Drought Preparedness Council and the State Drought Preparedness Plan; and

(4) Any other general recommendations regarding drought management in the region or state.

(j) The RWPGs shall develop region-specific model drought contingency plans.

RULE §357.43 Regulatory, Administrative, or Legislative Recommendations

(a) The RWPs shall contain any regulatory, administrative, or legislative recommendations developed by the RWPGs.

(b) Ecologically Unique River and Stream Segments. RWPGs may include in adopted RWPs recommendations for all or parts of river and stream segments of unique ecological value located within the RWPA by preparing a recommendation package consisting of a physical description giving the location of the stream segment, maps, and photographs of the stream segment and a site characterization of the stream segment documented by supporting literature and data. The recommendation package shall address each of the criteria for designation of river and stream segments of ecological value found in this subsection. The RWPG shall forward the recommendation package to the Texas Parks and Wildlife Department and allow the Texas Parks and Wildlife Department 30 days for its written evaluation of the recommendation. The adopted RWP shall include, if available, Texas Parks and Wildlife Department's written evaluation of each river and stream segment recommended as a river or stream segment of unique ecological value.

(1) A RWPG may recommend a river or stream segment as being of unique ecological value based upon the criteria set forth in §358.2 of this title (relating to Definitions).

(2) For every river and stream segment that has been designated as a unique river or stream segment by the legislature, during a session that ends not less than one year before the required date of submittal of an adopted RWP to the Board, or recommended as a unique river or stream segment in the RWP, the RWPG shall assess the impact of the RWP on these segments. The assessment shall be a quantitative analysis of the impact of the plan on the flows important to the river or stream segment, as determined by the RWPG, comparing current conditions to conditions with implementation of all recommended water management strategies. The assessment shall also describe the

impact of the plan on the unique features cited in the region's recommendation of that segment.

(c) Unique Sites for Reservoir Construction. A RWPG may recommend sites of unique value for construction of reservoirs by including descriptions of the sites, reasons for the unique designation and expected beneficiaries of the water supply to be developed at the site. The criteria at §358.2 of this title shall be used to determine if a site is unique for reservoir construction.

(d) Any other recommendations that the RWPG believes are needed and desirable to achieve the stated goals of state and regional water planning including to facilitate the orderly development, management, and conservation of water resources and prepare for and respond to drought conditions.

(e) RWPGs may develop information as to the potential impacts of any proposed changes in law prior to or after changes are enacted.

(f) RWPGs should consider making legislative recommendations to facilitate more voluntary water transfers in the region.

RULE §357.44 Infrastructure Financing Analysis

RWPGs shall assess and quantitatively report on how individual local governments, regional authorities, and other political subdivisions in their RWPA propose to finance recommended water management strategies.

RULE §357.45 Implementation and Comparison to Previous Regional Water Plan

(a) RWPGs shall describe the level of implementation of previously recommended water management strategies. Information on the progress of implementation of all water management strategies that were recommended in the previous RWP, including conservation and drought management water management strategies; and the implementation of projects that have affected progress in meeting the state's future water needs.

(b) RWPGs shall provide a brief summary of how the RWP differs from the previously adopted RWP with regards to:

(1) Water demand projections;

(2) Drought of record and hydrologic and modeling assumptions used in planning for the region;

(3) Groundwater and surface water availability, existing water supplies, and identified water needs for WUGs and WWPs; and

(4) Recommended and alternative water management strategies.

RULE §357.50 Adoption, Submittal, and Approval of Regional Water Plans

(a) The RWPGs shall submit their adopted RWPs to the Board every five years on a date to be disseminated by the EA, as modified by subsection (e)(2) of this section, for approval and inclusion in the state water plan.

(b) Prior to the adoption of the RWP, the RWPGs shall submit concurrently to the EA and the public an IPP. The IPP submitted to the EA must be in the electronic and paper format specified by the EA. Each RWPG must certify that the IPP is complete and adopted by the RWPG.

(c) The RWPGs shall distribute the IPP in accordance with §357.21(d)(5) of this title (relating to Notice and Public Participation).

(d) The RWPGs shall solicit, and consider the following comments when adopting a RWP:

(1) the EA's written comments, which shall be provided to the RWPG within 120 days of receipt of the IPP;

(2) written comments received from any federal agency or Texas state agency, which the RWPGs shall accept after the first public hearing notice is published pursuant to §357.21(d) of this title until at least 90 days after the public hearing is held pursuant to §357.21(d) of this title; and (3) any written or oral comments received from the public after the first public hearing notice is published pursuant to §357.21(d) of this title until at least 60 days after the public hearing is held pursuant to §357.21(d) of this title.

(e) Submittal of RWPs. RWPGs shall submit the IPP and the adopted RWPs and amendments to approved RWPs to the EA in conformance with this section.

(1) RWPs shall include:

(A) The technical report and data prepared in accordance with this chapter and the EA's specifications;

(B) An executive summary that documents key RWP findings and recommendations; and

(C) Summaries of all written and oral comments received pursuant to subsection (d) of this section, with a response by the RWPG explaining how the plan was revised or why changes were not warranted in response to written comments received under subsection (d) of this section.

(2) RWPGs shall submit regional plans to the EA according to the following schedule:

(A) Initially prepared plans are due every five years on a date disseminated by the EA unless an extension is approved, in writing, by the EA.

(B) Prior to submission of the IPP, the RWPGs shall upload the data, metadata and all other relevant digital information supporting the plan to the Board's planning database system. All changes and corrections to this information must be entered into the Board's database prior to submittal of an adopted plan.

(C) The RWPG will transfer copies of all data, models, and reports generated by the planning process and used in developing the RWP to the EA. To the maximum extent possible, data shall be transferred in digital form according to specifications provided by the EA. One copy of all reports prepared by the RWPG shall be provided in digital format according to specifications provided by the EA. All digital mapping shall use a geographic information system according to specifications provided by the EA. The EA shall seek the input from the State Geographic Information Officer regarding specifications mentioned in this section.

(D) Adopted RWPs are due to the EA every five years on a date disseminated by the EA unless, at the discretion of the EA, a time extension is granted consistent with the timelines in Texas Water Code §16.053(i).

(E) Once approved by the Board, RWPs will be made available on the Board website.

(f) The RWPGs shall submit in a timely manner to the EA information on any known interregional conflict between RWPs.

(g) The RWPGs shall modify the RWP to incorporate Board resolutions of interregional conflicts.

(h) The RWPGs shall seek to resolve conflicts with other RWPGs and shall participate in any Board sponsored efforts to resolve interregional conflicts.

(i) Approval of RWPs by the Board. The Board may approve a RWP only after it has determined that the RWP complies with statute and rules.

(j) Upon receipt of a RWP adopted by the RWPG, the Board will consider approval of such plan based on the following criteria:

(1) The Board shall verify adoption of the RWP by the RWPG.

(2) The Board shall approve the plan only after it considers any information from RWPGs of the existence of an interregional conflict and finds that no interregional conflict exists. The Board shall not consider approval of a RWP unless all RWPs which could contain conflicts have also been submitted to the Board for approval, or the Board determines that such plans are not likely to be submitted.

(k) Board Adoption of State Water Plan. RWPs approved by the Board pursuant to this chapter shall be incorporated into the state water plan as outlined in §358.4 of this title (relating to Guidelines).

RULE §357.51 Amendments to Regional Water Plans

(a) Local Water Planning Amendment Requests. A political subdivision in the RWPA may request a RWPG to consider specific changes to an adopted RWP based on changed conditions or new information. A RWPG must formally consider such request within 180 days after its receipt and shall amend its adopted RWP if it determines an amendment is warranted. If the political subdivision is not satisfied with the RWPG's decision on the issue, it may file a petition with the EA to request Board review the decision and consider changing the approved RWP. The political subdivision shall send a copy of the petition to the chair of the affected RWPG.

(1) The petition must state:

(A) the changed condition or new information that affects the approved RWP;

(B) the specific sections and provisions of the approved RWP that are affected by the changed condition or new information;

(C) the efforts made by the political subdivision to work with the RWPG to obtain an amendment; and

(D) the proposed amendment to the approved RWP.

(2) If the EA determines that the changed condition or new information warrants a change in the approved RWP, the EA shall request the RWPG to consider making the appropriate change and provide the reason in writing. The political subdivision that submitted the petition will receive notice of any action requested of the RWPG by the EA. If the RWPG does not amend its plan consistent with the request within 90 days, the EA will present the issue to the Board for consideration at a public meeting. Before presenting the issue to the Board, the EA will provide the RWPG, the political subdivision submitting the petition, and any political subdivision determined by the EA to be affected by the issue 30 days notice.

(b) Major Amendments to RWPs and State Water Plan. A RWPG may amend an adopted RWP at any meeting, after giving notice for a major amendment and holding a hearing according to §357.21(d) of this title (relating to Notice and Public Participation). An amendment is major if it does not meet the criteria of subsection (c), (d) or (e) of this section. A RWPG may propose amendments to an approved RWP by submitting proposed amendments to the Board for its consideration and possible approval under the standards and procedures of this section.

(1) Initiation of a Major Amendment. An entity may request a RWPG amend its adopted RWP. A RWPG's consideration for action to initiate an amendment may occur at a regularly scheduled meeting.

(2) RWPG Public Hearing. The RWPG shall hold a public hearing on the amendment as defined in §357.21(d) of this title. The amendment shall be available for agency and

public comment at least 30 days prior to the public hearing and 30 days following the public hearing as defined in §357.21(d) of this title.

(3) The proposed major amendment:

(A) Shall not result in an over-allocation of an existing or planned source of water;

(B) Shall not produce unmet needs new to the adopted RWP; and

(C) Shall conform with rules applicable to RWP development as defined in Subchapters C and D of this chapter.

(4) RWPG Major Amendment Adoption. The RWPG may adopt the amendment at a regularly scheduled RWPG meeting held in accordance with §357.21(b) of this title following the 30-day public comment period held in accordance with §357.21(d) of this title. The amendment shall include response to comments received.

(5) Board Approval of Major Amendment. After adoption of the major amendment, the RWPG shall submit the amendment to the Board which shall consider approval of the amendment at its next regularly scheduled meeting following EA review of the amendment.

(c) Minor Amendments to RWPs and State Water Plan.

(1) Minor Amendment to RWP. A RWPG may amend its RWP by first providing a copy of the proposed amendment to the EA for a determination as to whether the amendment would be minor.

(2) EA Pre-Adoption Review. The EA shall evaluate the proposed minor amendment prior to the RWPG's vote to adopt the amendment. An amendment is minor if it meets the following criteria:

(A) does not result in over-allocation of an existing or planned source of water;

(B) does not relate to a new reservoir;

(C) does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries;

(D) does not have a significant substantive impact on water planning or previously adopted management strategies; and

(E) does not delete or change any legal requirements of the plan.

(3) Determination by EA. If the EA determines that the proposed amendment is minor,EA shall notify, in writing, the RWPG as soon as practicable.

(4) RWPG Public Meeting. After receipt of the written determination from the EA, the RWPG shall conduct a public meeting in accordance with §357.21(c) of this title. The public shall have an opportunity to comment and the RWPG shall amend the proposed minor amendment based on public comments, as appropriate, and to comply with existing statutes and rules related to regional water planning responses.

(5) Board Approval of Minor Amendment. After adoption of the minor amendment, the RWPG shall submit the amendment to the Board which shall approve the amendment at its next regularly scheduled meeting unless the amendment contradicts or is in substantial conflict with statutes and rules relating to regional water planning.

(d) Amendment for Water Planning for a Clean Coal Project. An amendment to a RWP or the state water plan to facilitate planning for water supplies reasonably required for a clean coal project, as defined by Texas Water Code §5.001, relating to the Texas Commission on Environmental Quality, shall be adopted by the process described in this section. However, a RWPG may amend the RWP to accommodate planning for a clean coal project without a public meeting or hearing if the EA determines that:

(1) the amendment does not significantly change the RWP; or

(2) the amendment does not adversely affect other water management strategies in the RWP.

(e) Substitution of Alternative Water Management Strategies. After notice is provided in accordance with §357.21(c) of this title, RWPGs may substitute one or more evaluated alternative water management strategies for a recommended strategy if the strategy originally recommended is no longer recommended and the substitution of the alternative water management strategy is capable of meeting the same water need. Proposed substitutions must receive written approval from the EA prior to substitution by the RWPG.

(f) Amending the State Water Plan. Following amendments of RWPs, including substitutions of alternative water management strategies, the Board shall make any necessary amendments to the state water plan as outlined in §358.4 of this title (relating to Guidelines).

RULE §357.60 Consistency of Regional Water Plans

(a) RWPGs shall submit to the development Board a RWP that is consistent with the guidance principles and guidelines outlined in §357.20 of this title (relating to Guidance Principles for State and Regional Water Planning). Information provided shall be based on data provided or approved by the Board in a format consistent with the guidelines of Subchapters C and D of this chapter and guidance by the EA.

(b) For the purposes of the Texas Water Code §16.053(j) (relating to Board Financial Assistance) projects proposed to the Board for funding will be considered to meet any need identified in an approved RWP in a manner consistent with the RWP if the project:

(1) Is an enhancement of a current water supply identified in the analysis developed under §357.32 of this title (relating to Water Supply Analysis) as meeting a demand, even though the project is not specifically recommended in the RWP;

(2) Involves a minor modification to an existing surface water right that is not in conflict with the RWP; and

(3) Is meeting a need in a manner consistent with the plan developed under Subchapters C and D of this chapter.

(4) For the purposes of the Texas Water Code §16.053(j), projects proposed to the Board for funding to meet any need identified in an approved RWP for which there is not a recommended water management strategy in such plan will be considered by the Board not to be consistent with the approved RWP.

(5) For the purposes of the Texas Water Code §16.053(k) (relating to Board Waivers), the Board may consider, among other factors, changed conditions if a political subdivision requests a waiver of the Texas Water Code §16.053(j) for a project proposed to the Board for funding to meet a need in a manner that is not consistent with the manner the need is addressed in an approved RWP. The Board shall request the

members of any affected RWPG to provide input on the request for waiver of the Texas Water Code §16.053(j).

(c) Relation to state and local plans. RWPs shall be consistent with Chapter 358 of this title (relating to State Water Planning Guidelines) and this chapter. RWPGs shall consider and use as a guide the state water plan and local water plans provided for in the Texas Water Code §16.054 (relating to Local Water Planning).

RULE §357.61 Intraregional Conflicts in Development of Regional Water Plans

The EA shall provide technical assistance within available resources to the RWPGs requesting such assistance in performing regional water planning activities and if requested, may facilitate resolution of conflicts within RWPAs.

RULE §357.62 Interregional Conflicts

(a) In the event the Board finds that an interregional conflict exists between adopted RWPs, the EA may use the following process:

(1) notify the affected RWPGs of the nature of the interregional conflict;

(2) request affected RWPGs assistance in resolving the conflict; and

(3) negotiate resolutions of conflicts with RWPGs as determined by the EA.

(b) In the event the negotiation is unsuccessful, the EA may:

(1) determine a proposed recommendation for resolution of the conflict;

(2) provide notice of its intent to hold a public hearing on proposed recommendations for resolution of the conflict by publishing notice of the proposed change in the Texas Register and in a newspaper of general circulation in each county located in whole or in part in the RWPAs involved in the dispute 30 days before the public hearing and by mailing notice of the public hearing 30 days before public hearing to those persons or entities listed in §357.21(d) of this title (relating to Notice and Public Participation) in the RWPAs proposed to be impacted, and to each county judge of a county located in whole or in part in the RWPAs proposed to be impacted to be impacted and to each affected RWPG;

(3) hold a public hearing on the proposed recommendation for resolution of the conflict at a time and place determined by the EA. At the hearing, the EA shall take comments from the RWPGs, political subdivisions, and members of the public on the issues identified by the Board as unresolved problems; and

(4) make a recommendation to the Board for resolution of the conflict.

(c) The Board shall consider the EA's recommendation and any written statements by a representative for each affected RWPG and determine the resolution of the conflict. The Board's decision is final and not appealable.

(d) The EA shall notify affected RWPGs of Board's decision and shall direct changes to the affected RWPs.

RULE §357.63 Failure of a Regional Water Plan to Meet Regional Water Planning Requirements

(a) In the event the Board finds that the RWP does not meet the requirements of the Texas Water Code §16.053, this chapter, and Chapter 358 of this title (relating to State Water Planning Guidelines), the Board shall direct the RWPG to make changes necessary for compliance with legal requirements.

(b) In the event the Board directs the RWPG to make changes to its RWP, the RWPG may request a reasonable amount of time, within any statutory deadlines, to complete the required changes.

RULE §357.64 Conflicts Between Regional Water Plans and Groundwater Management Plans

(a) A groundwater conservation district may file a written petition with the EA stating that a potential conflict exists between the district's approved management plan developed under Texas Water Code §36.1071 (relating to Management Plans) and the approved state water plan.
 A copy of the petition shall be provided to the affected RWPG. The petition must state:

(1) the specific nature of the conflict;

(2) the specific sections and provisions of the approved management plan and approved state water plan that are in conflict; and

(3) the proposed resolution to the conflict.

(b) If the EA determines a conflict exists, the EA will provide technical assistance to and coordinate with the groundwater conservation district and the affected RWPG to resolve the conflict. Coordination may include any of the following processes:

(1) requiring the RWPG to respond to the petition in writing;

(2) meeting with representatives from the groundwater conservation district and the RWPG to informally mediate the conflict; and/or

(3) coordinating a formal mediation session between representatives of the groundwater conservation district and the RWPG.

(c) If the parties do not reach resolution, the EA will recommend a resolution to the conflict to the Board within 60 days of the date the mediation is completed. Notice shall be provided at least 15 days prior to the date of the Board meeting to discuss the proposed resolution. The Board may:

- (1) revise an approved RWP; and
- (2) revise a district's approved management plan.

(d) If the Board requires a revision to the groundwater conservation district's approved management plan, the Board shall provide information to the groundwater conservation district on what revisions are required and why. The groundwater conservation district shall prepare any revisions to its plan based on the information provided by the Board and hold, after notice, at least one public hearing. The groundwater conservation district shall consider all public and Board comments, prepare, revise, and adopt its plan, and submit the revised plan to the Board pursuant to Chapter 356 of this title (relating to Groundwater Management). If the groundwater conservation district may appeal the decision to a district court in Travis County, Texas.

(e) If the Board requires a revision to the approved RWP, the Board shall provide information to the RWPG on what revisions are required and why. The RWPG shall prepare the revisions as a major amendment to their approved RWP pursuant to §357.51(b) of this title.

(f) At the Board's discretion, the Board shall include in the state water plan a discussion of the conflict and its resolution.

Appendix F

Texas Administrative Code Title 31 Part 10 Chapter 358: State Water Planning Guidelines

TITLE 31NATURAL RESOURCES AND CONSERVATIONPART 10TEXAS WATER DEVELOPMENT BOARDCHAPTER 358STATE WATER PLANNING GUIDELINESSUBCHAPTER ASTATE WATER PLAN DEVELOPMENTRULE §358.1Applicability

This subchapter governs the Board's preparation, development, formulation, and adoption of the state water plan.

RULE §358.2 **Definitions**

The following words and acronyms, used in this chapter, have the following meanings.

(1) Board--The Texas Water Development Board.

(2) Commission--The Texas Commission on Environmental Quality.

(3) Regional water plan (RWP)--The plan adopted or amended by a regional water planning group pursuant to Texas Water Code §16.053 (relating to Regional Water Plans) and Chapter 357 of this title (relating to Regional Water Planning).

(4) Regional water planning area--Area designated pursuant to Texas Water Code §16.053 and Chapter 357 of this title.

(5) Regional water planning group (RWPG)--Group designated pursuant to Texas Water Code §16.053 and Chapter 357 of this title.

(6) River and stream segments of unique ecological value--Those river or stream segments that may be identified by the Board in coordination with the Texas Parks and Wildlife Department and the Commission or identified in an approved regional water plan based on the following criteria:

(A) Biological function--stream segments which display significant overall habitat value including both quantity and quality considering the degree of biodiversity, age, and uniqueness observed and including terrestrial, wetland, aquatic, or estuarine habitats;

(B) Hydrologic function--stream segments which are fringed by habitats that perform valuable hydrologic functions relating to water quality, flood attenuation, flow stabilization, or groundwater recharge and discharge;

(C) Riparian conservation areas--stream segments which are fringed by significant areas in public ownership including state and federal refuges, wildlife management areas, preserves, parks, mitigation areas, or other areas held by governmental organizations for conservation purposes, or stream segments which are fringed by other areas managed for conservation purposes under a governmentally approved conservation plan;

(D) High water quality/exceptional aquatic life/high aesthetic value--stream segments and spring resources that are significant due to unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality; or

(E) Threatened or endangered species/unique communities--sites along stream where water development projects would have significant detrimental effects on state or federally listed

threatened and endangered species; and sites along streams significant due to the presence of unique, exemplary, or unusually extensive natural communities.

(7) Site of unique value for construction of reservoirs--Those sites identified by the Board in coordination with the Texas Parks and Wildlife Department and the Commission or identified in an approved regional water plan where:

(A) Site-specific reservoir development is recommended as a specific water management strategy or as a unique reservoir site in an adopted regional water plan; or

(B) The location, hydrologic, geologic, topographic, water availability, water quality, environmental, cultural, and current development characteristics, or other pertinent factors make the site uniquely suited for reservoir development to provide water supply for:

(i) The current planning period; or

(ii) Where it might reasonably be needed to meet needs beyond the 50-year planning period.
(8) State drought preparedness plan--A plan, separate from the state water plan, that is developed by the Drought Preparedness Council for the purpose of mitigating the effects of drought pursuant to Texas Water Code §16.0551 (relating to State Drought Preparedness Plan).

(9) State drought response plan--A plan prepared and directed by the chief of the Texas Division of Emergency Management for the purpose of managing and coordinating the drought response component of the state water plan and the state drought preparedness plan pursuant to Texas Water Code §16.055 (relating to Drought Response Plan).

(10) State water plan--The most recent comprehensive statewide water plan adopted by the Board under Texas Water Code §16.051 (relating to State Water Plan).

(11) Water management strategy--A plan or specific project to meet a need for additional water by a discrete user group, which can mean increasing the total water supply or maximizing an existing supply.

RULE §358.3 Guidance Principles

Development of the state water plan shall be guided by the following principles.

(1) The state water plan shall provide for the preparation for and response to drought conditions.

(2) The regional water plans and state water plan shall serve as water supply plans under drought of record conditions.

(3) Consideration shall be given to the construction and improvement of surface water resources and the application of principles that result in voluntary redistribution of water resources.

(4) Regional water plans shall provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions so that sufficient water will be available at a reasonable cost to satisfy a reasonable projected use of water to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the regional water planning area.

(5) Regional water plans shall include identification of those policies and action that may be needed to meet Texas' water supply needs and prepare for and respond to drought conditions.

(6) RWPG decision-making shall be open to and accountable to the public with decisions based on accurate, objective and reliable information with full dissemination of planning results except for those matters made confidential by law.

(7) The RWPG shall establish terms of participation in its water planning efforts that shall be equitable and shall not unduly hinder participation.

(8) Consideration of the effect of policies or water management strategies on the public interest of the state, water supply, and those entities involved in providing this supply throughout the entire state.

(9) Consideration of all water management strategies the regional water plan determines to be potentially feasible when developing plans to meet future water needs and to respond to drought so that cost effective water management strategies which are consistent with long-term protection of the state's water resources, agricultural resources, and natural resources are considered and approved.

(10) Consideration of opportunities that encourage and result in voluntary transfers of water resources, including but not limited to regional water banks, sales, leases, options, subordination agreements, and financing agreements.

(11) Consideration of a balance of economic, social, aesthetic, and ecological viability.

(12) For regional water planning areas without approved regional water plans or water providers for which revised plans are not developed through the regional water planning process, the use of information from the adopted state water plan and other completed studies that are sufficient for water planning shall represent the water supply plan for that area or water provider.

(13) All surface waters are held in trust by the state, their use is subject to rights granted and administered by the Commission, and the use of surface water is governed by the prior appropriation doctrine, unless adjudicated otherwise.

(14) Existing water rights, water contracts, and option agreements shall be protected. However, potential amendments of water rights, contracts and agreements may be considered and evaluated. Any amendments will require the eventual consent of the owner.

(15) The production and use of groundwater in Texas is governed by the rule of capture doctrine unless and to the extent that such production and use is regulated by a groundwater conservation district, as codified by the legislature at Texas Water Code §36.002 (relating to Ownership of Groundwater).

(16) Consideration of recommendations of river and stream segments of unique ecological value to the legislature for potential protection.

(17) Consideration of recommendation of sites of unique value for the construction of reservoirs to the legislature for potential protection.

(18) Consideration of water planning and management activities of local, regional, state, and federal agencies, along with existing local, regional, and state water plans and information and existing state and federal programs and goals.

(19) Designated water quality and related water uses as shown in the state water quality management plan shall be improved or maintained.

(20) Coordination of water planning and management activities of RWPGs to identify common needs and issues and achieve efficient use of water supplies, including the Board and other relevant RWPGs, working together to identify common needs, issues, and challenges while working together to resolve conflicts in a fair, equitable, and efficient manner.

(21) The water management strategies identified in approved RWPs to meet needs shall be described in sufficient detail to allow a state agency making a financial or regulatory decision to determine if a proposed action before the state agency is consistent with an approved RWP.
(22) The evaluation of water management strategies shall use environmental information in accordance with the Commission's adopted environmental flow standards under 30 TAC Chapter 298 (relating to Environmental Flow Standards for Surface Water) where applicable or, in basins where standards are not available or have not been adopted, information from existing site-specific studies or state consensus environmental planning criteria.

(23) Consideration of environmental water needs including instream flows and bay and estuary inflows, including adjustments by the RWPGs to water management strategies to provide for environmental water needs including instream flows and bay and estuary needs. Consideration shall be consistent with the Commission's adopted environmental flow standards under 30 TAC Chapter 298 in basins where standards have been adopted.

(24) Planning shall be consistent with all laws applicable to water use for the state and regional water planning area.

(25) The inclusion of ongoing water development projects that have been permitted by the Commission or a predecessor agency.

(26) Specific recommendations of water management strategies shall be based upon identification, analysis, and comparison of all water management strategies the RWPG determines to be potentially feasible so that the cost effective water management strategies which are environmentally sensitive are considered and adopted unless the RWPG demonstrates that adoption of such strategies is not appropriate. To determine cost-effectiveness, the RWPGs will use the process described in §357.34(d)(3)(A) of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies) and, to determine environmental sensitivity, the RWPGs shall use the process described in §357.34(d)(3)(B) of this title.

(27) RWPGs shall conduct their planning to achieve efficient use of existing water supplies, explore opportunities for and the benefits of developing regional water supply facilities or providing regional management of water facilities, coordinate the actions of local and regional water resource management agencies, provide substantial involvement by the public in the decision-making process, and provide full dissemination of planning results.

(28) RWPGs must consider existing regional water planning efforts when developing their plans.

RULE §358.4 Guidelines

(a) The executive administrator shall prepare, develop, and formulate the state water plan and the Board shall adopt a state water plan pursuant to the schedule in Texas Water Code §16.051. The executive administrator shall identify the beginning of the 50-year planning period for the state and regional water plans. The executive administrator shall incorporate into the state water plan presented to the Board those regional water plans approved by the Board pursuant to Texas Water Code §16.053 and Chapter 357 of this title (relating to Regional Water Planning). The Board shall, not less than 30 days before adoption or amendment of the state water plan, publish notice in the *Texas Register* of its intent to adopt a state water plan and shall mail notice to each regional water planning group. The Board shall hold a hearing, after which it may adopt a water plan or amendments thereto.

(b) The state water plan shall include summaries for the state and from approved regional water plans, when available, which shall address, at a minimum, the following topics:

(1) Basis for planning, including sections on planning history, Texas water statutes, rules, regulations, and Texas' water supply institutions;

(2) Description of methods used for projecting future water demands which shall include methods for projecting future population and water demands for municipal and associated commercial and institutional uses, manufacturing, irrigation, steam electric power generation, mining, and livestock watering;

(3) Description of methods to address water quality problems related to water supply, to ensure public health, safety and welfare, to further economic growth, to protect agricultural and natural resources, to determine water supply availability, and to address drought response planning; (4) Description of future conditions which shall, at a minimum, include:

(A) Demands for water;

(B) Supplies currently available;

(C) Comparison of water demand and supply to identify surpluses or needs of water;

(D) Social and economic impact of not meeting needs;

(E) Recommended solutions to meet needs;

(F) Needs for which no feasible water management strategy exists; and

(G) descriptions in subparagraphs (A) - (F) of this paragraph shall be presented for each county and basin by the major providers of water for municipal uses and for the following water use categories: municipal and associated commercial and institutional uses; manufacturing; irrigation; steam electric power generation; mining; and livestock watering;

(5) Consideration of recommendations of river and stream segments of unique ecological value and sites of unique value for construction of reservoirs to the legislature for potential protection;

(6) Regulatory, administrative, and legislative recommendations that the Board believes are needed and desirable to facilitate the orderly development, management, and conservation of water resources, to facilitate more voluntary water transfers, and the preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety and welfare, further economic development, and protect the agricultural and natural resources of the entire state;

(7) The progress in meeting future water needs, including an evaluation of implementation of all water management strategies that were recommended in the previous state water plan and projects funded by the Board; and

(8) Current and planned preparations for, and responses to, drought conditions in the state to be used in the development of the state's drought preparedness plan by the Drought Preparedness Council.

SUBCHAPTER B	DATA COLLECTION
RULE §358.5	Groundwater and Surface Water Use

The executive administrator shall conduct surveys at least annually of persons and/or entities using groundwater and surface water for municipal, industrial, power generation, or mining purposes to gather data to be used for long-term water supply planning. The survey instrument will identify which responses are required and which are optional. The executive administrator will send the surveys to the appropriate recipients by first-class mail, electronic mail, or both. Recipients shall return the survey to the executive administrator within 60 days of the postmark date or electronic mail sent date. Surveys may be returned to the executive administrator

electronically. The executive administrator shall determine if the survey is administratively complete. A survey is administratively complete if all required responses are provided. Incomplete surveys will be returned to the recipient, who will have 60 days from the new postmark date or electronic mail sent date to complete the items found deficient and return the survey to the executive administrator. A person or entity that fails to return their survey within 60 days or correct a survey that is not administratively complete within 60 days is ineligible for funding from board programs. Ineligibility will remain until the incomplete survey instruments are submitted to the executive administrator and determined to be administratively complete. Further, a person who fails to complete and return the survey commits an offense that is punishable as a Class C misdemeanor, pursuant to Texas Water Code §16.012(m).

RULE §358.6 Water Loss Audits

(a) In accordance with Texas Water Code §16.0121, a retail public utility, as defined by Texas Water Code §13.002, that provides potable water shall perform a water loss audit and file with the executive administrator a water loss audit computing the utility's system water loss during the preceding calendar year, unless a different 12-month period is allowed by the executive administrator. The water loss audit may be submitted electronically.

(1) Audit required annually. The utility must file the water loss audit with the executive administrator annually by May 1st if the utility:

(A) has greater than 3,300 connections; or

(B) is receiving financial assistance from the board, regardless of the number of connections. A retail public utility is receiving financial assistance from the board if it has an outstanding loan, loan forgiveness agreement, or grant agreement from the board.

(2) Audit required every five years. The utility must file the water loss audit with the executive administrator by May 1, 2016, and every five years thereafter by May 1st if the utility has 3,300 or fewer connections and is not receiving financial assistance from the board.

(3) The water loss audit shall be performed in accordance with methodologies developed by the executive administrator based on the population served by the utility and taking into consideration the financial feasibility of performing the water loss audit, population density in the service area, the retail public utility's source of water supply, the mean income of the service population, and any other factors determined by the executive administrator. The executive administrator will provide the necessary forms and methodologies to the retail public utility.

(4) The executive administrator shall compile the information included in the water loss audits according to category of retail public utility and according to regional water planning area. (b) The executive administrator shall determine if the water loss audit is administratively complete. A water loss audit is administratively complete if all required responses are provided. In the event the executive administrator determines that a retail public utility's water loss audit is incomplete, the executive administrator shall notify the utility. A retail public utility that provides potable water that fails to submit a water loss audit or that fails to correct a water loss audit that is not administratively complete within the timeframe provided by the executive administrator is ineligible for financial assistance for water supply projects under Texas Water Code, Chapter 15, Subchapters C, D, E, F, J, O, Q, and R; Chapter 16, Subchapters E and F; and Chapter 17, Subchapters D, I, K, and L. The retail public utility will remain ineligible for financial assistance until a complete water loss audit has been filed with and accepted by the executive administrator.

Appendix G

Background and Methodology for Land Resource/Cover Type Assessment – Excerpt from Section 2 of Environmental Evaluation Interim Report – Sulphur River Basin Comparative Assessment Land Resource / Cover Type Assessment

2.1 Background

The Texas Parks and Wildlife Department (TPWD) Ecological Systems Classification data set was utilized to develop the cover types within the footprints of the alternative reservoir sites, including Parkhouse I, Parkhouse II, Marvin Nichols 1A, Wright Patman (237.5 ft. msl and 259.5 ft. msl), Jim Chapman, and Talco. A number of key partners including the Texas Natural Resources Information System (TNRIS), Texas Forest Service, Natural Resources Conservation Service (NRCS), NatureServe, The Nature Conservancy (TNC), and the Missouri Resource Assessment Partnership (MoRAP) were involved in developing the Ecological Systems Classification project.

The creation of the Ecological Systems Classification took into consideration a wide variety of biotic and abiotic variables to establish detailed regional comparisons of vegetation and habitats. Data sources utilized in this classification system included the Farm Service Agency (FSA) National Agriculture Imagery Program (NAIP) aerial imagery, satellite imagery, 10-meter digital elevation models (DEM), U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) soil data types, TPWD vegetational areas, U.S. Geologic Survey (USGS) National Hydrography Dataset (NHD) layers, USGS Geologic Atlas of Texas, as well as field verified site data. The objective of this classification was to create a land cover type set with sufficient detail to be useful at the sub-county level, targeting the scale of 1:24,000, such as the USGS's 7.5 minute quadrangle scale.

Supervised classifications were performed on both color infra-red and multi-spectral satellite imagery to break down the images into objects that were more easily definable. Both leaf-on and leaf-off imagery conditions were used to establish a proper baseline. Detailed spatial analysis was performed at a 10-meter resolution, with the use of DEM's to identify areas of steep slopes (20% or greater), cliffs, and aspect. The "Ecological Site Type/Range Site" attributes from the NRCS soils data provided more detail to the species typically found in specific soils types, and field verification along public roads and public lands were used to sample present species. Seasonally flooded, versus temporarily flooded areas were estimated based on information from the SSUGRO soil data layer. Riparian data was determined to be either small or large stream riparian areas based on the NHD stream types.

All of the alternative reservoir sites evaluated in this report fell within the area surveyed in the Ecological Classification System project. As such, the data from the TPWD Ecological Classification System project

was considered to be the most recent, readily available data collected for all alternative reservoir sites that would allow for a balanced comparison.

2.2 Methodology

The cover types used in the TPWD Ecological Systems Classification were derived from the NatureServe Ecological Classification System (Comer, 2003). This classification methodology resulted in a large number of cover types that were not readily observable or comparable at the scale spanning much of the Sulphur River Basin. To produce a cover type/vegetation classification within each alternative reservoir site that would be more readily observable and comparable, the Ecological Classification System cover types were re-assigned into broader and more general categories based on the EPA's Level I National Land Cover Data (NLCD). The definitions from the NLCD cover types were compared to the definitions contained in the Draft Descriptions of Systems, Mapping Subsystems, and Vegetation Types for Phase II (Elliott, 2009), and matched accordingly. Table 1 identifies the cover types resulting from this re-classification and the corresponding Ecological Classification System cover types that were included. Once this initial reclassification was complete, an additional re-classification was conducted utilizing the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) data within each alternative reservoir site. A GIS analysis was then conducted and the re-classified vegetation/cover types were clipped to the NWI data layer in an effort to try and distinguish the bottomland hardwood forest cover type from the forested wetland cover type, as these cover types often overlap when based solely on remotely sensed data. Table 2 summarizes the final types and amounts (acres) of each cover type that were identified within the footprint of each alternative reservoir site. Figures 2 through 8 display the cover types identified within the footprint of each alternative reservoir site.

Table 1: Results of the Re-Classification of the Ecological Classification System Cover Types into EPA-based Level I NLCD Cover Types

EPA-Based Level I Cover Types	TPWD Ecological Systems Classification Cover Types
Barren	o Barren
Bottomland Hardwood Forest	 Pineywoods: Bottomland Seasonally Flooded Hardwood Forest Pineywoods: Bottomland Temporarily Flooded Hardwood Forest Pineywoods: Bottomland Temporarily Flooded Mixed Pine / Hardwood Forest Pineywoods: Small Stream and Riparian Seasonally Flooded Hardwood Forest Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest
Forested Wetland	 Pineywoods: Bottomland Baldcypress Swamp Pineywoods: Small Stream and Riparian Baldcypress Swamp Swamp
Grassland/Old Field	 Blackland Prairie: Disturbance or Tame Grassland Pineywoods: Bottomland Wet Prairie Pineywoods: Small Stream and Riparian Wet Prairie Post Oak Savanna: Savanna Grassland Pineywoods: Disturbance or Tame Grassland
Herbaceous Wetland	 Marsh Pineywoods: Bottomland Herbaceous Wetland Pineywoods: Herbaceous Seepage Bog Pineywoods: Small Stream and Riparian Herbaceous Wetland Pineywoods: Wet Hardwood Flatwoods
Open Water	 Open Water Pineywoods: Herbaceous Flatwoods Pond
Row Crops	o Row Crops
Shrub Wetland	 Pineywoods: Bottomland Deciduous Successional Shrubland Pineywoods: Small Stream and Riparian Deciduous Successional Shrubland
Shrubland	 Native Invasive: Deciduous Shrubland Native Invasive: Juniper Shrubland Native Invasive: Mesquite Shrubland Pineywoods: Small Stream and Riparian Evergreen Successional Shrubland Red River: Floodplain Evergreen Shrubland

EPA-Based Level I Cover Types	TPWD Ecological Systems Classification Cover Types
	 Native Invasive: Deciduous Woodland
	 Pine Plantation > 3 meters tall
	 Pine Plantation 1 to 3 meters tall
	 Pineywoods: Dry Pine / Hardwood Forest or Plantation
	 Pineywoods: Dry Pine Forest or Plantation
	 Pineywoods: Dry Upland Hardwood Forest
	 Pineywoods: Hardwood Flatwoods
	 Pineywoods: Longleaf or Loblolly Pine / Hardwood Flatwoods or
	Plantation
	 Pineywoods: Longleaf or Loblolly Pine Flatwoods or Plantation
Upland Forest	 Pineywoods: Northern Mesic Hardwood Forest
	 Pineywoods: Northern Mesic Pine / Hardwood Forest
	 Pineywoods: Pine / Hardwood Forest or Plantation
	 Pineywoods: Pine Forest or Plantation
	 Pineywoods: Sandhill Pine Woodland
	 Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed
	Forest
	 Pineywoods: Upland Hardwood Forest
	 Post Oak Savanna: Oak / Hardwood Slope Forest
	 Post Oak Savanna: Post Oak / Redcedar Motte and Woodland
	 Post Oak Savanna: Post Oak Motte and Woodland
Urban*	o Urban High Intensity
Urban.	o Urban Low Intensity

* According to the descriptions contained within the TPWD Ecological Systems Classification, urban areas consist of built-up areas including wide transportation corridors that are dominated by impervious cover (Elliott, 2009). By definition, this cover type could include smaller roadways, parking lots, and other areas dominated by impervious cover.

Table 2:	Summary of Types and Approximate Amounts (acres) of Cover Types
	within the Footprint of each Alternative Reservoir Site

ALTERNATIVE RESERVOIR SITES	Wright Patman (237.5)	Wright Patman (259.5)	Marvin Nichols 1A	Talco	Parkhouse I	Parkhouse II	Jim Chapman (446.2)
COVER TYPES							
Barren	<1	<1	<1	<1	1	1	1
Bottomland Hardwood Forest	2,566	8,202	10,156	7,251	4,267	1,960	2,264
Forested Wetland	16,069	35,098	21,444	10,316	5,487	1,116	736
Grassland/Old Field	201	4,026	18,241	18,107	12,133	7,718	373
Herbaceous Wetland	438	1,151	1,244	276	432	91	94
Open Water	2,636	3,376	1,162	394	181	182	42
Row Crops	39	292	706	1,989	3,987	3,626	2
Shrub Wetland	55	204	1,405	468	278	28	109
Shrubland	34	187	444	288	65	19	241
Upland Forest	5,951	34,062	11,223	9,803	1,521	602	1,029
Urban	17	105	78	23	10	14	9
TOTAL	28,006	86,703	66,103	48,915	28,362	15,357	4,900

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Appendix H

Land Cover Type Figure 4 from the Environmental Evaluation Interim Report – Sulphur River Basin Comparative Assessment



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Appendix I

Background and Methodology for Threatened and Endangered Species Assessment from Section 3 of Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment

3.0 FEDERAL AND STATE LISTED THREATED AND ENDANGERED SPECIES ASSESSMENT

3.1 Federally Listed Threatened and Endangered Species

The Endangered Species Act (ESA) was passed by Congress in 1973. The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. The U.S. Fish and Wildlife Service (USFWS) has primary responsibility for administering the ESA for terrestrial and freshwater organisms. Section 7 of the ESA requires Federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the USFWS to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species (http://www.fws.gov/endangered/June2011).

Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. Section 9 of the ESA protects endangered and threatened species and their habitats by prohibiting the "take" of listed animals and the interstate or international trade in listed plants and animals, including their parts and products, except under Federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct."

3.2 State Listed Threatened and Endangered Species

The Texas Endangered Species Act gives the Texas Parks and Wildlife Department (TPWD) the authority to establish a list of fish and wildlife that are endangered or threatened with statewide extinction. As defined by the statute, "fish and wildlife" excludes all invertebrates except mollusks and crustaceans. No person may capture, trap, take, or kill or attempt to capture, trap, take, or kill listed fish and wildlife species without a permit. Plants are not protected by these provisions. Endangered, threatened or protected plants may not be taken from public land for commercial sale or taken from private land for commercial purposes without a permit. Laws and regulations pertaining to state listed endangered or threatened animal species are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code and Sections 65.171 - 65.184 of Title 31 of the Texas Administrative Code (T.A.C.). Laws and regulations pertaining to state listed endangered or threatened plant species are contained in Chapters 88 of the TPW Code and Sections 69.01 - 69.14 of the T.A.C.

The Texas Endangered Species Act does not protect wildlife species from indirect or incidental take (e.g., destruction of habitat, unfavorable management practices, etc.). The TPWD has a Memorandum of Understanding with every state agency to conduct a thorough environmental review of state initiated and funded projects, such as highways, reservoirs, land acquisition, and building construction, to determine their potential impact on state endangered or threatened species.

3.3 Impact Assessment

For the purposes of evaluating each alternative reservoir sites potential to impact state or federally listed threatened or endangered species, county lists published by the USFWS and TPWD were referenced. When a reservoir's footprint extended across more than one county, all of the species listed for those counties were included in the assessment for that particular reservoir. Table 7 contains a summary of the approximate acreages associated with each alternative reservoir site as well as the counties used for their respective assessments. Due to there being a range of potential reallocation elevations at Wright Patman, this assessment utilized the lowest proposed alternative reallocation elevation of 237.5 ft. msl and the highest proposed reallocation elevation of 259.5 ft. msl to assess potential ranges of impacts. Figure 1 depicts the location of each of the alternative reservoir sites.

If a species was found to be listed by either agency, further analyses were conducted to determine the likelihood of occurrence for each species within the footprint of each alternative reservoir site. The likelihood of occurrence was evaluated using habitat and range descriptions provided by the USFWS, TPWD, or other relevant scientific literature sources. This information was then compared to the location of the reservoir sites and the habitats (cover types) that currently exist within these sites.

ALTERNATIVE RESERVOIR SITE	Approximate Acreage	County Location
Wright Patman (259.5)	86,703	Bowie, Cass, Morris, Red River, Titus
Wright Patman (237.5)	28,007	Bowie, Cass, Morris, Red River,
Marvin Nichols 1A	66,103	Red River, Titus, Franklin, Delta, Lamar
Talco	48,916	Titus, Franklin, Hopkins
Parkhouse I	28,362	Delta, Hopkins
Parkhouse II	15,359	Lamar, Delta
Jim Chapman (446.2)	4,902	Delta, Hopkins

 Table 1:
 Summary of Acreages and County Locations Associated with each Alternative Reservoir Site

Cover type classifications within each potential reservoir site were conducted utilizing data from the TPWD Ecological Classification System that was completed in 2012 for this area of Texas supplemented with the USFWS NWI data. Other factors taken into consideration as part of this analysis included species dispersal potential (i.e., mobility), whether the species would be considered a permanent resident or stopover species (i.e., migratory), and the anticipated response a species might have following construction of a reservoir (i.e., positive or negative response). Table 8 contains the common and scientific names of the current federal and state listed species included in this assessment along with a brief description of their likely ranges, preferred habitats, and potential impacts. Results of the impact assessment are summarized in Table 9.

Common Name	Scientific Name	Discussion
FEDERAL SPECIES		
American Burying Beetle	Nicrophorus americanus	Low to no potential to negatively impact due to unlikely presence of the species. The historic Texas population consists of four Texas specimens from the 1880's. Since then, there were no confirmed specimens in Texas until 2003 when a single individual was found in Lamar County, Texas. Since 2008, no individuals have been captured in Texas. None have been collected from any other county outside of Lamar (Bauer, 2010).
Least Tern	Sterna antillarum	Low to no potential to negatively impact due to lack of preferred habitat within proposed project area. Species is primarily associated with the habitat along the Red River, which is not located within the assessment area. Nesting habitat of the Interior Least Tern includes bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with rivers and reservoirs. In Texas, Interior Least Terns are found at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, on the Prairie Dog Town Fork of the Red River in the eastern Panhandle, and along the Red River (Texas/Oklahoma boundary) into Arkansas (TPWDb). Reservoirs could benefit this species by providing habitat along the shoreline.
Piping Plover	Charadrius melodus	Low to no potential to negatively impact due to lack of habitat and migratory nature of this species. Piping plovers are primarily a resident of the upper and central coastal area of Texas (Oberholser, 1974). These shorebirds live on sandy beaches and lakeshores (TPWDc). Reservoirs could benefit this species by providing habitat along the shoreline.
STATE SPECIES		
American Peregrine Falcon	Falco peregrinus anatum	Low potential to negatively impact due to unlikely presence of the species. Species is a resident of the Trans-Pecos region, including the Chisos, Davis, and Guadalupe mountain ranges, except during migration (TPWDa). Peregrine falcons prefer to nest on very tall sheer cliff faces with a commanding view, a nearby water source and a good prey base. The breeding population in Texas is located in the remote wild canyons of the Rio Grande up into pine-oak woodlands in the Big Bend and Guadalupe Mountains national parks (Arnold, 2001b).

Table 2: State and Federally Listed Threated / Endangered Species and Potential Impact

Common Name	Scientific Name	Discussion
Bachman's Sparrow	Aimophila aestivalis	Low potential to negatively impact due to lack of suitable habitat and rarity of the species. In Texas, Bachman's Sparrow is most abundant in forests on the south side of the Angelina National Forest. These areas are managed for open longleaf pine (<i>Pinus palustris</i>) savannah that the red- cockaded woodpecker (<i>Picoides borealis</i>) frequents. Here, frequent prescribed burning maintains the preferred and historical grassy understory among the mature longleaf pines (Arnold, 2001a). East Texas appears to be the western most extent of this species range (Oberholser, 1974).
Bald Eagle	Haliaeetus leucocephalus	Bald Eagles breed in Texas from near sea level to about 1100 m (3600 ft); (Oberholser, 1974) in and around large aquatic environments (ocean coasts, reservoirs, large lakes and rivers, marshes and swamps). Reservoir construction has the potential to benefit this species by providing more habitat for hunting prey (i.e., lake/reservoir area).
Wood Stork	Mycteria americana	Low potential to negatively impact due to the migratory nature of this species. This species is primarily associated with coastal marshes, bays, prairies, and lakes. Current populations are composed of postbreeding transients, apparently from southern Mexico (Rappole and Blacklock, 1994). In Texas, there are only three known nesting records: 1930 in Chambers County, Elm Grove; 1960 in southwestern Jefferson County, Johnny Pipkin's Big Hill Ranch (about 50 breeding adults with nests, eggs, and chicks); and, year unknown in Harris County, San Jacinto River (Oberholser 1974). Reservoirs have potential to benefit this species by providing more habitat for hunting prey (i.e., lake/reservoir area).
Whooping Crane	Grus americana	Low to no potential to negatively impact due to the migratory nature of this species. Whooping cranes winter on the Aransas National Wildlife Refuge's 22,500 acres of salt flats and marshes. The area's coastal prairie rolls gently here and is dotted with swales and ponds. They summer and nest in poorly drained wetlands in Canada's Northwest Territories at Wood Buffalo National Park (TPWDf). Although unlikely, the reservoirs could provide stop- over/resting areas for migrating whooping cranes (i.e., Granger Lake).
Eskimo Curlew	Numenius borealis	Low to no potential to negatively impact due to rarity of the species and its migratory nature. This species has likely been extirpated. Last known specimen from Texas was from Cameron County in 1897 (Oberholser, 1974).

Common Name	Scientific Name	Discussion
Peregrine Falcon	Falco peregrinus	See description for F. p. anatum.
Piping Plover	Charadrius melodus	See previous description.
Least Tern	Sterna antillarum	See previous description.
Blackside Darter	Percina maculate	Low to no potential to negatively impact. This species occurs in small to medium rivers (Page and Burr 1991). In Texas, this species is restricted to the Red River basin in the northeast part of the state (Hubbs et al. 2008).
Creek Chubsucker	Erimyzon oblongus	Moderate potential to negatively impact due to the potential presence of this species and its non-migratory nature. Occurs in eastern Texas streams from the Red River southward to the San Jacinto Drainage; an early record exists from the Devils River (Hubbs et al. 1991). Please see further discussion at the end of this section.
Paddlefish	Polyodon spathula	Low to no potential to negatively impact this species as it is known to occur within reservoirs. Warren et al. (2000) listed the following drainage unit for distribution of paddlefish in Texas: Red River (from the mouth upstream to and including the Kiamichi River). Large reservoirs make good feeding areas, with paddlefish moving from reservoirs into flowing streams in the spring for spawning (Russell 1986). Reservoirs have the potential to benefit this species by providing more habitat.
Bluehead Shiner	Pteronotropis hubbsi	Low to no potential to negatively impact as this species is not likely to be present within the Sulphur River Basin. Apparently, this species has only been identified (in Texas) from Caddo Lake (Hubbs et al. 2008).
Blue Sucker	Cycleptus elongates	Low to no potential to negatively impact. This species inhabits large, deep rivers, and deeper zones of lakes (reservoirs; Cross 1967). Reservoirs have the potential to benefit this species by providing more habitat.
Shovelnose Sturgeon	Scaphirhynchus platorynchus	No potential to negatively impact as this species is not present within the Sulphur River Basin. Found only in the Red River below Dennison Dam (Lake Texoma Reservoir; Hubbs et al. 2008); Red River system (Bonn and Kemp 1952).
Black Bear	Ursus americanus	Low to no potential to negatively impact due to lack of habitat and rarity of the species. This species is known to occur in the Chisos and Guadalupe Mountains of far west Texas. The Louisiana Black Bear (subspecies <i>U. a. luteolus</i>) is not known to be found in Texas, although potential habitat exists in the eastern part of the state (TPWDd).

Common Name	Scientific Name	Discussion
Rafinesque's big- eared bat	Corynorhinus rafinesquii	Low potential to negatively impact due to rarity of the species. Rafinesque's big-eared bat reaches the westernmost portion of its range in the pine forests of East Texas (TPWDe). No known county records of this species occur within the Sulphur River Basin watershed in Texas (Davis and Schmidly 1997).
Red Wolf	Canis rufus	No potential to impact. This species has been extirpated.
Louisiana Pigtoe	Pleurobema riddellii	Low to no potential to negatively impact as this species is not known to occur within the Sulphur River Basin. This species is known to occur in the Trinity, Neches, and Sabine River systems (Howells, et al. 1996). No museum collections or records of this species have been identified from the Sulphur River Basin (Winemiller and Lujan 2010.)
Southern Hickorynut	Obovaria jacksoniana	Low to no potential to negatively impact as this species is not likely to be present within the Sulphur River Basin. This species occurs in the Neches, Sabine, and Red River drainages of eastern Texas (Howells et al. 1996). No museum collections or records of this species have been identified from the Sulphur River Basin (Winemiller and Lujan 2010.)
Texas Pigtoe	Macrochelys temminckii	Low to no potential to negatively impact as this species is not likely to be present within the Sulphur River Basin. This species has been reported from the Brazos, Neches, Sabine, and San Jacinto rivers (Howells et al. 1996). No museum collections or records of this species have been identified from the Sulphur River Basin (Winemiller and Lujan 2010.)
Alligator Snapping Turtle	Macrochelys temminckii	No potential to negatively impact. Alligator snapping turtles are aquatic bottom dwellers. They have been found in a variety of environs including lakes, oxbows, bayous, deep rivers, canals, creeks, ponds and even brackish estuaries (<u>http://www.texasturtles.org/index</u> . html). Reservoirs have the potential to benefit this species by providing more habitat.
Northern Scarlet Snake	Cemophora coccinea copei	Moderate potential to negatively impact due to potential presence of this species and its non-migratory nature. Please see further discussion at the end of this section.

Common Name	Scientific Name	Discussion
Texas Horned Lizard	Phrynosoma cornutum	Low to no potential to negatively impact as this species is not likely to be present within the Sulphur River Basin. Apparently, they no longer occur in Texas east of an imaginary line from Fort Worth to Corpus Christi (Donaldson et al. 1994), except for small, isolated populations.
Timber/Canebrake Rattlesnake	Crotalus horridus	Moderate potential to negatively impact due to potential presence of this species and its non-migratory nature. Please see further discussion at the end of this section.

Table 3:Summary of Potential Impacts to State and FederallyListed Threated/Endangered Species Associated with each Alternative Reservoir Site

ALTERNATIVE RESERVOIR SITES	Wright Patman (237.5)	Wright Patman (259.5)	Marvin Nichols 1A	Talco	Parkhouse I	Parkhouse II	Jim Chapman (446.2)
FEDERAL SPECIES							
American Burying Beetle	0	0	0	NL	NL	0	NL
Least Tern	0	0	0	0	0	0	0
Piping Plover	NL	NL	0	NL	0	0	0
STATE SPECIES							
American Peregrine Falcon	0	0	0	0	0	0	0
Bachman's Sparrow	0	0	0	0	0	0	0
Bald Eagle	0	0	0	0	0	0	0
Wood Stork	0	0	0	0	0	0	0
Whooping Crane	NL	NL	0	0	0	0	0
Eskimo Curlew	NL	NL	NL	NL	NL	0	NL
Peregrine Falcon	0	0	0	0	0	0	0
Piping Plover	0	0	0	0	0	0	0
Least Tern	0	0	0	0	0	0	0
Blackside Darter	0	0	0	0	0	0	0
Creek Chubsucker	0	0	0	•	0	0	0
Paddlefish	0	0	0	0	0	0	0
Bluehead Shiner	0	0	NL	NL	NL	NL	NL
Blue Sucker	NL	NL	NL	NL	NL	0	NL

ALTERNATIVE RESERVOIR SITES	Wright Patman (237.5)	Wright Patman (259.5)	Marvin Nichols 1A	Talco	Parkhouse I	Parkhouse II	Jim Chapman (446.2)
Shovelnose Sturgeon	0	0	0	NL	NL	0	NL
Black Bear	0	0	0	0	0	0	0
Rafinesque's Big- eared Bat	0	0	0	NL	NL	NL	NL
Red Wolf	0	0	0	0	0	0	0
Louisiana Pigtoe	0	0	0	0	0	NL	0
Southern Hickorynut	0	0	0	0	NL	NL	NL
Texas Pigtoe	0	0	0	0	NL	NL	NL
Alligator Snapping Turtle	0	0	0	0	0	0	0
Northern Scarlet Snake	•	•	•	•	NL	NL	NL
Texas Horned Lizard	0	0	0	0	0	0	0
Timber Rattlesnake	0	•	0	0	0	0	0

NL – Species is not listed within the counties of the alternative reservoir site. \bigcirc - Alternative reservoir site has low or no potential to negatively impact. \bigcirc - Alternative reservoir site has moderate potential to negatively impact. \bigcirc - Alternative reservoir site has high potential to negatively impact.

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Appendix DD

Interregional Conflict Resolution Documents

TWDB Preliminary Recommendation of Conflict Resolution (no date)



P.O. Box 13231, 1700 N. Congress Ave. Austin, TX 78711-3231, www.twdb.texas.gov Phone (512) 463-7847, Fax (512) 475-2053

TO:	Board Members				
FROM:	Kevin Patteson, Executive Administrator				
DATE:	(Date To Be Determined)				
SUBJECT:	Resolution of the Interregional Conflict between the 2011 Region C and the Region D Regional Water Plans				

ACTION REQUESTED

Resolve the interregional conflict between the 2011 Region C and Region D regional water plans by instructing the Region C Regional Water Planning Group to readopt its current regional water plan with Marvin Nichols Reservoir as a recommended water management strategy and instructing the Region D Regional Water Planning Group to amend its plan to reflect that the conflict has been resolved.

BACKGROUND

Region C Planning Area

The Region C Regional Water Planning Area (Region C) includes all or parts of 16 counties. Overlapping much of the upper portion of the Trinity River Basin, Region C also includes smaller parts of the Red, Brazos, Sulphur, and Sabine river basins. The Dallas-Fort Worth Metropolitan area is centrally located in the region, and its surrounding counties are among the fastest growing in the state. Major economic sectors in the region include service, trade, manufacturing, and government.¹

The population of Region C counties is expected to increase 96 percent by 2060 to 13 million people. The area contains approximately 26 percent of the Texas population. The 2011 Region C Plan estimates that by 2060 an additional 1.7 million acre-feet of water per year will be needed to serve the region's population (a total 2060 demand of 3.3 million acre-feet of water per year). Conservation accounts for 12 percent of the projected 2060 volumes; reuse accounts for another 11 percent. Currently, the Marvin Nichols Reservoir (Marvin Nichols) is projected to provide 490,000 acre-feet per year, or 28 percent of the projected additional water needed.²

Our Mission

Board Members

To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas Carlos Rubinstein, Chairman | Bech Bruun, Member | Mary Ann Williamson, Member

Kevin Patteson, Executive Administrator

¹ Texas Water Development Board, Water for Texas 2012 State Water Plan, pg. 44.

 $^{^{2}}$ *Id.* at 46-50.

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Region D Planning Area

The North East Texas Regional Planning Area (Region D) encompasses all or parts of 19 counties in the north-east corner of the state. Largely rural and characterized by numerous small communities and some medium-sized municipalities, the region includes the cities of Longview, Texarkana, and Greenville. The planning area overlaps large portions of the Red, Sulphur, Cypress, and Sabine river basins and smaller parts of the Trinity and Neches river basins. The main economic base in the North East Texas Region is agribusiness, including a variety of crops as well as cattle and poultry production. Timber, oil and gas, and mining are significant industries in the eastern portion of the region. In the western portion of the region, many residents are employed in the Dallas-Fort Worth metropolitan area.³

Approximately 3 percent of the state's population resides in Region D. By 2060, Region D's population is projected to grow 57 percent, to 1.2 million. The 2011 Region D Plan estimates that by 2060 an additional 278,000 acre-feet per year will be needed to serve the region's population (a total 2060 demand of 839,000 acre-feet of water per year). Because of high costs relative to the small amounts of water involved, the Region D Plan does not recommend conservation as a water management strategy. Select major water management strategies include increasing existing surface water contracts, or 60 percent of projected 2060 volumes, new surface water contracts for another 33 percent, and new groundwater supplies for 7 percent of projected 2060 volumes.⁴

Marvin Nichols Reservoir in the State Water Plan

Senate Bill 1 (SB 1) in 1997 created the current state water planning process.⁵ Before the implementation of SB 1, Marvin Nichols was recommended as a water management strategy in the 1968 State Water Plan, the 1984 State Water Plan, and the 1997 State Water Plan. Under SB 1, the first Region D Regional Water Plan in 2001 recommended that Marvin Nichols be developed to provide a source of future water supply for water users both within Region D and in Region C. The 2001 Plan was later amended to remove support for the development of Marvin Nichols, however. The 2006 Region D Regional Water Planning Group took the position that Marvin Nichols should not be included in any regional plan or in the State Water Plan as a water management strategy. Further, the Region D Regional Water Planning Group expressed the opinion that the inclusion of Marvin Nichols in the Region C Regional Water Plan constituted an interregional conflict.⁶ Following the policy established with the first series of water plans, the Texas Water Plans because it did not find an over-allocation of a source of supply—the TWDB's definition of an interregional conflict.

³ Texas Water Development Board, *Water for Texas 2012 State Water Plan*, pg. 50.

⁴ *Id.* at 52-54.

⁵ Tex. S.B. 1, 75th Leg., R.S., 1997 Tex. Gen. Laws 1010.

⁶ Copies of the previous regional and state water plans are available on the TWDB website, <u>http://www.twdb.texas.gov/waterplanning/rwp/plans/index.asp</u> and <u>http://www.twdb.texas.gov/waterplanning/swp/index.asp</u>.

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In 2007, the 80th Legislature established a study commission on Region C Water Supply that consisted of members appointed by the regional water planning groups of Regions C and D.⁷ The Study Commission was charged with reviewing the water supply alternatives available to the Region C Regional Water Planning Area. But the Study Commission was unable to reach a consensus on its findings and recommendations, so a final report was not delivered to the 82nd Legislature.⁸

In 2011, the Region C Regional Water Planning Group again adopted Marvin Nichols as a recommended strategy and Region D reiterated concerns it had raised previously. Region D again expressed the opinion that including Marvin Nichols in the Region C Regional Water Plan constituted an interregional conflict. The TWDB approved the Region D Regional Water Plan in October 2010, and the Region C Regional Water Plan in December 2010, finding again that there was no over-allocation of supply sources. To date, Marvin Nichols has not been constructed and no permits for its development have been sought from the Texas Commission on Environmental Quality (TCEQ) or the U.S. Corps of Engineers.

The Ward Timber Case Procedural History

Private parties in Region D filed suit in District Court in Travis County in January 2012, seeking judicial review of the TWDB's decision approving the Region C Regional Water Plan.⁹ In its order issued on December 5, 2011, the District Court declared that an interregional conflict existed, reversed the TWDB's decisions approving the two regional plans, and remanded the case to the TWDB for resolution. The TWDB appealed. The 11th Court of Appeals heard the case and affirmed the district court's ruling on May 23, 2013.¹⁰ No further motions were filed.

The TWDB contracted for a mediator and arranged for a mediation between Region C and Region D members appointed by their respective regional planning groups. The mediator reported on December 17, 2013 that the parties did not reach agreement in the mediation. Thus, under the statute and the Court's Order, the TWDB is to resolve the conflict.

The core dispute between Region C and Region D is whether Marvin Nichols should be developed in the north-central part of Region D to serve the water needs in Region C. Region C already contains more than a quarter of the state's population and will increase by almost 100 percent by 2060. At 28 percent of the projected additional water needed for the Region, Marvin Nichols is a major water strategy to serve Region C by 2060.

Region D does not want Marvin Nichols constructed because it is concerned about the potential socioeconomic, environmental, and private property impacts of the reservoir. Estimated at 66 to 70 thousand acres in size, Marvin Nichols is projected to impound thousands of acres of forest

⁷ Tex. S.B. 3, § 4.04, 80th Leg., R.S., 2007 Tex. Gen. Laws 1430.

⁸ *Final Draft Report to the 82nd Legislature*, Study Commission on Region C Water Supply, December 2010. The Draft Report and other documents related to the work of the Study Commission are available on the TWDB website at <u>http://www.twdb.texas.gov/waterplanning/rwp/regions/C/studycommission.asp</u>.

⁹ Ward Timber, Ltd.; Ward Timber Holdings; Shirley Shumake; Gary Cheatwood; Richard LeTourneau; and Pat Donelson v. Texas Water Development Board, No. D-1-GN-11-000121 (126th Dist. Ct., Travis County, Tex., Dec. 5, 2011).

¹⁰ Texas Water Dev. Bd. v. Ward Timber, Ltd., 411 S.W.3d 554 (Tex. App.—Eastland 2013, no pet.).

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and wetlands. In addition, thousands more acres would be required for environmental mitigation—all for a project that does not serve and is not needed by the residents of the region.

ANALYSIS

What is a Conflict?

This is the first time the TWDB has been asked to resolve a conflict under the statute. As the 11th Court of Appeals noted, Section 16.053(a) of the Water Code requires that a regional plan provide for the development of water resources in preparation for and in response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; to further economic development; and to protect the agricultural and natural resources of that particular region.¹¹

Section 16.053(h)(7) provides that the TWDB may approve a regional plan only after it has determined that:

- (A) all interregional conflicts involving that regional water planning area have been resolved;
- (B) the plan includes water conservation practices and drought management measures incorporating, at a minimum, the provisions of Tex. Water Code §§ 11.1271 and 11.1272 (relating to water conservation and drought contingency plans); and
- (C) the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles adopted under Tex. Water Code § 16.051(d).

Section 16.0519(d) of the Water Code requires the TWDB to adopt guidance principles for the state water plan that reflect the public interest of the entire state. The guidance principles must give due consideration to the construction and improvement of surface water resources and the application of principles that result in voluntary redistribution of water resources.

Both the Plaintiffs/Appellees in the *Ward Timber* case and the 11th Court of Appeals discussed resolution of an interregional conflict and long-term protection of the state's resources together. They are, in fact, however, two different determinations as set out in the statute. A dispute between regions on protection of the state's resources, or on conservation and drought management, does not necessarily equate to an interregional conflict over allocation of resources among strategies.

"Conflict" is not defined in the statute. The definition employed by the TWDB beginning in 2001 and used consistently through the development of three state water plans was that an interregional conflict exists when more than one regional water plan relies upon the same water source, so that there is not sufficient water available to fully implement both plans, creating an

¹¹ *Ward Timber*, 411 S.W.3d at 558.
over-allocation of that source.¹² This definition was codified in TWDB's rules in 2012. The decision of the Court of Appeals in 2013 questioned the sufficiency of the definition to address what it determined to be an interregional conflict between Region C and Region D and declined to follow that definition. The Court did not suggest an alternative definition, however.

Under the statutory scheme relating to regional water planning and interregional conflicts, the TWDB decides whether an interregional conflict exists.¹³ The definition used by the TWDB over three cycles of water planning and adopted as a rule is consistent with the language of Texas Water Code Section 16.053 in defining "interregional conflicts" as conflicts arising between two or more defined water-management strategies that are necessary to ensure the implementation of all plans. The TWDB does not consider every difference between regional water plans to be a "conflict" as contemplated by the statute, nor does it recognize the geographic location of the water source as an aspect of the conflict. Instead, this definition focuses on resolving those conflicts that hinder full implementation of the state water plan by rendering an identified supply strategy inadequate for two or more regions.

The definition of interregional conflict adopted by the TWDB also recognizes that the legislature intended for the TWDB to address conflicts between actual water management strategies, not general objections to projects that are properly reserved for agencies other than the TWDB if and when permit applications for projects are filed.

Unlike the water uses addressed directly in the state and regional water plans (municipal, manufacturing, irrigation, steam electric power generation, mining, and livestock), water needed to protect environmental and natural resources is difficult to quantify. TWDB rules require that regional water planning groups evaluate each recommended strategy for social and economic impacts of not meeting needs, impacts to agricultural resources, consideration of third-party social and economic impacts, and evaluations of effects on environmental flows.¹⁴ Thus, protection of agricultural and natural resources and economic interests is considered in the regional plans in relation to specific, quantifiable strategies. At the planning stage, it should be sufficient that all regions affected by a particular strategy have identified those impacts.

The Regional Water Plan Review Process

In addition to ensuring that all interregional conflicts have been resolved, the TWDB must also determine that the plan includes water conservation practices and drought management measures, and that the plan is consistent with long-term protection of the state's water, agricultural, and natural resources. The TWDB's guidance principles, embodied in its rules instruct the regional water planning groups in how to address these requirements.¹⁵

The guidelines adopted by the TWDB in compliance with the statute are currently found in 31 Tex. Admin. Code §§ 357.20, 358.3, and 358.4. These rules are based on Tex. Water Code §§ 16.051(d), and 16.053(e) and (h)(7). The TWDB reviews the regional water plans and

¹² 31 Tex. Admin. Code § 357.10(15).

¹³ Tex. Water Code § 16.053(h)(4), (5), and (6).

¹⁴ 31 Tex. Admin. Code § 357.34.

¹⁵ See 31 Tex. Admin. Code §§ 357.22, 357.34-.35, and 357.40-.42.

prepares the state water plan based on these guidelines and requirements.

Under these principles, in reviewing the regional water plans the TWDB provides technical assistance to the regional planning groups, works with regional planners to address inconsistencies, to seek clarification, to note mistakes in citations, and to identify where the plan does not follow the guidance principles or does not adhere to the formatting guidelines. But the TWDB does not evaluate the sufficiency or validity of strategies presented in a plan. It does not do alternative analyses or redirect recommended strategies. This approach is in keeping with the philosophy behind SB 1 that each plan reflect the efforts of the local regional planning group and others in the region to evaluate and implement the planning decisions for their particular region.

Options Considered Related to the Conflict Over Marvin Nichols

Staff considered three options in analyzing possible recommendations to resolve the conflict over Marvin Nichols.

1. One recommendation proposed a smaller reservoir. Reducing the footprint of Marvin Nichols would mean that less property would be needed for the reservoir; but less water would be provided. Therefore, Region C would need to find alternatives to meet any remaining needs. Future rounds of planning could incorporate future changes, and creative problem-solving in the planning process might address concerns for both regions.

Staff ultimately rejected this proposal, however. To propose reducing the size of Marvin Nichols means interjecting the TWDB in the engineering specifics of a particular strategy in a region's plan—something the TWDB has not done before. This approach would be a change in the TWDB's State Participation Program policy of supporting the optimal sizing of a facility. It would also mark a shift away from the planning process as locally driven.

2. The second option Staff considered was removing Marvin Nichols from Region C's Plan for this planning cycle. Removing it now would resolve the conflict but does not eliminate the possibility of including it at a later date if conditions warrant. The regional plan is just that—a planning document. Strategies may come and go from one plan to another. Just because a strategy is in the plan does not mean that it will become reality. Just because it is deleted from the plan does not mean that it has no future. Marvin Nichols is included in Region C's Plan as a water source beginning in 2030. Yet it is not clear what steps are being taken to have the resource in place by then. Marvin Nichols has been part of a state water plan since 1968. It has not been built, in part because it is a potential strategy to meet needs beginning at a future date. Project sponsors have yet to apply for a permit.

Experience with other reservoir development suggests that much work still needs to be done before the reservoir becomes a reality. Thus, the future of Marvin Nichols rests with those who want Marvin Nichols as a source.

Staff acknowledges, however, that Marvin Nichols is a long-term strategy. Reasonable planning involves development first of those short-term projects that cost less and are easy to implement. Long-term strategies always assume a large number of uncertainties. Therefore, striking a

strategy because of uncertainties 15, 20, even 40 years in the future is not a reasonable approach to planning.

Both Region C and Region D acknowledge the need for more study, which is a responsible approach given the size, potential expense, and timing of the strategy. The Sulphur River Basin Feasibility Study by the U.S. Corps of Engineers in conjunction with the Sulphur River Basin Authority currently underway is focused on water supply issues and water user groups in the Basin. That independent study, expected to be completed in 2015, could answer many of the uncertainties before the permit process is initiated.

The third recommendation Staff consider was to retain the Marvin Nichols Reservoir as a 3. recommended strategy in the Region C 2011 Regional Water Plan. In the end, Staff chose this option. As Texas's population grows, Marvin Nichols, along with all the strategies in the Region C Plan, must continue to be considered seriously. According to the 2011 Region C Water Plan, Marvin Nichols accounts for 28 percent of the total additional acre-feet per year that will be needed to serve Region C's population. To remove Marvin Nichols from the Region C Plan would leave a substantial unmet need in Region C's water supply by 2060. TWDB data suggest that as many as 141 municipalities, communities, and water suppliers would be affected. Reassigning other recommended strategies to fill the gap created by removing Marvin Nichols would, in turn, simply create other unmet needs that would need to be addressed.

TWDB rules require that regional water planning groups identify and recommend water management strategies that meet all water needs during the drought of record.¹⁶ In addition, regional water plans must include a quantitative description of the socioeconomic impacts of not meeting identified water needs.¹⁷ The TWDB, therefore, generally will not approve a regional or state water plan that contains unmet needs. In particular, it has avoided approving a regional plan that contained unmet municipal needs in the long-term planning horizon because of the potential impacts on public health, safety, and welfare. Including Marvin Nichols responds to the facts of both the current size of Region C and its anticipated growth. Continuing to include Marvin Nichols also acknowledges the recent legislative mandate in House Bill 4 and Senate Joint Resolution 1 to develop and fund the strategies in the plan as opposed to excising strategies at a critical time for water supply development in Texas.

Some have suggested that Region C address its needs through conservation. But, as noted earlier, conservation is already included in Region C's Plan.¹⁸ And, even by the most liberal estimate, conservation cannot make up all the need that the region will have over the next 50 years.

Property owners in the area where Marvin Nichols may be located are justifiably concerned about the loss of their lands and the economic value attached to those lands. Any one or more of the municipalities or water districts in Region C could sponsor Marvin Nichols.

¹⁶ 31 Tex. Admin. Code § 357.35(d).
¹⁷ 31 Tex. Admin. Code §§ 357.33(c), 357.40(a).

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The Texas Constitution provides in part that "No person's property shall be taken, damaged or destroyed for or applied to public use without adequate compensation being made, unless by the consent of such person;" Tex. Const. Art. I, § 17.

Thus, while a municipality has the right of eminent domain under Chapter 251 of the Local Government Code, and water districts have a similar right under Chapter 49 of the Water Code, the law provides for just and fair compensation for both the value of the property and damages to the landowner. The procedures for the exercise of eminent domain are set out in statute and are intended to protect the right of a property owner to just compensation. Any such evaluation of lands potentially included in Marvin Nichols is subject to those provisions and cannot be determined here.

SUMMARY

SB 1 created an important document in the state water plan. It is to be "a guide to water policy."¹⁹ But the regional and state water plans are only plans—*guides* to water policy. TCEQ is only required to take the plan *into consideration*. It is not bound by the plan and may waive the consistency requirement if conditions warrant. With the exception of the Water Infrastructure Fund, the State Water Implementation Fund for Texas, and the State Water Implementation Revenue Fund for Texas, which require that a project be in the State Water Plan, the TWDB may provide financial assistance if a water project is *consistent* with the plan, not necessarily *in* the plan. And the TWDB may waive this requirement if it determines that conditions warrant the waiver.²⁰

Regional and state water plans are planning level documents. Both the Region C and Region D planning groups acknowledge that more studies need to be done on critical strategies including Marvin Nichols. The decision of whether to proceed with the development of Marvin Nichols or any other reservoir development strategy rests with the regional planners, the project sponsors, and the state and federal agencies that grant the licenses and permits necessary for the project to proceed.

The TWDB's task is to prepare a state water plan every five years that includes regional water plans adopted by regional water planning groups and approved by the TWDB in preparation for and in response to drought conditions.²¹ None of the factors the TWDB must consider in approving a regional water plan involves a substantive analysis of the validity or sufficiency of the strategies in a plan. But allowing for any unmet needs that may affect public health, safety, and welfare in the face of another drought of record would not comply with the intent of the statute, nor would it address the legislative mandate to develop the strategies in the State Water Plan.

The Executive Administrator therefore recommends the following steps for the Board to resolve the conflict between Region C and Region D. In addition, the Executive Administrator proposes the attached timeline for public comment and consideration of this recommendation.

¹⁹ Tex. Water Code § 16.051(b).

²⁰ Tex. Water Code § 16.053(k).

²¹ See Tex. Water Code § 16.051(a).

RECOMMENDATIONS

The Executive Administrator recommends that the Board resolve the conflict between Region C and Region D by taking the following steps:

1. Applying the TWDB's definition of interregional conflict, 31 Tex. Admin. Code § 357.10(15), pursuant to Section 16.053(h)(7)(A) of the Water Code, the Executive Administrator recommends a finding that no interregional conflict as defined in TWDB rules exists between Regions C and D.

2. Regarding resolution of the conflict between the Regions' relating to long-term protection of the state's water resources, agricultural resources, and natural resources pursuant to Section 16.053(h)(7)(C) of the Water Code and potentially substantial unmet municipal need, the Executive Administrator recommends the following:

a. Instruct Region C to retain Marvin Nichols as a recommended strategy in its 2011 Water Plan and in future plans as appropriate, and to update Chapter 10 of its Plan, relating to the Plan Approval Process, to reflect the mediation, this TWDB action, and other actions taken to effect this decision;

b. Instruct Region D to amend its 2011 Water Plan to reflect that Marvin Nichols will be retained in the Region C Plan as a recommended strategy for the purpose of further study by removing references in the Region D 2011 Plan to the conflict as listed on Attachment 5 of this recommendation and updating Chapter 10 of its 2011 Plan to reflect the mediation, this TWDB action, and other actions taken to effect this decision;

c. Instruct both regions to encourage completion of the ongoing Sulphur River Basin Study;

d. Encourage both Regions to accelerate consideration of alternative strategies, including additional conservation measures and additional water supplies from Wright Patman Reservoir and Toledo Bend Reservoir, to meet needs where uncertainties exist regarding current strategies;

e. Encourage both Regions to explore sharing of mitigation measures for any project developed for Region C in Region D; and

f. Instruct the Region C and Region D regional water planning groups to place review of the Board's decision and the setting of a public hearing on the next regional water planning group meeting and post notice as required by statute. Following the public hearing, each regional water planning group is to meet to adopt and submit plans amended in accordance with this directive to the TWDB for TWDB approval no later than 45 days from the date of the public hearing.

g. This is a final action on the issue of Marvin Nichols as a recommended strategy in the Region C Plan; it should not be raised again in any future Region D regional water plan.

Attachment(s):

- 1. Timeline for Public Comment and Consideration
- 2. Region C Regional Water Planning Area Map and Summary Tables
- 3. Region D Regional Water Planning Area Map and Summary Tables
- 4. Map of Regions C and D Reservoirs—Existing and Potential
- 5. Revisions to be made in the Region D 2011 Regional Water Plan

Attachment 1

REGION C AND THE REGION D INTERREGIONAL CONFLICT TIMELINE

March 4 – The preliminary recommendation is posted on the agency website and provided to the chairs of the C and D regional water planning groups and the parties to the Ward Timber litigation through their attorney. The TWDB begins receiving comments.

March / April – A public hearing on the preliminary recommendation is held at a convenient location in each region to take comments (the meetings will be recorded). Notices will be published on the TWDB website, in the *Texas Register*, and distributed via email.

April 15 – Comment period closes. Comments are analyzed; responses and any modifications to recommendation are prepared.

May 15 – The Executive Administrator submits a final recommendation to the Board and issues a letter soliciting briefs.

To Be Determined – Briefs are due following publication of final recommendation. The Board will determine when it will consider the Executive Administrator's recommendation.







* Minor aquifer (only shown where there is no major aquifer)





Revisions To Be Made In The Region D 2011 Regional Water Plan

Delete the following portions of the Plan

Page vi, Table of Contents, Section 7.0 Title beginning with "and the inconsistency . . ." to the end of the title

Page 7-1, Section 7.1, last paragraph, last four sentences beginning "This chapter will also address "

Page 7-3, Section 7.3, second sentence in the paragraph beginning ("The Marvin Nichols I Reservoir"

Page 7-3, Section 7.4, the next-to-last sentence beginning with the phrase "although the Marvin Nichols I Reservoir . . ." to the end of the sentence.

Page 7-11, Section 7.7, Conclusion paragraph and Note.

Page 8-6, Section 8.4, paragraph beginning "Sulphur River "

Page 8-16, Section 8.8, third paragraph beginning "It is the position"

Pages 8-32 – 8-33, Section 8.12.1, last paragraph beginning "Therefore, the North East Texas "

Page 8-35, Section 8.12.4, third paragraph beginning "The North East Texas"

Page 8-36, Section 8.13.1, last paragraph beginning "Based on the reasons set forth. . . ," and ending on page 8-37 with ". . . of the Texas Water Code."

Page 8-49, Section 8.13.15, NOTE

TWDB Final Recommendation of Conflict Resolution (May 19, 2014)



P.O. Box 13231, 1700 N. Congress Ave. Austin, TX 78711-3231, www.twdb.texas.gov Phone (512) 463-7847, Fax (512) 475-2053

TO:	Board Members
FROM:	Kevin Patteson, Executive Administrator
DATE:	May 19, 2014
SUBJECT:	Resolution of the Interregional Conflict between the 2011 Region C and the Region D Regional Water Plans

ACTION REQUESTED

Resolve the interregional conflict between the 2011 Region C and Region D regional water plans by instructing the Region C Regional Water Planning Group to readopt its current regional water plan with Marvin Nichols Reservoir as a recommended water management strategy and instructing the Region D Regional Water Planning Group to amend its plan to reflect that the conflict has been resolved.

BACKGROUND

Region C Planning Area

The Region C Regional Water Planning Area (Region C) includes all or parts of 16 counties. Overlapping much of the upper portion of the Trinity River Basin, Region C also includes smaller parts of the Red, Brazos, Sulphur, and Sabine river basins. The Dallas-Fort Worth Metropolitan area is centrally located in the region, and its surrounding counties are among the fastest growing in the state. Major economic sectors in the region include service, trade, manufacturing, and government.¹

The population of Region C counties is expected to increase 96 percent by 2060 to 13 million people. The area contains approximately 26 percent of the Texas population. The 2011 Region C Plan estimates that by 2060 an additional 1.7 million acre-feet of water per year will be needed to serve the region's population (a total 2060 demand of 3.3 million acre-feet of water per year). Conservation accounts for 12 percent of the projected 2060 volumes; reuse accounts for another 11 percent. Currently, the Marvin Nichols Reservoir (Marvin Nichols) is projected to provide 490,000 acre-feet per year, or 28 percent of the projected additional water needed.²

¹ Texas Water Development Board, Water for Texas 2012 State Water Plan, pg. 44.

 2 Id. at 46-50.

Our Mission

Board Members

To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas Carlos Rubinstein, Chairman | Bech Bruun, Member | Kathleen Jackson, Member

Kevin Patteson, Executive Administrator

Region D Planning Area

The North East Texas Regional Planning Area (Region D) encompasses all or parts of 19 counties in the north-east corner of the state. Largely rural and characterized by numerous small communities and some medium-sized municipalities, the region includes the cities of Longview, Texarkana, and Greenville. The planning area overlaps large portions of the Red, Sulphur, Cypress, and Sabine river basins and smaller parts of the Trinity and Neches river basins. The main economic base in the North East Texas Region is agribusiness, including a variety of crops as well as cattle and poultry production. Timber, oil and gas, and mining are significant industries in the eastern portion of the region. In the western portion of the region, many residents are employed in the Dallas-Fort Worth metropolitan area.³

Approximately 3 percent of the state's population resides in Region D. By 2060, Region D's population is projected to grow 57 percent, to 1.2 million. The 2011 Region D Plan estimates that by 2060 an additional 278,000 acre-feet per year will be needed to serve the region's population (a total 2060 demand of 839,000 acre-feet of water per year). Because of high costs relative to the small amounts of water involved, the Region D Plan does not recommend conservation as a water management strategy. Select major water management strategies include increasing existing surface water contracts, or 60 percent of projected 2060 volumes, new surface water contracts for another 33 percent, and new groundwater supplies for 7 percent of projected 2060 volumes.⁴

Marvin Nichols Reservoir in the State Water Plan

Senate Bill 1 (SB 1) in 1997 created the current state water planning process.⁵ Before the implementation of SB 1, Marvin Nichols was recommended as a water management strategy in the 1968 State Water Plan, the 1984 State Water Plan, and the 1997 State Water Plan. Under SB 1, the first Region D Regional Water Plan in 2001 recommended that Marvin Nichols be developed to provide a source of future water supply for water users both within Region D and in Region C. The 2001 Plan was later amended to remove support for the development of Marvin Nichols, however. The 2006 Region D Regional Water Planning Group took the position that Marvin Nichols should not be included in any regional plan or in the State Water Plan as a water management strategy. Further, the Region D Regional Water Planning Group expressed the opinion that the inclusion of Marvin Nichols in the Region C Regional Water Plan constituted an interregional conflict.⁶ Following the policy established with the first series of water plans, the Texas Water Plans because it did not find an over-allocation of a source of supply—the TWDB's definition of an interregional conflict.

³ Texas Water Development Board, *Water for Texas 2012 State Water Plan*, pg. 50. ⁴ *Id.* at 52-54.

⁵ Tex. S.B. 1, 75th Leg., R.S., 1997 Tex. Gen. Laws 1010.

⁶ Copies of the previous regional and state water plans are available on the TWDB website, <u>http://www.twdb.texas.gov/waterplanning/rwp/plans/index.asp</u> and <u>http://www.twdb.texas.gov/waterplanning/swp/index.asp</u>.

In 2007, the 80th Legislature established a study commission on Region C Water Supply that consisted of members appointed by the regional water planning groups of Regions C and D.⁷ The Study Commission was charged with reviewing the water supply alternatives available to the Region C Regional Water Planning Area. But the Study Commission was unable to reach a consensus on its findings and recommendations, so a final report was not delivered to the 82nd Legislature.⁸

In 2011, the Region C Regional Water Planning Group again adopted Marvin Nichols as a recommended strategy and Region D reiterated concerns it had raised previously. Region D again expressed the opinion that including Marvin Nichols in the Region C Regional Water Plan constituted an interregional conflict. The TWDB approved the Region D Regional Water Plan in October 2010, and the Region C Regional Water Plan in December 2010, finding again that there was no over-allocation of supply sources. To date, Marvin Nichols has not been constructed and no permits for its development have been sought from the Texas Commission on Environmental Quality (TCEQ) or the U.S. Corps of Engineers.

The Ward Timber Case Procedural History

Private parties in Region D filed suit in District Court in Travis County in January 2012, seeking judicial review of the TWDB's decision approving the Region C Regional Water Plan.⁹ In its order issued on December 5, 2011, the District Court declared that an interregional conflict existed, reversed the TWDB's decisions approving the two regional plans, and remanded the case to the TWDB for resolution. The TWDB appealed. The 11th Court of Appeals heard the case and affirmed the district court's ruling on May 23, 2013.¹⁰ No further motions were filed.

The TWDB contracted for a mediator and arranged for a mediation between Region C and Region D members appointed by their respective regional planning groups. The mediator reported on December 17, 2013 that the parties did not reach agreement in the mediation. Thus, under the statute and the Court's Order, the TWDB is to resolve the conflict.

The core dispute between Region C and Region D is whether Marvin Nichols should be developed in the north-central part of Region D to serve the water needs in Region C. Region C already contains more than a quarter of the state's population and will increase by almost 100 percent by 2060. At 28 percent of the projected additional water needed for the Region, Marvin Nichols is a major water strategy to serve Region C by 2060.

Region D does not want Marvin Nichols constructed because it is concerned about the potential socioeconomic, environmental, and private property impacts of the reservoir. Estimated at 66 to 70 thousand acres in size, Marvin Nichols is projected to impound thousands of acres of forest

⁷ Tex. S.B. 3, § 4.04, 80th Leg., R.S., 2007 Tex. Gen. Laws 1430.

⁸ *Final Draft Report to the 82nd Legislature*, Study Commission on Region C Water Supply, December 2010. The Draft Report and other documents related to the work of the Study Commission are available on the TWDB website at <u>http://www.twdb.texas.gov/waterplanning/rwp/regions/C/studycommission.asp</u>.

⁹ Ward Timber, Ltd.; Ward Timber Holdings; Shirley Shumake; Gary Cheatwood; Richard LeTourneau; and Pat Donelson v. Texas Water Development Board, No. D-1-GN-11-000121 (126th Dist. Ct., Travis County, Tex., Dec. 5, 2011).

¹⁰ Texas Water Dev. Bd. v. Ward Timber, Ltd., 411 S.W.3d 554 (Tex. App.—Eastland 2013, no pet.).

and wetlands. In addition, thousands more acres would be required for environmental mitigation—all for a project that does not serve and is not needed by the residents of the region.

ANALYSIS

What is a Conflict?

This is the first time the TWDB has been asked to resolve a conflict under the statute. As the 11th Court of Appeals noted, Section 16.053(a) of the Water Code requires that a regional plan provide for the development of water resources in preparation for and in response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; to further economic development; and to protect the agricultural and natural resources of that particular region.¹¹

Section 16.053(h)(7) provides that the TWDB may approve a regional plan only after it has determined that:

- (A) all interregional conflicts involving that regional water planning area have been resolved;
- (B) the plan includes water conservation practices and drought management measures incorporating, at a minimum, the provisions of Tex. Water Code §§ 11.1271 and 11.1272 (relating to water conservation and drought contingency plans); and
- (C) the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles adopted under Tex. Water Code § 16.051(d).

Section 16.0519(d) of the Water Code requires the TWDB to adopt guidance principles for the state water plan that reflect the public interest of the entire state. The guidance principles must give due consideration to the construction and improvement of surface water resources and the application of principles that result in voluntary redistribution of water resources.

Both the Plaintiffs/Appellees in the *Ward Timber* case and the 11th Court of Appeals discussed resolution of an interregional conflict and long-term protection of the state's resources together. They are, in fact, however, two different determinations as set out in the statute. A dispute between regions on protection of the state's resources, or on conservation and drought management, does not necessarily equate to an interregional conflict over allocation of resources among strategies.

"Conflict" is not defined in the statute. The definition employed by the TWDB beginning in 2001 and used consistently through the development of three state water plans was that an interregional conflict exists when more than one regional water plan relies upon the same water source, so that there is not sufficient water available to fully implement both plans, creating an

¹¹ Ward Timber, 411 S.W.3d at 558.

over-allocation of that source.¹² This definition was codified in TWDB's rules in 2012. The decision of the Court of Appeals in 2013 questioned the sufficiency of the definition to address what it determined to be an interregional conflict between Region C and Region D and declined to follow that definition. The Court did not suggest an alternative definition, however.

Under the statutory scheme relating to regional water planning and interregional conflicts, the TWDB decides whether an interregional conflict exists.¹³ The definition used by the TWDB over three cycles of water planning and adopted as a rule is consistent with the language of Texas Water Code Section 16.053 in defining "interregional conflicts" as conflicts arising between two or more defined water-management strategies that are necessary to ensure the implementation of all plans. The TWDB does not consider every difference between regional water plans to be a "conflict" as contemplated by the statute, nor does it recognize the geographic location of the water source as an aspect of the conflict. Instead, this definition focuses on resolving those conflicts that hinder full implementation of the state water plan by rendering an identified supply strategy inadequate for two or more regions.

The definition of interregional conflict adopted by the TWDB also recognizes that the legislature intended for the TWDB to address conflicts between actual water management strategies, not general objections to projects that are properly reserved for agencies other than the TWDB if and when permit applications for projects are filed.

Unlike the water uses addressed directly in the state and regional water plans (municipal, manufacturing, irrigation, steam electric power generation, mining, and livestock), water needed to protect environmental and natural resources is difficult to quantify. TWDB rules require that regional water planning groups evaluate each recommended strategy for social and economic impacts of not meeting needs, impacts to agricultural resources, consideration of third-party social and economic impacts, and evaluations of effects on environmental flows.¹⁴ Thus, protection of agricultural and natural resources and economic interests is considered in the regional plans in relation to specific, quantifiable strategies. At the planning stage, it should be sufficient that all regions affected by a particular strategy have identified those impacts.

The Regional Water Plan Review Process

In addition to ensuring that all interregional conflicts have been resolved, the TWDB must also determine that the plan includes water conservation practices and drought management measures, and that the plan is consistent with long-term protection of the state's water, agricultural, and natural resources. The TWDB's guidance principles, embodied in its rules instruct the regional water planning groups in how to address these requirements.¹⁵

The guidelines adopted by the TWDB in compliance with the statute are currently found in 31 Tex. Admin. Code §§ 357.20, 358.3, and 358.4. These rules are based on Tex. Water Code §§ 16.051(d), and 16.053(e) and (h)(7). The TWDB reviews the regional water plans and

¹² 31 Tex. Admin. Code § 357.10(15).

¹³ Tex. Water Code § 16.053(h)(4), (5), and (6).

¹⁴ 31 Tex. Admin. Code § 357.34.

¹⁵ See 31 Tex. Admin. Code §§ 357.22, 357.34-.35, and 357.40-.42.

prepares the state water plan based on these guidelines and requirements.

Under these principles, in reviewing the regional water plans the TWDB provides technical assistance to the regional planning groups, works with regional planners to address inconsistencies, to seek clarification, to note mistakes in citations, and to identify where the plan does not follow the guidance principles or does not adhere to the formatting guidelines. But the TWDB does not evaluate the sufficiency or validity of strategies presented in a plan. It does not do alternative analyses or redirect recommended strategies. This approach is in keeping with the philosophy behind SB 1 that each plan reflect the efforts of the local regional planning group and others in the region to evaluate and implement the planning decisions for their particular region.

Options Considered Related to the Conflict Over Marvin Nichols

Staff considered three options in analyzing possible recommendations to resolve the conflict over Marvin Nichols.

1. One recommendation proposed a smaller reservoir. Reducing the footprint of Marvin Nichols would mean that less property would be needed for the reservoir; but less water would be provided. Therefore, Region C would need to find alternatives to meet any remaining needs. Future rounds of planning could incorporate future changes, and creative problem-solving in the planning process might address concerns for both regions.

Staff ultimately rejected this proposal, however. To propose reducing the size of Marvin Nichols means interjecting the TWDB in the engineering specifics of a particular strategy in a region's plan—something the TWDB has not done before. This approach would be a change in the TWDB's State Participation Program policy of supporting the optimal sizing of a facility. It would also mark a shift away from the planning process as locally driven.

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Experience with other reservoir development suggests that much work still needs to be done before the reservoir becomes a reality. Thus, the future of Marvin Nichols rests with those who want Marvin Nichols as a source.

Staff acknowledges, however, that Marvin Nichols is a long-term strategy. Reasonable planning involves development first of those short-term projects that cost less and are easy to implement. Long-term strategies always assume a large number of uncertainties. Therefore, striking a

strategy because of uncertainties 15, 20, even 40 years in the future is not a reasonable approach to planning.

Both Region C and Region D acknowledge the need for more study, which is a responsible approach given the size, potential expense, and timing of the strategy. The Sulphur River Basin Feasibility Study by the U.S. Corps of Engineers in conjunction with the Sulphur River Basin Authority currently underway is focused on water supply issues and water user groups in the Basin. That independent study, expected to be completed in 2015, could answer many of the uncertainties before the permit process is initiated.

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TWDB rules require that regional water planning groups identify and recommend water management strategies that meet all water needs during the drought of record.¹⁶ In addition, regional water plans must include a quantitative description of the socioeconomic impacts of not meeting identified water needs.¹⁷ The TWDB, therefore, generally will not approve a regional or state water plan that contains unmet needs. In particular, it has avoided approving a regional plan that contained unmet municipal needs in the long-term planning horizon because of the potential impacts on public health, safety, and welfare. Including Marvin Nichols responds to the facts of both the current size of Region C and its anticipated growth. Continuing to include Marvin Nichols also acknowledges the recent legislative mandate in House Bill 4 and Senate Joint Resolution 1 to develop and fund the strategies in the plan as opposed to excising strategies at a critical time for water supply development in Texas.

Some have suggested that Region C address its needs through conservation. But, as noted earlier, conservation is already included in Region C's Plan.¹⁸ And, even by the most liberal estimate, conservation cannot make up all the need that the region will have over the next 50 years.

Property owners in the area where Marvin Nichols may be located are justifiably concerned about the loss of their lands and the economic value attached to those lands. Any one or more of the municipalities or water districts in Region C could sponsor Marvin Nichols.

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The Texas Constitution provides in part that "No person's property shall be taken, damaged or destroyed for or applied to public use without adequate compensation being made, unless by the consent of such person; "Tex. Const. Art. I, § 17.

Thus, while a municipality has the right of eminent domain under Chapter 251 of the Local Government Code, and water districts have a similar right under Chapter 49 of the Water Code, the law provides for just and fair compensation for both the value of the property and damages to the landowner. The procedures for the exercise of eminent domain are set out in statute and are intended to protect the right of a property owner to just compensation. Any such evaluation of lands potentially included in Marvin Nichols is subject to those provisions and cannot be determined here.

PROPOSED RESOLUTION OF THE CONFLICT

On March 4, 2014 the Executive Administrator issued a preliminary draft recommendation to resolve the conflict between Region C and Region D 2011 regional water plans. The draft recommendation was posted on the Texas Water Development Board website, along with the announcement of a public comment period and two public hearings. On April 29 and 30, 2014 public hearings were held in Region D and Region C. Approximately 450 people attended the April 29 hearing in Mt. Pleasant and 150 people attended the April 30 hearing in Arlington. The public comment period ended on May 2, 2014. More than 7,300 comments were received by the TWDB.

The TWDB reviewed the comments and has provided responses (See Attachment 6). Changes to the preliminary recommendation as discussed in Attachment 6 have been incorporated in the recommendations below.

SUMMARY

SB 1 created an important document in the state water plan. It is to be "a guide to water policy."¹⁹ But the regional and state water plans are only plans—guides to water policy. TCEQ is only required to take the plan into consideration. It is not bound by the plan and may waive the consistency requirement if conditions warrant. The Water Infrastructure Fund (WIF), the State Implementation Fund for Texas (SWIFT), and the State Water Implementation Revenue Fund for Texas (SWIRFT), require that a project be in the State Water Plan for the TWDB to provide financial assistance to that project. If a water project to receive financial assistance under a TWDB program other than the WIF, SWIFT, or SWIRFT, it must be *consistent* with the State Water Plan, not necessarily in the State Water Plan. The TWDB may waive the requirement for consistency with the State Water Plan if the financial assistance is for a water project under a TWDB program other than the WIF, SWIFT, or SWIRFT, and the TWDB determines that conditions warrant the waiver.²⁰

Regional and state water plans are planning level documents. Both the Region C and Region D planning groups acknowledge that more studies need to be done on critical strategies including

 ¹⁹ Tex. Water Code § 16.051(b).
 ²⁰ Tex. Water Code § 16.053(k).

Marvin Nichols. The decision of whether to proceed with the development of Marvin Nichols or any other reservoir development strategy rests with the regional planners, the project sponsors, and the state and federal agencies that grant the licenses and permits necessary for the project to proceed.

The TWDB's task is to prepare a state water plan every five years that includes regional water plans adopted by regional water planning groups and approved by the TWDB in preparation for and in response to drought conditions.²¹ None of the factors the TWDB must consider in approving a regional water plan involves a substantive analysis of the validity or sufficiency of the strategies in a plan. But allowing for any unmet needs that may affect public health, safety, and welfare in the face of another drought of record would not comply with the intent of the statute, nor would it address the legislative mandate to develop the strategies in the State Water Plan.

The Executive Administrator therefore recommends the following steps for the Board to resolve the conflict between Region C and Region D. In addition, the Executive Administrator proposes the attached timeline for public comment and consideration of this recommendation.

RECOMMENDATIONS

The Executive Administrator recommends that the Board resolve the conflict between Region C and Region D by taking the following steps:

1. Applying the TWDB's definition of interregional conflict, 31 Tex. Admin. Code § 357.10(15), pursuant to Section 16.053(h)(7)(A) of the Water Code, the Executive Administrator recommends a finding that no interregional conflict as defined in TWDB rules exists between Regions C and D.

2. Regarding resolution of the conflict between Region C and Region D relating to construction of a reservoir and long-term protection of resources in the area to be impounded pursuant to Section 16.053(h)(7)(C) of the Water Code, the Executive Administrator recommends the following:

a. Instruct Region C to retain Marvin Nichols as a recommended strategy in its 2011 Water Plan, and to update Chapter 10 of its Plan, relating to the Plan Approval Process, to reflect the mediation, this TWDB action, and other actions taken to effect this decision; or, if the Board wishes to consider an alternative recommendation, the Board may consider

Instructing Region C to make Marvin Nichols Reservoir an alternative strategy and to elevate consideration and possible development of all other existing sources and water supply strategies to meet its water supply needs.

b. Instruct Region D to amend its 2011 Water Plan by removing references in the Region D 2011 Plan to the conflict as listed on Attachment 5 of this recommendation and

²¹ See Tex. Water Code § 16.051(a).

updating Chapter 10 of its 2011 Plan to reflect the mediation, this TWDB action, and other actions taken to effect this decision;

c. Instruct both regions to participate in the completion of the ongoing Sulphur River Basin Study;

d. Instruct Region C to accelerate consideration of alternative strategies, including additional conservation measures and additional water supply alternative including Wright Patman Reservoir, Toledo Bend Reservoir, and George Parkhouse Reservoir, to meet needs where uncertainties exist regarding current strategies;

e. Encourage Region C to share mitigation measures for any project developed for Region C in Region D in proportion to the interest Region C water providers have in the water produced by the project; and

f. Instruct the Region C and Region D regional water planning groups to place review of the Board's decision and the setting of a public hearing on the next regional water planning group meeting and post notice as required by statute. Following the public hearing, each regional water planning group is to meet to adopt and submit plans amended in accordance with this directive to the TWDB for TWDB approval no later than 45 days from the date of the public hearing.

Attachment(s):

- 1. Region C Regional Water Planning Area Map and Summary Tables
- 2. Region D Regional Water Planning Area Map and Summary Tables
- 3. Map of Regions C and D Reservoirs—Existing and Potential
- 4. Revisions to be made in the Region D 2011 Regional Water Plan
- 5. Public Comments and Responses

Attachment 1 Page 1 of 2



* Minor aquifer (only shown where there is no major aquifer)

Attachment 1 Page 2 of 2





Page 1 of 2



* Minor aquifer (only shown where there is no major aquifer)

Attachment 2 Page 2 of 2





Attachment 3

Revisions To Be Made In The Region D 2011 Regional Water Plan

Delete the following portions of the Plan:

Page vi, Table of Contents, Section 7.0 Title beginning with "and the inconsistency . . ." to the end of the title

Page 7-1, Section 7.1, last paragraph, last four sentences beginning "This chapter will also address "

Page 7-3, Section 7.3, second sentence in the paragraph beginning ("The Marvin Nichols I Reservoir"

Page 7-3, Section 7.4, the next-to-last sentence beginning with the phrase "although the Marvin Nichols I Reservoir . . ." to the end of the sentence.

Page 7-11, Section 7.7, Conclusion, paragraph and Note.

Page 8-6, Section 8.4, paragraph beginning "Sulphur River "

Page 8-16, Section 8.8, third paragraph beginning "It is the position"

Pages 8-32 – 8-33, Section 8.12.1, last paragraph beginning "Therefore, the North East Texas "

Page 8-35, Section 8.12.4, third paragraph beginning "The North East Texas "

Page 8-36, Section 8.13.1, last paragraph beginning "Based on the reasons set forth. . . ," and ending on page 8-37 with "... of the Texas Water Code."

Page 8-49, Section 8.13.15, NOTE

COMMENTS IN RESPONSE TO DRAFT RECOMMENDATION

Comments received during the comment period and at the public hearings have been organized by the issues that were raised or discussed. Because of the large number of comments received, unique points have been highlighted and similar points have been combined. Responses are shown in *italics*

THE RECOMMENDATION

Commenters frequently stated that State law requires the State Water Plan to protect the water, agricultural, and natural resources of the state. The proposed Marvin Nichols Reservoir does not do so based on the detrimental impacts of proposed reservoir and required mitigation would have on Region D. Commenters suggested that the recommendation directly contradicts the decisions of the state courts in this matter. The courts have rejected TWDB's narrow definition of what constitutes an interregional conflict—which means the EA is holding to a position that ignores the decisions of the courts

One commenter suggested that, rather than defend a rule that has already been undercut by judicial review, the Executive Administrator should be focusing on correcting, not perpetuating a rule that got us to this point in the first place.

The Court of Appeals said "the Board can solve its dilemma by amending the rule defining an interregional conflict to include its present definition and the present situation where a region has studied the impacts and finds there is a substantial conflict."¹ The Court did not tell the Board to eliminate the former definition, only to amend it to add the present situation.

Section 16.053(h)(7) provides that the TWDB may approve a regional plan only after it has determined that:

all interregional conflicts involving that regional water planning area have been (A)resolved;

the plan includes water conservation practices and drought management (B)measures incorporating, at a minimum, the provisions of Tex. Water Code §§ 11.1271 and 11.1272 (relating to water conservation and drought contingency plans); and

the plan is consistent with long-term protection of the state's water resources. (C)agricultural resources, and natural resources as embodied in the guidance principles adopted under Tex. Water Code § 16.051(d).

Subpart (A) addresses the allocation of water resources. The recommendation reiterates that no interregional conflict as defined in current Board rules² is present in this case. It also acknowledges the current conflict under Subpart (C) with regard to construction of a reservoir and long-term protection of resources in the area to be impounded.

¹ *Ward Timber*, 411 S.W.3d at 573. ² 31 TEX. ADMIN. CODE § 357.10(15).

The rule was put in place before the appellate court rendered its opinion. Amending the rule is a separate matter from resolving the conflict. No changes in the recommendations will be made based on these comments.

Commenters stated that requiring Region D to alter its plan is not acting in accordance with the "bottom up" water planning process. They assert that the courts remanded only Region C for resolution and thus, the TWDB has no right to instruct Region D to amend its plan.

The courts instructed the TWDB to resolve the conflict as required by statute. The statute requires the TWDB to resolve interregional conflicts. It also requires the involved regional water planning groups to prepare revisions to their respective plans based on the Board's recommendations. Though the courts remanded only the 2011 Region C Water Plan as unapproved due to a conflict, Region D is an "involved region" under the statute for a number of reasons. Region D has an obvious stake in the resolution of the conflict. It raised the specter of a conflict in detail in its regional plan. It has participated vigorously in this resolution process. It is the location of the proposed reservoir and will be affected by the outcome of the resolution. Thus, it is appropriate to recommend revisions to the Region D Plan that reflect the Board's resolution of the conflict.

The Executive Administrator makes no changes to the recommendation based on these comments.

Several commenters suggested making Marvin Nichols Reservoir an alternative strategy, not a recommended strategy, in the Region C Plan.

For the reasons set out in the draft recommendation, the Executive Administrator continues to favor Recommendation 2.a. However, if the Board wishes to consider revising the recommendation, it may consider instructing Region C to make Marvin Nichols Reservoir an alternative strategy and to elevate consideration and possible development of all other existing sources and water supply strategies to meet its water supply needs.

Commenters suggested tabling the issue until further negotiations and studies are done.

The Executive Administrator considered this option and decided not to recommend it. The regions are already at work on their 2016 plans. It is important to put this matter before the Board for resolution as instructed by the courts so that Regions C and D can put the 2011 plans behind them and focus on the 2016 plans and future regional water planning.

The mediation ordered by the Board in response to the court decisions is only the most recent attempt to resolve the conflict between Regions C and D. A previous study commission, established by the 80th Legislature in 2007 and consisting of members appointed by both regional water planning groups, was charged with reviewing the water supply alternatives available. But after a year of work, the Study Commission was unable

to reach a consensus on its findings and recommendations. The draft recommendations of that Study Commission tried to balance the interests of both regions and provide direction for moving forward. Like the recent mediation, the Study Commission failed. No changes in the recommendations will be made based on these comments.

One commenter asserted that the conflict is not about location of a reservoir, but about the impact. The conflict needs a compromise that takes into account both the need for water and protection of environmental, agricultural, economic, and natural resources.

It seems, however, that the two are tied together. The potential impact is a result of the identified location. It is difficult to imagine a situation in which the location could stay the same, but the economy and natural resources would not be affected. It is also hard to see how moving the location of the reservoir would remove the issue presented of protecting local resources.

A commenter asserted that the recommendation is inconsistent with the TWDB's own guidelines. It states that an additional 1.7 million acre-feet will be needed to meet the projected population growth by 2060. The Region C plans states that the projected growth is 6.5 million people. That comes to 234 gallons per person per day, or 94 gallons per day more than the TWDB has recommended. What gives them the right to play by a different set of rules?

This appears to be based on the Water Conservation Implementation Task Force study that came up with a recommended statewide goal of reducing total statewide water demand to an average of 140 gallons per capita per day (GPCD). The study itself notes that the 140 GPCD was a compromise that would need to be replaced with more meaningful goals and targets as data became available. The goal was never adopted by the TWDB because of the uncertainties surrounding it.³ It is not a Board recommendation.

Several commenters expressed concern regarding Recommendation 2.g. that states the issue of Marvin Nichols should not be raised in any future Region D water plan. They noted that there is no precedent for binding future regional water planning groups in this manner.

Recommendation 2.g. did not mean that the issue cannot be raised again in another context or before another agency, nor that Region D is unable to raise other issues in its plan. Region D may find other conflicts in future water plans, but resolution of this conflict should settle this particular matter.

With that said, based on the comments, the Executive Administrator is removing Recommendation 2.g. from the recommendations.

ECONOMIC ISSUES

³ See Texas Water Development Board Special Report, Water Conservation Implementation Task Force Report to the 79th Legislature, 61, 67 (November 2004).

Comments were received that Marvin Nichols Reservoir would mean lost revenues from farming, ranching, hunting leases and timber leases in the area. Commenters stated that the timber industry is vital to the area. And that it will be irreparably damaged by taking the reservoir and associated mitigation lands.

According to speakers for the industry, development of Marvin Nichols threatens future planned expansion of International Paper and the related timber industry. They asserted that, as a result of the loss of the timber industry, other industries connected to timber will be negatively affected (8 associated jobs for every International Paper job).

Other commenters wrote that farming has diminished significantly as an economic force in the area. Ranching has not brought in the jobs needed to keep youth in the area. These commenters suggest that a large lake with 70% of the shoreline in Red River County would make Clarksville, Bogata, Cuthand, Annona, Boxelder, and many smaller, once thriving, communities thrive again. There would be jobs for home builders, plumbers, road construction, electricians, and other trades. There will be a change—an influx of development, people seeking cabins for weekend getaways, and development along the shores of one of the largest lakes in Texas. This would all contribute to the entire North Texas economy.

Timber is currently a major industry in the area. But other options for income are available in the area that will be affected by the reservoir development. Creating the reservoir itself may also positively impact the economy. No changes in the recommendations will be made based on these comments.

ALTERNATIVES

A large number of commenters suggested that other options are available for water supplies to Region C that protect the natural resources of the State. They say expansion of Wright Patman Reservoir and Ray Hubbard, utilization of Lake Texoma and the Toledo Bend Reservoir, or combinations of these and other options would adequately supply Region C without the negative impacts associated with Marvin Nichols.

Most of the options mentioned have been included as strategies in the Region C Plan.

Other commenters noted that two hundred million acre-feet of water have flowed over Wright Patman dam on its way to the coast. Raise the water level of Wright Patman just a few feet and Region C will have all the water it needs to avoid developing Marvin Nichols. It will be less destructive to the economy and the land, even though it will have costs.

Wright Patman is a strategy in Region C's plan. But it, too, is not without its issues. To wait until the engineering and other questions are resolved before considering Marvin Nichols as a strategy in the plan leaves an unmet need in the plan.

Still other commenters proposed considering the Trinity River project as an alternative, and investing in the development of Lake Columbia?
Both of these strategies are included in the Region C Plan—the main stem Trinity River Pump Station as a recommended strategy and Lake Columbia as an alternative strategy.

Several commenters encouraged consideration of desalination of ocean water and brackish water before building a reservoir.

As with the other options listed, desalination, especially of brackish water, is an alternative being considered not only by Region C, but by other regions of the state, as well. In fact, desalination and blending projects are already under way in some areas of Region C, and desalination of water from the Gulf of Mexico is listed as a major, potentially feasible strategy.

One commenter observed that, since proposed in the first regional plan, the cost to develop Marvin Nichols has doubled and will likely double again before it is constructed. Commenters state that reservoirs are not a good option for water storage. Other commenters recommend looking to underground storage options for water diverted from the Sulphur River.

A commenter also observed that the aquifers continue to be depleted. By the time Marvin Nichols is actually built, there may not be any fresh water left to fill it from the nearby river or fresh water source. The commenter asserted that it is time for Texas to devise a modern, comprehensive solution to water management and develop innovative solutions rather than relying on a plan that was put in place in 1968.

The costs of all strategies in the water plans will increase over time. One reason the 82nd Legislature took the step of passing HB 4, HB 1025, and SJR 1 was to stimulate development of strategies in the State Water Plan as costs escalate. Rising cost does not justify removal of a strategy from a plan. The fact that all water sources are being stressed argues for keeping all alternatives available over both the near and far planning horizon.

CONSERVATION IN REGION C

A number of commenters expressed in various ways the concern that Region C residents waste an enormous amount of water. Some commenters suggested that conservation and reuse measures could be implemented that would meet the needs of Region C and should be addressed before any additional reservoirs are built. And one commenter pointed to San Antonio as having reduced its water consumption over the last two decades by 42% through conservation, while Region C has the highest per capita use of any area in the state.

One commenter, however, opposed to the inclusion of Marvin Nichols in the Region C Plan noted that the water demand projections for Region C have decreased considerably since the 2011 regional plan was prepared, and recent actions and new opportunities to enhance water conservation call into question any justification for the proposed reservoir, at least within the 50year planning horizon. Water conservation is beginning to have an impact in Region C. The commenter asserted that the water demand projections for the next round of regional water planning show that—as a result of the lower projected per capita water use and some lower population growth projections—the demand for water in Region C in 2070 is projected to be lower than the demand for water that had been projected for 2060 in the 2011 Region C plan by about 300,000 acre-feet of water per year.

The commenter proposed that the TWDB, as an interim measure, remove the Marvin Nichols Reservoir from the 2011 Region C Plan and require that additional municipal water conservation be included to meet any resulting shortfall in water supplies. In effect, some of that is already happening, as is demonstrated by the lowered water demand projections for the new round of planning, and more conservation is possible given recent state and local actions. Another commenter noted that conservation measures introduced by Dallas Water Utility have saved an estimated 200 billion gallons and reduced "gallons per capita per day" by 22 percent. Dallas anticipates that approximately 25 percent of its future water needs will be met by conservation and reuse.

Current efforts made by the City of Dallas and others in Region C to reduce per capita consumption through conservation measures are having positive results. Conservation and reuse strategies could account for as much as 30 percent of projected 2060 volumes. But to assume that Region C will be able to meet its long-term needs with current supplies and increased conservation is not practical. Other commenters, even those against development of Marvin Nichols, acknowledge that Region C will need additional water supplies in the future.

Several commenters noted that Region C (the Metroplex) has 126 billion gallons in reserve in its plan. There is no need for Marvin Nichols with such excess capacity already available. Another commenter quoted the figure as a surplus of 700,000 acre feet available.

The Region C Plan states that the reserve is reasonable to provide for difficulties in developing strategies in a timely manner, the occurrence of droughts worse than the drought of record, greater than expected growth, and supply for needs beyond this planning horizon. Presumably, that figure will be adjusted as strategies are developed and contingencies are faced. It is important to note that the surplus is calculated on the basis of the entire region. Removing Marvin Nichols as a strategy affects only certain water user groups and water providers. There would not be a one-for-one tradeoff between removing Marvin Nichols and adjusting the amount of surplus.

SOCIAL ISSUES

The majority of commenters expressed concern that development of Marvin Nichols as projected will destroy homesteads, cemeteries, Native American burial grounds, other historic sites in the area and vital habitat. Another commenter suggested that, given the proposed location of the reservoir, it is not likely that even one residence will be disturbed.

Until a final proposal for the reservoir is before the permitting agencies, the extent of its footprint is difficult to assess. With regard to cemeteries and historic sites, other agencies will oversee assessment of any sites and removal to other locations.

ENVIRONMENTAL ISSUES

A commenter suggested that mitigation would require an area the size of Titus County. The question was asked, "Where do we find that much available land?" Other commenters noted that the location of the reservoir *and* of likely mitigation land put the entire burden on the shoulders of Region D. Even commenters who were not opposed to development of the reservoir expressed concern regarding mitigation, suggesting that the area required for mitigation should be reduced to the least amount possible.

Several figures were suggested for the amount of land that would be needed for mitigation, which suggests that the amount required is not known and will not be known until the issue is reviewed by the agencies that determine the amount of mitigation needed.

OTHER COMMENTS

One commenter observed that the footprint of the proposed reservoir lies over the Mexia-Talco Fault and the Luann Salt—unstable conditions for the development of a large reservoir.

The Luann Salt is a formation that underlies much of eastern and southern Texas; it is deep below the surface and below the East Texas aquifers. The Mexia-Talco Fault is an inactive fault line that runs through the area. It is not possible at this time to tell what, if any, impacts these geologic formations may have on the viability of the development of Marvin Nichols Reservoir. This issue will be fully examined when an Environmental Impact Statement is prepared for the Clean Water Act Section 404 permit process with the U.S. Corps of Engineers. No changes in the recommendations will be made based on this comment.

One commenter wanted to know how an acceptable fair market value is determined when there is no willing seller. Another commenter suggested that land owners be compensated for any land acquired for the development of the reservoir in accordance with the *Uniform Standards of Professional Appraisal Practice*.

A number of tools are available for determining property values. The process for land acquisition is set out in detail in statute.⁴ No changes in the recommendations will be made based on these comments.

The need for Region C is in the future. The impact on Region D is immediate, not speculative.

The Region C Plan shows that Marvin Nichols is a strategy for future needs. But the comments received do not show how the impact on Region D is immediate. The impacts are not speculative. But people and businesses will have an opportunity to make adjustments, develop new options, and prepare.

⁴ See Tex. Prop. Code Ch. 21.

A commenter suggested that the proposed reservoir may not rank high on several criteria in the new regional prioritization process, especially as certain factors in flux are likely to impact its ranking in a negative way. The commenter also observed that, even if continued in the Region C water plan, any effort to actually build the reservoir is going to involve a lengthy, protracted, and expensive permitting process that has no guarantee of success.

Until the SWIFT rules are adopted, any assumptions regarding how prioritization will be applied and its impacts assessed are premature. Many of the projects in the regional water plans will involve lengthy processes to move from planning through design to implementation. Lack of certainty at this stage is not a reason to remove an otherwise feasible alternative from a regional plan. No changes in the recommendations will be made based on this comment.

A commenter recommended that the TWDB clarify the last sentence in the first paragraph under "Summary" to make clear that the TWDB may only waive the consistency requirement for financing projects not necessarily identified in the SWP only when the financial assistance will not be from the WIF, SWIFT, or SWIRFT.

The Executive Administrator agrees with this comment because of the need for clarity in stating the relationship between the statutory requirements related to the State and regional water plans and the funding programs managed by the TWDB.

A commenter expressed concern that Region D is restricted from access to WIF, SWIFT, and SWIRFT fund due to the conflict, as the Region D 2011 Water Plan has been adopted and approved and was not in part of the District Court order.

There may be a question as to whether the courts remanded both regional plans to the Board for further action. However, granting that the approval of Region D's plan may not have been reversed, there is no uncertainty that the Court of Appeals saw resolution of the conflict as involving both regions.⁵ Under Tex. Water Code § 16.053(h)(6), on resolution of the conflict, the involved regional water planning groups shall prepare revisions to their respective plans; consider all public and board comments; prepare, revise, and adopt their respective plans; and submit their plans to the Board for approval and inclusion in the state water plan. The Executive Administrator makes these recommendations in accordance with those statutory instructions. For the reasons discussed above, both plans must reflect the Board's resolution of the conflict in order to be approved and included in the State Water Plan. Approval will determine whether projects in a region are eligible for funding from TWDB programs under the applicable statutes or that may require a waiver.

⁵ See, e.g., Ward Timber, 411 S.W.3d at 574 ("By complying with Section 16.053(h)(6) and facilitating coordination between the two regions to resolve the major conflict in the two plans, the Board will be carrying out the purpose of the state water plan."); and at 575 ("The Region D planning group in its Region D plan made a preliminary case that there is a substantial interregional conflict with Region C's plan, and that should be sufficient for the Board to require the two regional planning groups to attempt to resolve that conflict.")

One commenter suggested that the TWDB take direction from the Texas Constitution, Section 49-d by encouraging optimum development of the limited number of feasible sites available for the construction of dams and reservoirs.

The Executive Administrator agrees with the comment and notes, further, that the Legislature provided funds to encourage optimum regional development of projects including the design, acquisition, lease, construction, and development of reservoirs.⁶

Another commenter urged that state water is a state resource, and asked that the TWDB not remove a vitally important strategy at this early stage of the process.

The Executive Administrator agrees with this comment. One of the purposes of the planning process is to provide an opportunity for regions of the state to explore options, strategies, for the development of the State's waters, "which waters are held in trust for the use and benefit of the public."⁷ From those options, the regions determine which are most appropriate for development at a given time.

One commenter stated that resolution of the conflict is urgently needed so that the regions can move on with planning and consideration of all options.

The Executive Administrator agrees with this comment. Some commenters have asked for more time to negotiate further. As noted above, attempts to reach a negotiated agreement between the regions have failed on more than one occasion. The Plaintiffs in Ward Timber asked the courts to instruct the Board to resolve the conflict they identified. The courts did that. This recommendation to the Board is in response to the Court's order.

A commenter recommended that the Executive Administrator clarify the last sentence in the first paragraph under "Summary" to make clear that the TWDB may only waive the consistency requirement for financing projects not necessarily identified in the SWP only when the financial assistance will not be from the WIF, SWIFT, or SWIRFT, such as:

"With the exception of the Water Infrastructure Fund (WIF), the State Implementation Fund for Texas (SWIFT), and the State Water Implementation Revenue Fund for Texas (SWIRFT), which require that a project be in the State Water Plan, the TWDB may provide financial assistance if a water project is *consistent* with the Plan, not necessarily in the Plan. The TWDB may waive the requirement for consistency with the State Water Plan if a financial assistance application is for financing under a TWDB program other than the WIF, SWIFT, or SWIRFT, and the TWDB determines that conditions warrant the waiver."

The Executive Administrator agrees with the commenter that this point needs to be made clear. The language in the Summary section of the recommendation has been revised with this in mind.

⁶ Tex. Water Code § 16.131. ⁷ TEX. CONST. art. III, § 49-d(a).

Letter Soliciting Legal Briefs (May 20, 2014)



P.O. Box 13231, 1700 N. Congress Ave. Austin, TX 78711-3231, www.twdb.texas.gov Phone (512) 463-7847, Fax (512) 475-2053

May 20, 2014

To: Persons on the Attached Mailing List (by mail and email as indicated)

Re: Conflict between Regional Water Plans for Regions C & D

This letter is in response to the Executive Administrator's Final Recommendation ("Recommendation") on the Conflict between Regional Water Plans for Regions C & D issued on May 19, 2014. A copy of the Recommendation is located on the Texas Water Development Board's official website: <u>http://www.twdb.texas.gov/</u>.

The Office of General Counsel is requesting the submission of legal briefs or responses to the Recommendation by a representative for Region C and a representative for Region D ("parties"); and the subsequent submission of a legal reply to the responses submitted. The briefs should contain a full discussion of the parties' legal and factual reasons for their positions. Additionally, the parties should limit their argument to those germane to the issues raised in the Recommendation.

Response briefs must be received by the Office of General Counsel on or before **5:00 P.M.** on **Friday, June 20, 2014**. Replies to the response briefs must be received by the Office of General Counsel on or before **5:00 P.M.** on **Monday, July 7, 2014**. Please send both the response and reply briefs to the Office of General Counsel by U.S. Mail and Electronic Mail. The mailing address of the Office of General Counsel is: Office of General Counsel, ATTN: Les Trobman, Texas Water Development Board, P.O. Box 13231, Austin, Texas 78711-3231 [les.trobman@twdb.texas.gov]. On the same day a response or reply is transmitted to the Office of General Counsel, a copy must also be sent by U.S. Mail and Electronic Mail to all other persons at their mailing address/email address listed on the attached Mailing List.

All timely written submissions on this matter will be considered and I will inform the parties by letter when the Recommendation will be set for a public Board Meeting. If you have any questions regarding the briefing schedule or related matters, please contact me at 512-463-9105.

Very truly yours,

Les Ťrobman General Counsel

Mailing List

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Our Mission

To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas Carlos Rubinstein, Chairman | Bech Bruun, Member | Kathleen Jackson, Member

Kevin Patteson, Executive Administrator

Board Members

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- Region C Legal Brief
- Region D Legal Brief
- Region C Response Brief
- Region D Response Brief

IN RE THE INTERREGIONAL CONFLICT BETWEEN THE REGION C AND REGION D REGIONAL WATER PLANNING GROUPS

BEFORE THE TEXAS

WATER DEVELOPMENT BOARD

BRIEF OF THE REGION C REGIONAL WATER PLANNING GROUP ON THE RESOLUTION OF INTERREGIONAL CONFLICT

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I. The Texas Water Development Board should resolve any conflict regarding the proposed Marvin Nichols Reservoir water supply strategy by supporting Region C's position on the project.

The Texas Water Development Board has broad discretion in resolving interregional conflicts that cannot be resolved by the pertinent regions.¹ The mediation between the Region C and Region D Regional Water Planning Groups² regarding the proposed Marvin Nichols Reservoir project ("Marvin Nichols") was unsuccessful. The Board must now resolve the conflict.³ May the Board resolve the conflict by supporting Region C's position on the Marvin Nichols Reservoir project?

It unquestionably may, and it should.

II. The law and sound public policy direct the Texas Water Development Board to support the position of Region C regarding the proposed Marvin Nichols Reservoir water supply strategy.

The standard by which the Board must resolve the conflict is one of reasonableness.⁴ Region C's recommendation of Marvin Nichols as a water supply strategy is consistent with all applicable statutory and administrative criteria for regional water planning. Conversely, Region D's position that Marvin Nichols should be excluded from the 2011 Region C Regional Water Plan (and, therefore, the 2012 State Water Plan) is inconsistent with the applicable statutory and administrative criteria for regional water planning. As discussed in greater detail below, the only reasonable way the Board can resolve this conflict is to support Region C's position on Marvin

¹ TEX. WATER CODE § 16.053(h)(6).

² The Region C and D Regional Water Planning Groups, Regional Water Planning Areas, and Regional Water Plans will be interchangeably referred to herein as "Region C" and "Region D", respectively.

³ TEX. WATER CODE § 16.053(h)(6).

⁴ See Gilder v. Meno, 926 S.W.2d 357, 365 (Tex. App.—Austin 1996, writ denied).

Nichols. Adopting Region D's recommendation would simply be unreasonable, if not arbitrary, capricious, or unlawful.⁵

A. Marvin Nichols is an indispensable component of the Region C Regional Water Plan because there are no reasonable alternatives to such a large potential source of supply.

The Marvin Nichols Reservoir project is not a new concept.⁶ The proposed reservoir has been recommended in some form or another in every State water plan since 1968.⁷ Even as recently as 2001, both Region C and Region D agreed that Marvin Nichols should be constructed to meet the growing water demands of the North Texas region.⁸

The reason is straightforward. It is hardly a secret—and not subject to any reasonable debate—that Marvin Nichols accounts for approximately 28 percent of the additional water supply that must be developed to bridge Region C's projected 50-year supply-demand gap.⁹ With an anticipated annual firm yield for Region C of approximately 489,840 acre feet, the Marvin Nichols Reservoir project is unrivaled in scale of reliable yield.¹⁰ As the 2011 Region C Regional Water Plan ("Region C plan") demonstrates, the Region C stakeholders have been unable to find any meaningful comparison in their efforts to identify a reasonable alternative to the Marvin Nichols Reservoir project.

In response to critics that suggest Region C should consider more conservation, water reuse, and expansion of existing supplies to address its projected water supply deficit, the 2011

⁵ See G.E. American Commc'n v. Galveston Cent. Appraisal Dist., 979 S.W.2d 761, 765 (Tex. App.—Houston [14th Dist.] 1998, no pet. h.).

⁶ See Texas Water Development Board, The State Water Plan, November 1968, at 53.

⁷ Hearts Bluff Game Ranch, Inc. v. State, 381 S.W.3d 468, 474 (Tex.2012).

⁸ Executive Administrator's Recommendation Memorandum to the Board Members, May 19, 2014, at 2.

⁹ TEX. WATER DEV. BD., 2012 WATER FOR TEXAS (2012), http://www.twdb.state.tx.us/publications/state_water_plan/2012/2012_SWP.pdf, at 46; 2011 REGION C WATER PLAN, Vol. 1, at 47-48 [hereinafter 2012 State Water Plan].

¹⁰ FREESE AND NICHOLS, INC., ET AL., 2011 REGION C WATER PLAN (2011), https://www.twdb.state.tx.us/waterplanning/rwp/plans/2011/C/Region_C_2011_RWPV1.pdf Vol. 1, at 4D.8 [hereinafter 2011 Region C Water Plan].

Region C Regional Water Plan includes the development of more municipal supplies through conservation and reuse than any other regional water plan in Texas.¹¹ Simply stated, the Marvin Nichols Reservoir project is a critical component of Region C's plan for the future.¹²

Conversely, Region D has no anticipated water supply deficit to overcome. In fact, the Region D stakeholders all seem to agree that the volume of their existing supplies will exceed their anticipated demands for the next 50 years.¹³ Indeed, Region D does not complain that it needs the water supplies to be provided by Marvin Nichols Reservoir to satisfy any unmet demands. Nor does it complain that the development of Marvin Nichols Reservoir will somehow undercut the existing supplies in that region.

The importance of the Marvin Nichols Reservoir to the economy of North Texas is truly indisputable.¹⁴ The North Texas economy is, in turn, vitally important to Texas and the national economy as a whole.¹⁵ Dallas-Fort Worth is the fourth largest metropolitan area in the nation.¹⁶ The population of the North Texas region has grown by 2.7 percent annually, on average, from 1940 to 2008, and it is still growing rapidly.¹⁷ One example of Region C's robust economy is the recent decision of the North American subsidiary of Toyota, the largest automaker in the world, to move its corporate headquarters, and approximately 4,000 employees, to North Texas within

¹¹ See 2011 Region C Water Plan, supra note 10, at ES.7-8. A graph illustrating relative total current and planned reuse among all regions is attached.

¹² See 2012 State Water Plan, supra note 9, at 47-48.

¹³ *Id.* at 53.

¹⁴ 2011 Region C Water Plan, supra note 10, at ES.7.

¹⁵ Consider that the Dallas/Fort Worth metropolitan area has the largest concentration of corporate headquarters in the United States. Steve Brown, *Vacant Plano building to become data center*, Dallas Morning News, May 17, 2011, http://www.dallasnews.com/business/commercial-real-estate/20110517-vacant-plano-building-tobecome-data-center.ece.

¹⁶ NORTH TEXAS COMMISSION, *Top Metropolitan Areas*, http://www.ntc-dfw.org/northtexas/poplargestmetro.html (last visited June 10, 2014).

¹⁷ 2011 Region C Water Plan, *supra* note 10, at 1.1.

the next two years.¹⁸ Failure to meet water supply demands from entities like Toyota and their employees would potentially result in denials of service from water suppliers, which would chill economic growth throughout Region C, and possibly throughout all of Texas.

If Region C does not develop sufficient additional water supply to meet its anticipated water demands, it stands to suffer a devastating \$64 billion annual impact to its economy.¹⁹ Marvin Nichols represents over a quarter of the water needed by Region C to address the projected shortfall in water supplies during the 50-year planning period.²⁰ This enormous volume of water cannot be replaced in any reasonably efficient way.

B. The Board may resolve the conflict with Region D by supporting Region C's position on Marvin Nichols because the Legislature has granted the Board broad discretion to do so.

Chapter 16 of the Texas Water Code directs the Board to "prepare, develop, formulate, and adopt a comprehensive state water plan that incorporates the regional water plans" every five years.²¹ Further,

"The state water plan shall provide for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions, in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the entire state."²²

State water planning begins at the regional planning group level, ensuring that the process is shaped to a large degree by the economic interests prevailing in the designated regional planning areas. Consequently, the State Water Plan is largely a compilation of the 16 regional water plan

¹⁸ Steve Brown, *Toyota's Plano move to bring 4,000 jobs from California, New York, Kentucky*, Dallas Morning News, April 28, 2014, http://www.dallasnews.com/business/business-headlines/20140428-toyota-s-plano-move-to-bring-4000-jobs-from-california-new-york-kentucky.ece.

¹⁹ 2011 Region C Water Plan, supra note 10 at ES.7.

²⁰ 2012 State Water Plan, supra note 9, at 47-48.

²¹ TEX. WATER CODE § 16.051(a).

²² Id.

recommendations. The criteria by which regional water plans are to be developed are also outlined in Chapter 16.²³ The Board is charged with approving a Regional Water Plan, but only after determining that 1) all interregional conflicts involving a regional water planning area have been resolved, 2) the plan includes appropriate water conservation and drought contingency provisions, and 3) the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in guidance principles adopted by the Board.²⁴ Where an interregional conflict exists, "the board shall facilitate coordination between the involved regions to resolve the conflict. If conflict remains, the board shall resolve the conflict."²⁵

After initially recommending the Marvin Nichols Reservoir project in its 2001 Regional Water Plan, Region D later changed that plan to reflect a newfound opposition to the project.²⁶ That opposition persists to date.²⁷

As observed by the Executive Administrator in his recommendation memorandum, the conflict falls outside of the Board's current definition of a conflict. The Eastland Court of Appeals has determined that an interregional conflict exists, nevertheless.²⁸ It must be resolved pursuant to Tex. Water Code § 16.053. The Texas Legislature has granted the Board broad discretion in resolving interregional conflicts when a coordinated resolution cannot be achieved. "If an interregional conflict exists, the board shall facilitate coordination between the involved

²⁸ *Ward Timber*, 411 S.W.3d at 575.

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²³ *Id.* § 16.053(e).

²⁴ *Id.* § 16.053(h)(7).

²⁵ *Id.* § 16.053(h)(6).

²⁶ Executive Administrator's Recommendation Memorandum to the Board Members, May 19, 2014, at 2.

²⁷ BUCHER WILLIS & RATLIFF CORPORATION, ET AL., REGIONAL WATER PLAN PREPARED FOR REGION D – NORTH EAST TEXAS REGIONAL WATER PLANNING GROUP (2010), https://www.twdb.state.tx.us/waterplanning/rwp/plans/2011/D/Region D 2011 RWPV1.pdf, Vol. 1, at 8-33, 8-

^{1,} at 8-33, 8-36 [hereinafter 2011 Region D Water Plan].

regions to resolve the conflict. If conflict remains, *the board shall resolve the conflict*.²⁹ This provision cannot be read as anything other than an investiture in the Board of full discretion in resolving interregional conflicts.

The Executive Administrator identified three alternative options for resolution:

- 1) Reduce the proposed footprint of Marvin Nichols;
- 2) Remove Marvin Nichols from the Region C plan for the current planning cycle; and
- 3) Retain Marvin Nichols as a recommended strategy, instruct Region C to revise its plan to acknowledge the steps taken to resolve the conflict, and direct Region D to remove references to the conflict from the Region D Regional Water Plan.

The Executive Administrator rejected option one. Region C agrees with the Executive Administrator's position here. The first option simply would not resolve the conflict. Region D is particularly concerned with the alleged loss of agricultural resources consumed by the footprint of the reservoir and potential related mitigation areas. Assuming such losses would occur, a smaller reservoir would still consume those resources, while serving only to create a greater deficit in Region C planning. Meanwhile, the Region C plan would be undermined because its projected demands would not be satisfied.

The Executive Administrator also rejected option two. Region C agrees with the Executive Administrator's position here. The second option is simply not reasonable because efforts to replace Marvin Nichols in the Region C plan would be extraordinarily costly both economically and environmentally.

The Marvin Nichols Reservoir project is obviously not the only water supply strategy identified or recommended in the Region C plan. The plan identifies a number of strategies for the development of new large supplies to meet projected demands of numerous water suppliers and users in North Texas. The Executive Administrator's recommendation names a few of those

²⁹ TEX. WATER CODE § 16.053(h)(6) (emphasis added).

supplies: George Parkhouse Reservoirs I and II, Toledo Bend Reservoir, and increasing the conservation level of Wright Patman Lake. However, none of the strategies identified in the Region C plan, including those mentioned by the Executive Administrator, could serve to replace Marvin Nichols. For starters, the Toledo Bend and Wright Patman projects are already recommended strategies for new water development in Region C.³⁰ The George Parkhouse projects would capture water already allocated to other recommended strategies, including Marvin Nichols Reservoir,³¹ but would yield less than half the amount of supply for Region C than would Marvin Nichols.³² Similarly, obtaining water from Lake Texoma is already a recommended supply³³ and, as such, cannot substitute for Marvin Nichols. While additional water could be obtained from Lake Texoma in the future, reallocating the currently unused water in that reservoir would literally take an act of Congress.³⁴ Region C simply cannot plan on such an uncertain supply.

Under the second option, rather than constructing one reservoir, Region C would be forced to recommend construction or expansion of a series of reservoirs and other infrastructure that would be considerably more expensive and would be more environmentally costly than the current proposal. That environmental toll is unnecessary because of Marvin Nichols. It would be unreasonable to shift the environmental impact of Marvin Nichols to one of greater scale at greater expense. The costliness of alternatives in comparison with Marvin Nichols makes them impractical if not unfeasible. The Region C plan includes every feasible water supply strategy available to meet the needs of the region. Stated simply, without Marvin Nichols, the Region C plan would not be nearly as good of a plan.

³⁴ *Id.* at 4D.5.

³⁰ Region C Water Plan, supra note 10 at 4D.7-.10.

³¹ Id. at 4D.15

³² *Id.* at 4D.5-.6.

³³ *Id.* at 4D.12.

The Executive Administrator recommends the third option. Region C agrees with the Executive Administrator's position here. Retaining Marvin Nichols Reservoir as a recommended strategy for Region C is the only feasible way to resolve the conflict in a manner that provides sufficient water to ensure public health, safety, and welfare concerns in Region C, furthers economic development in both Regions C and D, and protects the agricultural and natural resources of the entire state.³⁵

The Eastland Court of Appeals emphasized that the Board, in resolving the interregional conflict, should act in the manner that is most consistent with protecting the state's agricultural and natural resources.³⁶ The Court also recognized that the Legislature intended for the Board to balance water planning strategies with impacts on agricultural, economic, and natural resources.³⁷ The conflict between Regions C and D presents the Board with an opportunity to do precisely that—balance water supply needs, economic interests, agricultural resources, and natural resources. While Marvin Nichols will doubtlessly impact some amount of agricultural and natural resources in Region D will not be affected by the project. Conversely, the elimination of Marvin Nichols as a water supply strategy would severely impact the economy of the entire Region C planning area and the state.

The Executive Administrator's recommendation memorandum suggests that Marvin Nichols could be treated as an alternative strategy pending an accelerated evaluation of developing other water supply strategies, including Wright Patman Reservoir, Toledo Bend Reservoir, and George Parkhouse Reservoir. Those strategies are only included as alternatives in the Region C plan because they are considerably more costly both economically and

³⁵ See TEX. WATER CODE § 16.051(a).

³⁶ *Ward Timber*, 411 S.W.3d at 575.

³⁷ *Id.* at 570.

environmentally than Marvin Nichols. Again, shifting the economic and environmental tolls of Marvin Nichols to projects that would result in greater economic and environmental cost for the same amount of water is simply unreasonable. The Region C plan already identifies every feasible water supply strategy it anticipates will be available to meet expected demands. Additionally, removing Marvin Nichols from the 2012 State Water Plan, or even converting it to an alternative strategy, would likely permanently undermine the project because it could become eligible for federal mitigation bank permitting.³⁸ Were that to happen, Marvin Nichols could succumb to the same fate as the Lake Fastrill and Waters Bluff Reservoir projects.³⁹

The Executive Administrator also recommends that the Board instruct Region C to accelerate consideration of alternative strategies to meet needs where uncertainties exist regarding current strategies. So long as Marvin Nichols remains part of the Region C and State Water Plans, no uncertainties exist. The purpose of the regional planning process is to assure adequate water supplies for a region through the drought of record. Region C has done that. Moreover, Region C has identified potential alternative strategies to ensure that water remain available even if a drought were to persist to a point worse than the drought of record. Nevertheless, the five year regional planning cycle continues to require Region C to conduct a near constant process of evaluating the feasibility of every reasonable alternative supply strategy.

C. The regional water planning process is not the legally proper venue for challenging Marvin Nichols because the Legislature has delegated that responsibility exclusively to the Texas Commission on Environmental Quality.

The Board is the state agency responsible for water planning and administering water financing in the state.⁴⁰ The Board does not regulate water use. As such, the Board is not charged

³⁸ See Hearts Bluff, 381 S.W.3d at 475.

³⁹ See Sabine River Auth. v. U.S. Dep't of the Interior, 951 F.2d 669, 673 (5th Cir. 1992); see City of Dallas. v. Hall, 562 F.3d 712, 716 (5th Cir. 2009).

⁴⁰ TEX. WATER CODE § 6.011.

with determining the technical merits of any particular water supply project. Rather, the Board is charged by the Legislature with establishing guidance principles for the development of the regional water plans and with reviewing the plans to determine whether they comply with the requirements of Tex. Water Code § 16.053(e).⁴¹ If the Board finds that a regional water plan was developed in accordance with the statutory requirements and administrative guidance principles, then it incorporates the recommended strategies into the state water plan making those strategies eligible for funding assistance.⁴²

Region D's opposition to Marvin Nichols amounts to nothing more than a protest of the merits of Marvin Nichols. The Board is not an adjudicative agency that may hear disputes over proposed water supply projects. The Legislature expressly and exclusively vested the Texas Commission on Environmental Quality with jurisdiction to consider such disputes.⁴³ An entity proposing the construction of a recommended water supply project must seek a permit from the TCEQ and, if authorized by TCEQ, may begin construction without the Board's further involvement or approval.⁴⁴ A challenge to the merits of a particular water supply project is a wholly separate procedure from regional and state water planning.

The Legislature crafted a set of criteria by which each regional water plan shall be developed.⁴⁵ The Legislature directed that each plan:

- 1) be consistent with guidance principles adopted by the Board;
- 2) provide information based on data provided by the Board;
- 3) be consistent with desired future conditions for groundwater;

⁴¹ *Id.* § 16.051(a), (d).

⁴² Id. §§ 16.051(a), 16.053(h)(7).

⁴³ See Subaru of America, Inc. v. David McDavid Nissan, Inc., 84 S.W.3d 212, 221 (Tex. 2002) (explaining that exclusive jurisdiction rests with an administrative agency when a pervasive regulatory scheme, such as water rights permitting, indicates that the Legislature intended that scheme to be the exclusive means of remedying a problem); TEX. WATER CODE §§ 5.013(a)(1), 11.121-.134.

⁴⁴ See TEX. WATER CODE §§ 11.121-134.

⁴⁵ See id. § 16.053(e).

- identify a) each source of supply in the planning area, b) factors specific to each source of supply related to drought response, c) actions to be taken as part of the response, and d) existing major water infrastructure facilities to be used during water shortage;
- 5) have specific provisions for water management strategies during drought;
- 6) include but not be limited to consideration of a) any existing water or drought planning efforts, b) approved groundwater conservation district management plans, c) all potentially feasible water management strategies for the region, d) protection of existing water rights in the region, e) regional management of water supplies, f) provision for environmental needs, g) provisions for interbasin transfers, h) voluntary water transfer within the region, and i) emergency transfer of water;
- 7) identify stream segments of unique ecological value and unique value for the construction of reservoirs;
- 8) assess the impact of the plan on ecologically unique stream segments;
- 9) describe the impact of proposed projects on water quality; and
- 10) include information on a) projected water use and conservation, and b) the implementation of state and regional water plan projects.⁴⁶

The Legislature did not include opposition to otherwise feasible strategies for other regions among these criteria. Similarly, the Board has adopted 28 guidance principles for state and regional water planning. It developed the principles subject to an explicit instruction from the Legislature.⁴⁷ Like the Legislature's directives for regional water plans, the Board's guidance principles do not include voicing opposition to feasible water supply strategies in other regional water plans.⁴⁸

The statutory construction rule of *ejusdem generis* dictates that lists in a statute refer only to persons or things of the same kind or class.⁴⁹ This includes lists that begin with the term "including but not limited to . . ."⁵⁰ Here, even though the Legislature used the term "not limited to" when outlining the items which must be considered by regional water planning groups during

⁵⁰ Id.

⁴⁶ *Id.* § 16.053(e).

⁴⁷ *Id.* §§ 16.051(d), .053(e).

See 31 Tex. Admin. Code § 358.3; see also id. § 357.20 (adopting state water planning guidance principles for regional water planning).
 Code § 506 S W 2d 208, 200

⁴⁹ City of Houston v. Cook, 596 S.W.2d 298, 299.

the planning process, the provision should not be read to include items that are dissimilar from those included.⁵¹ All of the items listed by the Legislature to be considered and included in the regional water planning process concern evaluation of feasible water supply projects for the relevant regional water planning area, not contravention of particular strategies recommended by other regional water planning groups. Excluding Marvin Nichols from the 2011 Region C plan and the 2012 State Water Plan would require an interpretation that the Legislature intended that regional water plans include protests to another region's feasible water supply strategies. For the reasons noted above, such an interpretation is not in keeping with the spirit of Section 16.053, and would be unreasonable.⁵²

Indeed, under that interpretation, the Board would then have to determine that Region C altogether failed to adhere to the requirements of Section 16.053(e) and the Board's guidance principles in order to exclude Marvin Nichols from the 2012 State Water Plan. However, Region C has clearly adhered to the statutory requirements and administrative guidelines. The only reasonable action the Board may take is to support Region C's recommendation of including Marvin Nichols as a strategy in the 2011 Region C plan and the 2012 State Water Plan.

Supporters of Region D's position have insisted that their purpose is merely "to have the Board resolve conflicts with a goal of a more complete and *balanced* water plan."⁵³ But Region D takes the position that no reservoirs should be built because they are inconsistent with protection of agricultural, environmental, and natural resources.⁵⁴ The Region D Regional Water Plan states that "Region D has identified other areas . . . where additional . . . reservoirs could be developed . . . to provide water for other regions" Unfortunately, the Region D Regional

⁵¹ See id.

⁵² See id.

⁵³ Ward Timber, 411 S.W.3d at 560 (emphasis added).

⁵⁴ 2011 Region D Water Plan, supra note 27, at 8-33.

Water Plan disregards the reality that Region C has already considered every feasible strategy. Instead, Region D advocates that reservoirs should only be a last resort after any other conceivable strategy is pursued. But that belies Region D's ultimate recommendation "that no reservoir sites in the North East Texas Region be designated as unique reservoir sites" because "pursuing *any new reservoir* in the Sulphur River Basin as a water management strategy or an alternative strategy should be viewed as directly inconsistent with the protection of natural resources within the region"⁵⁵ Such a position does not result in balance. Instead, such a position represents a wholesale rejection of otherwise feasible strategies considering, in a vacuum, only a few of the criteria required by the Legislature and the Board for regional water planning. The Board cannot reasonably accept Region D's position because doing so is not provided for by law and is not in keeping with the criteria required for regional and state water planning.

III. This proceeding is not an adjudication of rights that requires the Board to develop an evidentiary record.

The historical litigiousness of some within Region D should caution the Board to be mindful of the likely standard of review on appeal of a decision in this matter. Judicial review of the Board's resolution of an interregional conflict will likely be governed by the so-called "substantial evidence *de novo*" standard.⁵⁶ That is, the reviewing court may conduct an evidentiary hearing on the limited issue of whether the facts, as they existed at the time of the agency's decision, reasonably lead to the decision ultimately reached by the agency.⁵⁷

⁵⁵ Id.

⁵⁶ Gilder, 926 S.W.2d at 367; Ronald L. Beal, Texas Administrative Practice and Procedure § 13.6, at 13-39 (2009).

⁵⁷ Board of Trustees of Big Spring Fireman's Relief & Retirement Fund v. Firemen's Pension Comm'r, 808 S.W.2d 608, 612 (Tex. App.—Austin 1991, no writ).

A substantial evidence *de novo* standard does not require the Board to develop an evidentiary record supporting its decision.⁵⁸ The reviewing court, instead, serves as a fact-finder on the narrow issue described above. The court owes the same deference to the Board as it would if it were bound by the more traditional substantial evidence standard of review.⁵⁹ Specifically, the court may only overrule the Board's decision if it is found to be arbitrary, capricious, or unlawful, based on the facts as they exist at the time of the decision.⁶⁰ Similarly, the court may not simply substitute its judgment for that of the Board.⁶¹ The Board, however, need not build an administrative record.⁶² If the court finds that the Board's decision was reasonable considering all relevant facts, then it must uphold the Board's decision.⁶³

IV. There is only one reasonable way to resolve this conflict.

Opponents of Marvin Nichols seek "only the opportunity for the Region D water planning group to negotiate with the Region C water planning group, under the guidance of the Board, to see if there is a more acceptable alternative to Region D than the Marvin Nichols Reservoir."⁶⁴ The purpose of their lawsuit against the Board was "only to require the Board to follow the procedures in Section 16.053(h)(6)."⁶⁵ They recognize "that negotiations may fail and that the Board may resolve the conflict in favor of Region C."⁶⁶ Seemingly, the Region D plaintiffs have now received all they purported to seek with respect to Region C's reliance on Marvin Nichols in the 2011 Region C Regional Water Plan.⁶⁷

⁶⁰ Id.

⁵⁸ See Gilder, 926 S.W.2d at 365.

⁵⁹ *Id.* at 371.

⁶¹ G.E. American, 979 S.W.2d at 765.

⁶² See Gilder, 926 S.W.2d at 365.

⁶³ See id. at 365-366.

⁶⁴ Ward Timber, 411 S.W.3d at 559-60.

⁶⁵ *Id.* at 560.

⁶⁶ Id. at 562.

⁶⁷ See id. at 554.

Negotiations to resolve this conflict have been unsuccessful. The Board now must reasonably resolve the conflict. For the reasons cited above, the only reasonable resolution is for the Board to support Region C's recommendation that Marvin Nichols be included in the 2011 Region C Regional Water Plan and the 2012 State Water Plan. Any other action would not be in keeping with the criteria for state and regional water planning and would be contrary to applicable law. Region C respectfully recommends that the Board retain the Marvin Nichols Reservoir project in the 2011 Region C Regional Water Plan and the 2012 State Water Plan and the 2012 State Water Plan, and take all other actions deemed necessary by the Board to further and finally resolve the interregional conflict.

REGION D BRIEF ON RESOLUTION OF INTERREGIONAL CONFLICT BETWEEN THE 2011 REGION C AND REGION D REGIONAL WATER PLANS

STATEMENT OF CASE

The Region C Water Planning Group ("Region C") has listed Marvin Nichols Reservoir as a water management strategy in each of its Regional Water Plans. The Region D Water Planning Group ("Region D") in its first Regional Water Plan in 2001 recommended Marvin Nichols as a water management strategy but after studying the impacts of the proposed reservoir, Region D later amended its 2001 Plan and rejected the Marvin Nichols Reservoir as a water management strategy. The 2006 and 2011 Region D Plans also rejected Marvin Nichols Reservoir as a water management strategy for any regional water plan or the State Water Plan because Region D held that Marvin Nichols Reservoir was not shown to be consistent with the long term protection of the state's water resources, agricultural resources and natural resources as required by state law.

The Texas Water Development Board ("TWDB") approved the Region D regional water plans with the rejections of the Marvin Nichols Reservoir, including the 2011 Region D Plan that explained in detail that there would be an interregional conflict if any other region included the Marvin Nichols Reservoir as a water supply strategy. TWDB then approved the 2011 Region C plan with that reservoir as a water supply strategy. TWDB did so taking the position that there was no interregional conflict because it did not find an over-allocation of a source of supply.

Several entities and individuals filed suit in District Court in January 2012 in District Court in Travis County in a case styled *Ward Timber, Ltd, et al v. Texas Water Development Board.* The District Court found that there was an interregional conflict. TWDB appealed the decision and on May 23, 2013, the 11th Court of Appeals affirmed the District Court's decision, holding that an interregional conflict existed, that the planning process should encompass the impacts the proposed water management strategies will have on agricultural and natural resources of the region, and that any such conflict should be resolved in the manner that is most consistent with protecting the state's agricultural and natural resources.¹

No further appeals were filed. Mediation was held in December 2013 between representatives of Region C and Region D and no agreement was reached. On May 19, 2014 Kevin Patteson, Executive Administrator of TWDB, issued a Final Recommendation to the Board. The Office of General Counsel of TWDB has requested the submission of legal briefs from Region D and Region C setting forth their positions.

¹ Tex. Water Dev. Bd. v. Ward Timber, Ltd., 411 S.W.3rd 554 (Tex.App. – Eastland, no pet.)

ISSUE PRESENTED

How should TWDB resolve the interregional conflict

BRIEF ANSWER

TWDB should:

- 1) Adopt Region D's position that Region C has not shown that the inclusion of the Marvin Nichols Reservoir is consistent with the long-term protection of the state's agricultural and natural resources; and
- 2) Require Region C to submit its 2011 plan with the Marvin Nichols Reservoir omitted.

TWDB should do so because:

- 1) The Region C Plan fails completely at complying with the TWDB past rules and the rules currently in effect because it does not address the impacts on the agricultural and natural resources of the state by the Marvin Nichols Reservoir and the mitigation that would be required;
- 2) The Region C Plan provides for supplies in excess of its demands and includes sufficient strategies without the Marvin Nichols Reservoir to meet its demands; and
- 3) New 2016 Regional Water Plans will be submitted in 2 years and adoption of the recommendations of the Executive Administrator would unnecessarily delay use of the state funds for priority in Region C or Region D in the interim.

Comments that have been submitted to TWDB adequately explain reason Number 2. TWDB is well aware of the problems with funding that would be created by ruling that Region C and/or D plans must be amended to comply with Texas law and TWDB rules, given that either region would have to meet the requirements of the 2012 rules, rather than those in effect at the time of the initial approvals of these plans.

These issues will, therefore, not be addressed in this brief.

ARGUMENT

The Region C Plan fails completely at complying with the TWDB past rules and the rules currently in effect because it does not address the impacts on the agricultural and natural resources of the state by the Marvin Nichols Reservoir and the mitigation that would be required.

Regional Water Plans and the State Water Plan are required to show that a water management strategy is consistent with the long term protection of the state's agricultural and natural resources.

Texas Water Code §16.051 (a) provides that "the state water plan shall.....protect the agricultural and natural resources of the entire state." §16.053(h)(7) states the TWDB may approve a regional water plan only after it has determined that:

- (A) All interregional conflicts involving that regional water planning area have been resolved;
- (B) The plan includes water conservation practices and drought management measures incorporating, at a minimum, the provisions of Tex. Water Code §11.1271 and §11.1272 (relating to water conservation and drought contingency plans); and
- (C) the plan is consistent with the long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles adopted under Tex. Water Code §16.051(d).

TWDB's guidance principles are set forth in the current rules at 31 Tex.Admin.Code §358.3.² §358.3(4) provides that a regional water plan shall....protect the agricultural and natural resources of the regional water planning area. §358.3(9) provides for the consideration of all water management strategies "which are consistent with the long-term protection of the state's water resources, agricultural resources, and natural resources."

The Executive Administrator's Final Recommendation, issued May 19, 2014, seems to suggest that the TWDB defer its responsibility to require that each water management strategy be consistent with the long term protection of the state's agricultural and natural resources to other agencies. The recommendation also states that "at the planning stage, it should be sufficient that all regions affected by a particular strategy have identified those impacts." That is contrary to the requirements of Chapter 16, Texas Water Code and the rules of the TWDB.

Texas Water Code §16.051 and §16.053 require a finding that a water management strategy be consistent with the long term protection of the state's agricultural and natural resources. In addition, Courts have ruled on this issue. In *Texas Water Dev. Bd. v. Ward Timber, Ltd*, the Court stated that "the Board has confused the planning process and the permitting process under the current approach to water planning. The planning process should encompass possible water strategies and the impact those water strategies will have on the agricultural and natural resources of the region involved, especially when an interregional transfer of water is involved."³

One of the key changes that Senate Bill 1 made to the water planning process was to create specific statutory criterion mandating that a regional water plan may not be approved by TWDB unless it is shown to be consistent with the long term protection of the state's agricultural and natural resources.⁴ In addition, the Regional Water Planning Guidelines set forth in Tex.Admin.Code §357.34 require that water management strategies contained in

² In 2012, the TWDB repealed its rules and guidance for approval of regional water plans and replaced them with the current set of rules which now apply to any approval of the Region C Water Plan or any amendment to any regional plan.

³ Texas Water Dev. Bd, 411 S.W. 3rd at 575

⁴ Tex. S.B. 1, 75th Leg., R.S., 1997 Tex.Gen. Laws 1010

a Regional Water Plan must include a quantitative reporting of environmental factors and impacts on agricultural resources. For each threat to agricultural resources and natural resources identified, the Plan must include a discussion of how that threat will be addressed or affected by the water management strategies evaluated.⁵

Table 4D.2 of the Region C Plan lists 29 major potentially feasible water management strategies for Region C. One of the recommended water management strategies in the Region C Plan, Marvin Nichols Reservoir, is listed as "high" on environmental factors, agricultural impacts, and third party impacts and "medium high" on impacts to other natural resources. Marvin Nichols Reservoir grades out highest (most harmful) of any of the 29 potentially feasible water management strategies listed in Table 4D.2 of the Region C Plan with respect to the adverse impacts on the environment, agriculture, natural resources and third party impacts.

The Region C Plan totally fails to address these negative impacts, much less give a quantitative reporting on these impacts. It does not provide, as has always been required for regional plans, a discussion of how the threats to agricultural and natural resources will be addressed or affected by the water management strategies evaluated.

Chapters 7.3 and 5.2 of the Region C's plan contains a discussion on "Consistency with Protection of Agricultural Resources." The Region C Plan makes a finding that the Plan will protect agricultural water use within Region C, but it does not address the actual impacts outside of Region C. The following are the only statements made with respect to agricultural impacts outside of Region C:

Chapter 7.3:

"The area of the proposed Marvin Nichols Reservoir site has some agricultural activity, including cattle raising. The area is also known to have some hunting and leases for game animals."

Chapter 5.2:

"The potential impacts to agricultural and rural areas are limited to the loss of land from inundation of new reservoirs. The total rural acreage that would be flooded under the 2011 Region C Water Plan is 116,300 acres. Of this amount, many acres are bottom lands that are not currently used for agriculture. Impacts from new reservoirs will be mitigated as part of the permitting process. New reservoirs also can stimulate the rural economy through new recreational business and local improvements. The new reservoirs will provide a new water source for rural activities. Each of the proposed reservoir sites includes water set aside for local water supplies.

Possible third party impacts include loss of land and timber, impacts to existing recreational business on existing lakes due to lower lake levels, and impacts to recreational stream activities. Economic studies have been conducted for two of the

⁵ 31 Tex.Admin.Code §357.34(d)(5)

reservoirs proposed for Region C, and in each case they indicate a significant new economic benefit for the region of origin."

Thus, the Region C Plan does not even treat timber as an agricultural resource, even though it is a major agricultural crop in the Region D area. The Plan addresses timber as a third party impact, not as agricultural resources that will be inundated. Thus, there is no assessment of the impacts on timber production.

The Plan also does not take into account impacts from the acreage which will be taken out of agricultural production, including timber production, as required mitigation. A fuller explanation of the mitigation issue is provided below.

There is clearly no effort to quantify or otherwise evaluate the impacts on agricultural resources (or other natural resources). There is nothing in the Plan that would allow TWDB to make its independent consideration of the impacts of the Marvin Nichols Reservoir on the state's agricultural and natural resources. To the extent that the Region C Plan would have significant impacts to agricultural and natural resources within the state, those impacts must first be identified, which they are not in the Region C Plan, then quantitatively reported and addressed, which again they are not. The Region C Plan has failed to assess the impacts the proposed reservoir would have in the region where it is to be constructed and has therefore not met its statutory criteria for adoption by the State.

The Region D Plan discusses the impacts in detail and concludes that Marvin Nichols Reservoir is inconsistent with the state's long-term interests in the protection of its water resources, agricultural resources, and natural resources. The Region D Plan concluded that the Reservoir cannot be approved in any regional plan. Thus, Region D found that approval of a regional water plan including the Marvin Nichols Reservoir would conflict with Texas law and would conflict with the Regional D Plan.

TWDB approved the Region D Plan with those findings.

The Region D Water Plan contains, in Chapter 7.6, four (4) pages of detailed analysis of the impacts of Marvin Nichols Reservoir on water resources, agricultural resources, and natural resources. Region D's analysis of agricultural impacts includes timber, farming, ranching and other related industries. It includes a review of four (4) separate studies that have been conducted regarding potential impacts. It also reviewed impacts on natural resources and environmental factors. The findings of the Region D Planning Group are summed up in its conclusion in Paragraph 7.7:

"Due to the significant negative impacts upon environmental factors, agricultural resources/rural areas, other natural resources, and third parties, Marvin Nichols 1 Reservoir should not be included as a water management strategy in any 2011 regional water plan or the 2012 State Water Plan. Accordingly, inclusion of the Marvin Nichols 1 Reservoir in any regional water plan would be inconsistent with the Region's efforts to ensure the long-term protection of the State's water resources, agricultural resources and natural resources, also violating §16.051 and §16.053 of the Texas Water Code."

In contrast, the Region C Plan does not make any such assessment or provide data with which TWDB can do so. Yet, Texas law and TWDB rules require such an assessment for proposed strategies such as the Marvin Nichols Reservoir.

The only assessments before TWDB from the regional plans reflect that Marvin Nichols Reservoir is not consistent with protecting the agricultural and natural resources of the State.

The impacts resulting from the loss of important agricultural and natural resources in Region D as mitigation for the Marvin Nichols Reservoir was not addressed in the Region C Plan.

It is likely that most, if not all, mitigation for lands that would be inundated by the Marvin Nichols Reservoir will be in Region D and because the Region C Plan does not even address this issue, the mitigation impacts alone will require TWDB to reject the Region C Plan as proposed including the Marvin Nichols Reservoir.

The guidelines for mitigation requirements are set forth in the Code of Federal Regulations. §230.93(a) provides, in part, that: "The district engineer must determine the compensatory mitigation to be required in a DA permit, based on what is practicable and capable of compensating for the aquatic resource functions that will be lost as a result of the permitted activity. When evaluating compensatory mitigation options, the district engineer will consider what would be environmentally preferable. In making this determination, the district engineer must assess the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of the compensatory project."⁶ With respect to the location of the mitigation, the guidelines state that "in general, the required compensatory mitigation should be located within the same watershed as the impact site."⁷ Further, "in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and services at the impact site."⁸ In addition, the guidelines provide: "The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practical."⁹

Based on the rules and guidelines governing the federal entities that will ultimately decide the amount and location of the required mitigation, the mitigation will be forested lands (in-kind mitigation) located in the same watershed (Sulphur River) as the impacted area. As reflected in the Region D Plan, that is exactly what happened previously with the Jim Chapman Reservoir on the Sulphur River.¹⁰ In that case, a site with 5,900 acres of bottomland hardwood acreage required a total mitigation of 31,980 acres throughout Northeast Texas in the Sulphur River watershed.

The Executive Administrator's Final Recommendation contains a recommendation that Region C should be encouraged to share mitigation for any project developed in Region D in proportion to the interest Region C entities have in the water produced by that project.

⁶ 40 C.F.R. §230.93(a)(2010)

 ⁷ 40 C.F.R. §230.93(b)(2010)
 ⁸ 40 C.F.R. §230.93(e)(2010)
 ⁹ 40 C.F.R. §230.93(c) (2010)
 ¹⁰ 2011 Region D Water Plan §7.6.2(4)

Although this recommendation is appreciated, it fails to console Region D or others who would be harmed by the Marvin Nichols Reservoir for the following reasons:

- 1) As discussed previously, it runs contrary to the rules, guidelines, and practices of the federal entities that will have to sign off on the location and amount of mitigation that will be required for a project; and
- 2) There is no means of enforcement. Region C will not be required to provide lands for mitigation, even if federal law allowed the designation of lands for mitigation in the area of Region C.

As previously set forth, the Region C Plan states in Chapter 5.2 that "the potential impacts to agricultural and rural areas are limited to the loss of land from inundation of new reservoirs." That contention is patently untrue.

Under all studies performed on this issue, it is acknowledged that substantial acreage will be required to mitigate the environmental impacts of this proposed reservoir. These studies and their mitigation impacts are discussed in the Region D Plan¹¹ and a brief summary of those findings are set forth in this paragraph. A joint study by the Texas Parks and Wildlife Department and the United States Fish and Wildlife Service concluded a minimum of 163, 620 acres would be required for mitigation and that number could be as high as 645,578 acres. A study of the Texas Forest Service concluded the total acres affected by Marvin Nichols Reservoir could be as low as 258, 000 acres or as high as 820,000 acres. Even a study commissioned by the proponents of the reservoir, despite being criticized in the Region D plan on its methodology, estimated agricultural land loss between 165,000 and 200,000 acres. As the Court states in *Texas Water Dev. Bd v. Ward Timber, Ltd*, "even at the planning stage, it is evident that the impacts would be substantial."¹²

The Region C Plan states the potential third party impacts include loss of land and timber, clearly confusing the fact that timber and agricultural land impacts should be addressed under impacts to agricultural resources.

By way of clarification, Texas Agriculture Code §2.001 defines "agriculture" as:

- 1) the cultivation of the soil to produce crops;
- 2) horticulture, floriculture, or viticulture;
- 3) forestry; or
- 4) the raising or keeping of livestock or poultry.

As stated in the Region D Plan:

"The Texas Forest Service Study estimated forest industry losses based on three (3) separate mitigation options. The low end impacts were estimated to be an annual reduction of \$51.18 million output, \$21.89 million value-added, 417 jobs and \$12.93 million labor

¹¹ 2011 Region D Water Plan §7.6.1

¹² Tx. Water Dev. Bd., 411 S.W. 3rd at 559

income. The high end impacts were estimated to be annual loss of \$163.91 million industry output, \$70.10 million value-added, 1334 jobs and 41.4 million labor income."¹³

The proposed Marvin Nichols Reservoir would flood 66,000 to 70,000 acres across four (4) counties in Northeast Texas, including over 45,000 acres of forested lands and requiring extensive lands to be set aside for mitigation purposes. For the TWDB to take the approach of waiting for other agencies to make a determination regarding the impacts to agricultural and natural resources, as it appears the Executive Administrator is suggesting, would be a failure to comply with the established law that the State Water Plan and Regional Water Plans protect the agricultural and natural resources of the state.

In *Texas Water Dev. Bd v. Ward Timber, Ltd*, the Court stated that if the two regions cannot agree, "the Board is in a position to resolve the conflict in the manner that is most consistent with protecting the state's agricultural and natural resources."¹⁴ In order to comply with this holding, based on the evidence before the TWDB, Marvin Nichols Reservoir should be removed from the Region C Water Plan.

RELIEF SOUGHT

The Region D Water Planning Group requests that TWDB rule as follows:

- 1) Leave the Region D Water Plan of 2011 as is;
- 2) Direct Region C to remove the Marvin Nichols Reservoir from its 2011 Plan based on the failure to show that it is consistent with the long-term protection of the state's agricultural and natural resources; and
- 3) Grant such further relief as the Board deems necessary.

Respectfully submitted,

Jim/F. Thompson Designated Representative for Region D

¹³ 2011 Region D Water Plan §7.6.2

¹⁴ Tx. Water Dev. Bd., 411 S.W.3rd at 575
WATER DEVELOPMENT BOARD

REGION C REGIONAL WATER PLANNING GROUP'S REPLY TO REGION D BRIEF ON RESOLUTION OF INTERREGIONAL CONFLICT

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I. Region D appears to confuse the roles assigned by the Legislature to the Board and the TCEQ in the development of water supply projects.

The Texas Water Development Board is the state agency responsible for water planning and administering water financing in the state.¹ It is a planning agency. The purpose of the statutory authority the Board was entrusted by the Legislature to administer is to ensure adequate water supply to meet the demands of the citizenry of the State of Texas. In contrast, the TCEQ is the agency responsible for implementing laws relating to conservation of natural resources and protection of the environment.² Challenges to individual water supply projects that utilize surface water, or might potentially impact environmental resources, are properly brought before the TCEQ as part of the permitting process for those projects.

The Board is not legislatively equipped to consider granting the relief that Region D seeks. The Board is not an adjudicative agency designed to hear disputes over technical issues concerning water supply projects. Rather, the Board is a planning agency that reviews and approves water plans in a bottom-up approach, wherein water strategies are designed through an intensive localized process. Through that process, the Legislature placed the task of evaluating the detailed, technical, and complicated issues related to water supply planning in the hands of regional water planning groups (RWPG) composed of widely varied and specialized interests within each region.³ If a regional water plan fails to meet the requirements of Chapter 16, the remedy is for the Board to submit comments to the RWPG prior to the RWPG's final approval of its plan.⁴

¹ Tex. Water Code Ann. § 6.011 (West 2008).

 $[\]frac{1}{3}$ Id. § 5.012.

 $^{^{3}}$ Id. § 16.053(c).

⁴ *Id.* § 16.053(h)(4),

The Legislature tasked the Board with reviewing regional water plans to assure the plans adhere to applicable requirements in Chapter 16.⁵ But the Legislature did not authorize the Board to second-guess the recommendations of the specialized regional water planning groups concerning the need for specific water supply strategies in meeting projected demands during the planning period. Nor did the Legislature grant to the Board any authority to substitute its judgment on a recommended water supply strategy for that of a RWPG.

On the other hand, the Legislature has vested the TCEQ with authority to hear disputes over projects to develop surface water.⁶ The TCEQ may call and hold hearings, receive evidence at hearings, issue subpoenas to compel the attendance of witnesses and the production of papers and documents, and make findings of fact.⁷ While an entity proposing to build a water supply reservoir is free to finance and construct the project without any involvement from the Board, construction of a water supply reservoir project cannot begin until the TCEQ has expressly approved the project through issuance of a water rights permit.⁸ Part of that permitting process includes an opportunity for persons affected by the proposed project to request a public hearing.⁹ Upon request of any affected person, the TCEQ must hold a public hearing wherein expert evidence may be presented to challenge the technical merits of the project.¹⁰ The Legislature allows the TCEQ to refer the public hearings to a specialized administrative law judge.¹¹ The review also includes the involvement of a specialized Public Interest Counsel, who ensures that the TCEQ's decision will promote the public interest.¹²

⁵ *Id.* 16.053(h)(4).

⁶ Tex. Water Code Ann. §§ 5.013(a)(1), 11.121-.134 (West 2008); likewise, the task of vetting groundwater development projects lies with local groundwater conservation districts. *Id.* § 36.113.

⁷ *Id.* § 5.102(b).

⁸ See id. §§ 11.121-.134.

⁹ *Id.* § 5.556.

¹⁰ Tex. Water Code Ann. § 11.132, .133 (West 2008).

¹¹ *Id.* § 5.311.

 $^{^{12}}$ Id. § 5.271.

The Legislature did not vest in the Board any similar public fact-finding authority.¹³ The Legislature exclusively vested authority to publicly vet the merits of specific water supply projects in the RWPG and not the Board. The RWPG must consider public comments on the individual regional water plans as part of the regional water planning process.¹⁴ The Legislature did not authorize the Board to solicit, receive, or consider public comment when it reviews regional water plans.¹⁵

The necessary complexities of challenges to the technical merits of a project like Marvin Nichols Reservoir must be adjudicated in a completely unrelated proceeding from the Board's water planning process, and by a separate agency. Region D's challenges to the technical merits of the Marvin Nichols Reservoir project are misplaced in this venue.

II. Region D's rephrasing of Section 16.051 of the Texas Water Code strips the statute of its plain meaning as written by the Legislature in an attempt to rewrite the law that the Board is charged with administering.

Under Section 16.051(a) of the Texas Water Code, the Board must develop a comprehensive state water plan. That plan is designed to do two things, for one purpose. "The state water plan shall provide for the *orderly development, management, and conservation* of water resources and *preparation for and response to drought* conditions[.]"¹⁶ The statute also requires that the plan must provide for development of water resources and preparation for drought "in order that sufficient water will be available at a reasonable cost to ensure public

¹³ See id. at Chapter 6, Subchapter D (West 2008); Black's Law Dictionary defines "fact-finding" as "The process of *taking evidence* to determine the truth about a disputed point of fact." BLACK'S LAW DICTIONARY 671 (9th Ed. 2009) (emphasis added). Further, a "finding of fact" is "A determination by a judge, jury, or *administrative agency* of a fact supported by the evidence in the record, usu. presented at the trial or *hearing*[.] *Id.* at 708 (emphasis added).

¹⁴ Tex. Water Code Ann. §§ 16.053(h)(5), (h)(6) (West 2008).

¹⁵ See id. § 16.051.

¹⁶ *Id.* § 16.051(a) (emphasis added).

health, safety, and welfare; further economic development; and protect the agricultural and natural resources of the entire state."

Region D rewrote the law in its brief to the Board. According to Region D, Section 16.051(a) simply reads: "the state water plan shall.....protect the agricultural and natural resources of the entire state." With this overly simplistic rephrasing of Section 16.051(a), Region D has inappropriately changed the meaning of the statute entirely. The Legislature expressly directed the Board to plan for the development, management, and conservation of water resources and the preparation for drought in order that *water will be available to*, among other things (including ensuring the public health safety and welfare, and furthering economic development), protect the agricultural and natural resources of the state.¹⁷

Section 16.051(a), as written by the Legislature, is essentially an assignment to the Board with three main components:

- 1) ensure development of water resources,
- 2) during extreme precipitation conditions,
- 3) for certain delineated priorities.

Region D's rewriting of the statute essentially strips the water development and drought preparation components out of Section 16.051(a). However, the Legislature did not solely charge the Board with designing a plan to protect the agricultural and natural resources of the entire state from some suspected or unspecified threat or harm. Region D argues, under its rewritten version of Section 16.051(a), that the Board must protect the agricultural and natural resources of the entire state *from* the development of water supply strategies. But that is not what Section 16.051(a) requires. The plain language of Section 16.051(a), in its entirety, requires the Board to

¹⁷ *Id.* 16.051(a).

provide for water supply development and drought planning *in order that water will be available* to protect agricultural and natural resources.

The Legislature's directive makes sense in light of what it also required the RWPG to do in Section 16.053(a). Under that section, a RWPG for a particular region must ensure through water development and drought planning that water will be available to protect the agricultural and natural resources of that particular region. RWPG are responsible for ensuring that water supply is sufficient to protect agricultural and natural resources in the individual planning areas. Meanwhile, the Board is responsible for compiling the regional water plans into a comprehensive state water plan that, in turn, will ensure the same for the entire state.

The correct reading of Section 16.051(a) is, of course, contrary to Region D's position in this matter. Region D must rely on an incorrect and overly-simplified misconstruction of Section 16.051(a) because neither that section, nor any other legislative provision, allows the Board to remove the Marvin Nichols Reservoir project from the 2012 State Water Plan for the protection of agricultural, natural, or any other kinds of resources.

III. Region D improperly requests the Board to undertake a review process that is outside the scope of the matter presently before the Board.

Region D now challenges the Board to reconsider its decision to approve the 2011 Region C Regional Water Plan under selected statutory and administrative criteria against which the Board has already evaluated the plan. The Region C plan has endured a multitude of challenges since the Board's approval of the plan in 2011. Numerous entities and individuals opposing the plan have been heard by the Board and the courts. The only error cited by the trial court was that the Board incorrectly concluded that no interregional conflict existed between Region C and Region D.¹⁸ The only relief sought by opponents of the Region C plan was for the Board to follow the rules requiring it to assist the regions in negotiating a resolution of the conflict.¹⁹ The Executive Administrator facilitated mediation between the RWPG for the purpose of resolving the conflict.

In its brief to the Board, and for the first time, Region D has challenged the merits of the 2011 Region C Regional Water Plan, most prevalently citing an alleged failure of the Region C RWPG to quantify potential impacts of the Marvin Nichols Reservoir project on agricultural and natural resources in the Region D planning area. The Board's adoption of the 2011 Region C Regional Water Plan into the 2012 State Water Plan demonstrates that the Board has evaluated the plan under all of the applicable regulatory requirements in Chapter 16 and the Board's rules, and has determined that the plan is satisfactory. The Board incorporated the water supply strategies recommended by Region C into the 2012 State Water Plan, accordingly.

The trial court declared simply that the Board's rules regarding interregional conflict apply to the issues of conflict identified in Region D's plan, and remanded the matter to the Board for further proceedings. The Eastland Court of Appeals then observed that the trial court's judgment remanded the case to the Board for it to follow the procedures in Section 16.053(h)(6).²⁰ That statute requires the Board to facilitate coordination between the involved regions and, if the conflict remains, resolve the conflict.²¹ The Court's directive, therefore, was not for the Board to reevaluate Region C's recommendation concerning the Marvin Nichols Reservoir project under the technical criteria in the Board's rules, but to resolve the conflict.

¹⁸ Ward Timber, Ltd. v. Texas Water Development Bd., No. D-GN-11-000121 (126th Dist. Ct., Travis County, Tex. Dec. 5, 2011).

Texas Water Development Bd. v. Ward Timber, Ltd., 411 S.W.3d 554, 569 (Tex. App.—Eastland May 23, 2013, no pet.).
Ltd. 550

 $[\]frac{20}{21}$ *Id.* at 560.

²¹ Tex. Water Code Ann. § 16.053(h)(6) (West 2008).

REGION D RESPONSE BRIEF ON RESOLUTION OF INTERREGIONAL CONFLICT BETWEEN THE 2011 REGION C AND REGION D REGIONAL WATER PLANS

SUMMARY

The position taken by the Region C Water Planning Group ("Region C") in its brief on resolving the interregional conflict should be rejected. Region C misconstrues the significance of the conflict claimed by Region D. Region C makes the bold statement that the Board can, in essence, make any decision it wants. Then Region C argues that the Board should adopt Region C's position.

The problem with Region C's position is that it ignores the fact that Region D raised the conflict because the Marvin Nichols Reservoir has never been justified in light of the significant adverse impacts on agricultural and natural resources in Region D. Region D removed the Reservoir from its 2001 Regional Plan and has opposed the inclusion of the Marvin Nichols Reservoir in each Plan going forward for that reason. It has advised other regions that it would oppose the Reservoir in other regional plans or the State Water Plan due to those adverse impacts.

Since both the Board's decision on the conflict and its decision approving the 2011 Region C Water Plan were reversed and remanded, the Board should consider how its decision on resolving the conflict will address its need to reconsider the Region C Plan.

It makes no sense to resolve the conflict in Region C's favor if the Board cannot then legally find the Region C Plan and its proposal for Marvin Nichols comply with state law and agency rules. As the Region D brief showed, the Board should not approve the current 2011 Region C Plan with the Marvin Nichols Reservoir included because it does not comply with state law and agency rules.

RESPONSE TO REGION C ARGUMENTS

1. The Board's Discretion

Region C first argues that the Texas Water Development Board ("the Board") has broad discretion to resolve the conflict in favor of Region C, rejecting Region D's claim of conflict.

While Region D agrees that the Board does have broad discretion to resolve such conflicts, the Board must do so in a fashion that complies with Texas law and the agency's rules and does not result in a meaningless act. Region D submits that the Board, therefore, needs to resolve the conflict in a way that then allows it to approve a Region C plan.

Plaintiffs in the case that led to this conflict resolution process requested that Texas Courts reverse and remand the decisions by the Defendant [TWDB] that

1. there is no interregional conflict in the Region C and D regional water plans, and

2. approved the Region C Plan in December 2010.¹

Texas courts did so, finding that there is an interregional conflict, which precluded the Board from making a valid decision to approve the Region C Plan.

The district court ruled that the two decisions of the Board must be reversed and remanded. The Attorney General appealed the rulings on both decisions. Upon review, the Court of Appeals stated:

The Board presents three issues: (1) whether the district court erred in denying the Board's plea to the jurisdiction; (2) whether the district court erred in declaring that an "interregional conflict" existed between Region C and Region D and declaring that the Board's interregional conflict rules applied to the conflict; and (3) whether the district court erred in reversing the Board's approval of the 2011 Regional Water Plan for Region C and remanding the case back to the agency.²

Region D's initial brief explains why a resolution of the conflict in favor of the 2011 Region C Water Plan would not resolve the matter. That Plan, with Marvin Nichols Reservoir, cannot be approved under state law and agency rules.

¹ Plaintiffs' First Amended Original Petition, page 13, Cause No. D-1-GN-11-000121; Ward Timber, LTD., Ward Timber Holdings, Shirley Shumake, Gary Cheatwood, Richard Letourneau, and Pat Donelson vs. Texas Water Development Board; in the 126th Judicial District, Travis County, Texas.

² Tex. Water Dev. Bd. v. Ward Timber, Ltd., 411 S.W.3rd 554, 557 (Tex.App. – Eastland, no pet.).

The Board can resolve the conflict and approve the Region C Plan by simply requiring Region C to remove the Marvin Nichols Reservoir from its 2011 regional plan.

Thus, the Board has two interrelated decisions: how to resolve the conflict and whether to approve a Region C 2011 Plan. Region D has no interest in preventing Region C from having a properly approved plan. Region D's interest is that the Region C Plan comply with state law and agency rules.

2. Public Policy

Region C argues that the only sound public policy for resolving the conflict is for the Board to rule in favor or Region C. Region C is wrong.

a. Region C's position will lead to more litigation and uncertainty.

First, as the Region C Brief discusses in its Section III, any decision by the Board is subject to review by Texas courts. If the Board were to adopt the Region C proposal, it would likely set off another round of litigation on both the issue of conflict and the approval of the Region C Plan, once again placing the Region C Plan in limbo.

By adopting Region C's approach, the Board would not be resolving the underlying dispute over the inadequacy of the Region C Plan. It is not sound public policy to address the conflict issue without addressing the underlying dispute.

Moreover, there are better policy solutions in the short and long term.

b. Region C's position ignores the continuing nature of the planning process.

Second, any decision that the Board makes now will only apply to the 2011 Region C Water Plan. Regardless of the decisions by the Board on the two pending issues, Region C will have the opportunity in its 2016 regional plan to reconsider whether to include the Marvin Nichols Reservoir if it can meet the test of the state law and agency rules for such a project. Creating a continuing dispute in the interim, when it will be moot in 2 years, is not a sound public policy.

c. The Marvin Nichols project is not an indispensable component of the Region C Plan.

Region C has continually held the position that the proposed Marvin Nichols Reservoir is indispensable to its water planning, a position that was repeated in Region C's Brief to this Board.³ Region D disagrees with that premise and believes that any independent and fair review of Region C's Plan will reveal that the Marvin Nichols Reservoir is not necessary for Region C to meet its water demands for the 2011 planning cycle. The 2011 Region C Water Plan provides for supply strategies in excess of the projected needs. Only by failing to adopt reasonable strategies to meet reasonable demands can the Region C Plan show a need for the Marvin Nichols Reservoir. The Region C Plan does not show that the reservoir is indispensable in the planning period or even beyond.

In Section 4D.3 of the 2011 Region C Water Plan, the Marvin Nichols Reservoir is a recommended strategy for 3 entities: North Texas Municipal Water District (174,840 acre feet per year), Upper Trinity Water District (35,000 acre feet per year) and Tarrant Regional Water District (280,000 acre feet per year). Yet, the Reservoir is not indispensable to any of these entities. For two, the Reservoir is clearly not needed.

Table 4E.15 of the Region C Plan sets forth that the Upper Trinity Regional Water District ("UTRWD") is planning on using 17,500 acre feet from the Marvin Nichols Reservoir beginning in 2050. If the Marvin Nichols Reservoir is deleted from the plan, the UTRWD would still have more supplies than demand for both 2050 and 2060 (9,053 acre feet of excess in 2050, 19,970 acre feet of excess in 2060).

Likewise, Table 4E.7 sets forth that North Texas Municipal Water District ("NTMWD") is planning on 87,400 acre feet of supply from the Marvin Nichols Reservoir for 2030 and 2040, with that amount increasing to 174,800 in 2050 and 2060. If the Reservoir is deleted from the plan, NTMWD would still have excess supplies over demand (102,012 acre feet of excess in 2030, 23,773 acre feet of excess in 2040, 86,078 acre feet of excess in 2050, and 88,975 acre feet of excess in 2060).

³ Region C Brief at p. 3-5

The situation for the Tarrant Regional Water District ("TRWD") is more complex, but the Marvin Nichols Reservoir is still not indispensable or even needed. Table 4E.4 sets forth that TRWD is planning on having 140,000 acre feet of supply from the Marvin Nichols Reservoir in 2030 and 2040, with that amount increasing to 280,000 acre feet of supply in 2050 and 2060. If the Reservoir is deleted from the plan, TRWD would have an excess of 700 acre feet in 2030, but projected demands would exceed projected supplies by 83,666 acre feet in 2040, 76,346 acre feet in 2050, and 134,853 acre feet in 2060.

Therefore, based on Region C's own figures, if the Marvin Nichols Reservoir is deleted from its Plan with no other changes, the only entity that would fail to show supplies that meet the Plan's projected demand would be Tarrant Regional Water District in the years 2040, 2050, and 2060. Region C in its Brief said the Board should resolve this issue in a reasonable manner. Listed below are the reasons Region D believes the inclusion of the Marvin Nichols Reservoir to meet the limited needs of TRWD is not reasonable.

First, whether it was projected to be needed at the time of the 2011 Region C Plan, it is clearly not indispensable now. The good work of TRWD, and others in Region C, to implement conservation practices has led to significantly reduced projections of need in Region C by Board staff. Those figures and the ones recommended by the Region C planning group show that the Region can easily get by without the Reservoir.

Even without looking at the current situation, the Marvin Nichols Reservoir cannot be shown to be indispensable to Region C if the plan is required to meet state law and agency rules and use reasonable assumptions.

For example, as shown on Page 4E.2 of the Region C Plan, wholesale water providers have supplies between 20% and 30% more than projected demands. In other words, instead of planning for demands projected like the rules of the Board contemplate and like other regions have done, Region C speculated that it will need much more water than demands suggest.

Thus, water suppliers have overestimated their demands, claiming 1) an extra margin of safety for climate change; b) the possibility of a drought more severe than drought of record; c) that demands may grow more rapidly than projected; and d) that some proposed management

strategies might not be developed.⁴ Rejecting such speculation makes it clear that the Marvin Nichols Reservoir is not needed.

Such speculative projections should not be allowed in any regional plan if the supply strategies involve water projects outside that region, especially if the impacts of such strategies have the type of impacts that the Marvin Nichols Reservoir will have on Region D.

Moreover, these justifications for excess supplies are for imagined shortages some 50 years out. Given the difficulty of projecting water needs in the long-term, and the ability of regions to reevaluate their demands and supplies every 5 years, such excess supply strategies for demands at the end of the planning horizon deserve close scrutiny.

If such policy reasons are not enough, such speculative demands need to be rejected as contrary to the rules of the Board. Agency rules, for example, define the drought of record at 31 TAC Section 357.10(10), and then repeatedly refer to this drought condition for use in planning. See, for example, the definition of existing supplies 357.10(12) and firm yield 357.10 (13). Board rules then provide requirements such as :

(a) RWPGs shall evaluate:

(1) source water availability during drought of record conditions; and

(2) existing water supplies that are legally and physically available to WUGs and wholesale water suppliers within the RWPA for use during the drought of record.

(b) Evaluations shall consider surface water and groundwater data from the state water plan, existing water rights, contracts and option agreements relating to water rights, other planning and water supply studies, and analysis of water supplies existing in and available to the RWPA during drought of record conditions.

(c) Evaluation of the existing surface water available during drought of record shall be based on firm yield....31 TAC 357.32.

⁴ 2011 Region C Water Plan at p. 4E.2

Likewise regional planning groups are directed to "plan for water supply during Drought of Record conditions." 31 TAC 357.34 (b), and to recommend water management strategies to be used during a drought of record 31 TAC 357.34 (a).

These and other rules for regional planning are mandatory requirements. They set out consistent planning requirements so that the State Water Plan is a collection of apples, not apples and oranges, and 15 other types of fruits, (i.e. different planning assumptions). In order for a state wide water plan to have meaning, the regional components that make up the plan must be based on the same definitions and protocols.

Board rules require consistency in regional planning at 31 TAC 357.60 and state in subsection (a)

RWPGs shall submit to the development Board a RWP that is consistent with the guidance principles and guidelines outlined in §357.20 of this title.

Section 357.20 then references Section 358.3 which makes it clear that it is the defined drought of record that is the basis for state and regional water plans, not some worse drought that has no basis in historic fact.

Development of the state water plan shall be guided by the following principles. ...(2) The regional water plans and state water plan shall serve as water supply plans under drought of record conditions....

Finally, Board rules provide:

(a) In the event the Board finds that the RWP does not meet the requirements of the Texas Water Code §16.053, this chapter, and Chapter 358 of this title (relating to State Water Planning Guidelines), the Board shall direct the RWPG to make changes necessary for compliance with legal requirements. 31 TAC 357.63.

An analysis of the other three justifications given by Region C for its speculatively high projections shows that they are also either contrary to or inconsistent with Board rules for regional water plans.

There are also other reasons for rejecting Region C's indispensability claim.

First, there are a number of entities in Region C that will have excess water in 2060 that could be used to address any short falls by TRWD or others, if proper planning for efficient use of the resources were done. There is, in total, more than enough water to make up those TRWD's short falls.

Second, a recent report by the Texas Center for Policy Studies gives several reasons why TRWD does not need Marvin Nichols. For example, that report points to the position of Region C that drought contingency plans are not reliable and therefore should not be considered as ways to cut demand or expand supplies.⁵ The Region C plan states:

Drought management and emergency response measures are important planning tools for all water suppliers. They provide protection in the event of water supply shortages, but they are not a reliable source of additional supplies to meet growing demands. They provide a backup plan in case a supplier experiences a drought worse than the drought of record or if a water management strategy is not fully implemented when it is needed. Therefore, drought management measures are not recommended as a water management strategy to provide additional supplies for Region C.⁶

That position is contrary the position of the Legislature and the Board, which makes such plans mandatory and assume they will be used to reduce the peak use during drought conditions. Ignoring the role of its required drought contingency plans in stretching supplies during drought appears to be merely one more justification to keep the Marvin Nichols Reservoir in the regional plan.

The report of the Texas Center for Policy Studies explains that if Region C applied its drought contingency plans to its major supplies, such as reservoirs used by TRWD, much more water would be available during the peak use periods, i.e. times of drought. The report focuses on TRWD, its drought contingency plan and one of its reservoirs, Cedar Creek. The report shows that TRWD can reduce the demand for water from the reservoir during a drought by about 32,000 acre-feet. Using the same approach for other reservoirs used by TRWD and other major water suppliers would lead to very significant decreases in the demand-supply gap (need) during

⁵ Learning from Drought: Next Generation Water Planning for Texas, May, 2014, p. 31 – 33. Available at www.texascenter.org.

⁶ 2011 Region C Water Plan at p.6.7-6.8

drought conditions. Yet, Region C views such savings in water use as not worthy of evaluation as strategies to address peak demands.

The Region C Brief states that if Marvin Nichols Reservoir were deleted from its Plan, "rather that constructing one reservoir, Region C would be forced to recommend construction or expansion of a series of reservoirs and other infrastructures that would be considerably more expensive and would be more environmentally costly than the current proposal."⁷

That contention is completely untrue. As the Region C Brief correctly asserts "the purpose of regional planning is to assure adequate water supplies for a region through a drought of record."⁸

In order for the Region C Plan to assure adequate supplies through a drought of record, it needs to show that supplies will meet demands during such a period. As stated previously, if Marvin Nichols Reservoir is deleted from the Region C Plan, every water provider in Region C will have adequate supplies to meet demands with the exception of TRWD beginning in 2040 and continuing through 2060. TRWD's deficits will be less that 85,000 acre feet in 2040 and 2050 and increase to approximately 135,000 acre feet in 2060. Is Marvin Nichols Reservoir less expensive and less environmentally costly than other measures to provide this limited amount of water supply to Tarrant Regional Water District? Region C's own plan would indicate it is not.

According to the Region C Plan, Toledo Bend is a water supply strategy to be implemented that will provide water supply to TRWD and NTMWD.⁹ Their plan calls for Phase 1 to provide 100,000 acre feet to each entity beginning in 2050 and Phase 2 to provide the same amount of water to each entity in 2070. Simply by moving up the timetable a decade or so and increasing TRWD's share of Phase 2 would eliminate any water shortages in Region C for the 2011 Plan. This Reservoir is already constructed, the water is impounded and available as a water supply. In addition, if future supplies are needed by either entity after 2060, the Region C Plan on Table 4D.2 states that up to 600,000 acre feet of supplies are potentially available to Region C from

⁷ Region C Brief at p. 8

⁸ Region C Brief at p. 10

⁹ 2011 Region C Water Plan at p. 4D.1 – 4D.7

Toledo Bend. According to the Region C Plan, agricultural and natural resource impacts are low with environmental and third party impacts medium low for this project.¹⁰

Additionally, there is water availability from Wright Patman Reservoir in Region D currently listed as three (3) separate alternate supply strategies for TRWD that would more than satisfy any potential shortage.¹¹ Again, this is a Reservoir already constructed with water impounded. Region D has consistently held the position in all negotiations with Region C that our Region is willing to work with Region C in obtaining additional water supplies from Wright Patman Reservoir and that it is a more certain supply source for Region C. Again, pursuant to Table 4D.2 of the Region C Plan, any of the Wright Patman water supply strategies would have substantially less impacts on the environment, as well as on agricultural and natural resources. These strategies are already in the Region C Plan and could simply be moved from an alternate strategy to a recommended strategy to meet any water demand shortages of TRWD.

As stated previously, there are ample supplies in the Plan as it exists now to cover any shortages of TRWD by sharing those water supplies. In each of the years that TRWD would have shortages (2040, 2050 and 2060), Dallas Water Utilities and North Texas Municipal Water District alone would have much more excess supply over demand in a drought of record than TRWD shortages.¹² Simply by sharing this excess, all entities of Region C would have ample supply without any change to the Region C Plan.

As set forth in the Region D Brief, the 2011 Region C Plan fails to comply with TWDB rules and state law regarding the impacts of Marvin Nichols Reservoir and the mitigation that would be required on the agricultural and natural resources of the state. The assertion in Region C's Brief that their plan is consistent with all applicable statutes and administrative criteria for regional water planning¹³ is incorrect. Likewise, the Region C Brief claims that the Marvin Nichols Reservoir is indispensable to the Plan, when clearly it is not – removing Marvin Nichols would put only one entity (TRWD) with a small deficit of water, such deficit being easily remedied by a

¹⁰ 2011 Region C Water Plan at 4D.5

¹¹ 2011 Region C Water Plan at 4E.21

¹² 2011 Region C Water Plan at p. 4E.11, 4E.18 and 4E.27

¹³ Region C Brief at p. 2

slight restructuring of the 2011 Region C Plan. Such a remedy would allow Region C to have every water supplier with more supply than demand throughout the planning cycle.

d. <u>Texas courts have rejected Region C's claim that Region D's dispute with its Plan belongs at another agency.</u>

In the court case leading to this matter, the Attorney General argued for the Board essentially what Region C claims in its brief, that the dispute is one for the TCEQ's permitting process. The AG raised this argument first in arguing that the Plaintiffs lacked standing. The Court of Appeals rejected the idea that Plaintiffs could not appeal the Board's decisions because the issues belong at another agency.

The Court of Appeals returned to this issue later in resolving the Board's claim that the trial court erred in reversing and remanding the Board's two decisions. The Court stated:

From the briefs, it appears that the Board has confused the planning process and the permitting process under the current approach to water planning. The planning process should encompass possible water strategies and the impact those water strategies will have on the agricultural and natural resources of the region involved, especially when an interregional transfer of water is involved. The Region D planning group in its Region D plan made a preliminary case that there is a substantial interregional conflict with Region C's plan, and that should be sufficient for the Board to require the two regional planning groups to attempt to resolve that conflict.¹⁴

Texas Courts did not agree the AG's argument that this dispute should be resolved at the permitting process. The Board must address the conflict issue and the underlying fact situation that led to the conflict. The Board must comply fully with the law and its rules.

3 Adjudication and Evidentiary Record

Region D agrees with Region C that the process for resolving the conflict and that for approval of a Region C plan is not adjudicatory in nature. The process that the Board is using is all that is required.

¹⁴ Tex. Water Dev. Bd., 411 S.W.3rd at 575

Moreover, any court review of the decision on the conflict resolution or the Region C 2011 Plan will be handled by the courts as they did the original appeal of the Board's initial decisions on these matters. A reviewing court will determine if the Board has followed state law and its own rules. It will evaluate the Region C Plan that is then approved to see if it meets state law and the Board's rules on evaluating impacts to agricultural and natural resources. As Region D's initial brief explains, the 2011 Region C Water Plan, with the Marvin Nichols Reservoir, does not comply with state law and Board rules.

4. Resolution of the Conflict

Region C's brief concludes with a bold statement that there is only one reasonable way to resolve the conflict, Region C's way. Region C is wrong. The Board has a number of options, some of which are specifically set forth herein. The simplest option, however, is the one proposed by Region D. That approach will avoid future litigation and the resulting uncertainty for Region C water suppliers during the next two years, while also complying with state law and agency rules regarding the long-term protection of the agricultural and natural resources of the state.

RELIEF REQUESTED

The Region D Water Planning Group continues to request that the Board resolve the conflict by:

- 1) Leaving the Region D Water Plan of 2011 as is;
- 2) Advising Region C that before the Board can approve its 2011 plan, Region C must remove the Marvin Nichols Reservoir from its 2011 Plan because of the failure of Region C to show that the reservoir is consistent with the long-term protection of the state's agricultural and natural resources; and
- 3) Grant such further relief as the Board deems necessary.

Respectfully submitted,

Jiph F. Thompson Designated Representative for Region D

TWDB Interim Order (August 8, 2014)

TEXAS WATER DEVELOPMENT BOARD



AN INTERIM ORDER

concerning the interregional conflict between the 2011 North Central Texas Regional Planning Area Regional Water Plan and the 2011 North East Texas Regional Planning Area Regional Water Plan in accordance with Texas Water Code § 16.053.

On August 7, 2014, the Texas Water Development Board (Board) considered the interregional conflict between the 2011 North Central Texas Regional Planning Area (Region C) Regional Water Plan and the 2011 North East Texas Regional Planning Area (Region D) Regional Water Plan.

After considering the oral argument of the parties and the filings in this matter, the Board determined that there was inadequate analysis and quantification of the impact of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS WATER DEVELOPMENT BOARD that:

1. Region C is directed to conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agriculture and natural resources of Region D and the State, pursuant to Sections 16.051 and 16.053 of the Texas Water Code and Chapters 357 and 358 of Board rules. Region C should submit this analysis and quantification to the Board by November 3, 2014. Upon receipt of the analysis and quantification, the Executive Administrator and Region D will be given the opportunity to submit a written response to the submission, and the matter will be scheduled for Board consideration. If no submittal is received by the Board on or before November 3, 2014, this matter will set for a Board Meeting to direct the Regions to revise

their regional water plans reflecting the removal of the Marvin Nichols Reservoir Water Management Strategy from the 2011 Region C Plan, without prejudice.

- 2. The Executive Administrator is directed to undertake an examination of current rules and guidance pertaining to the development of regional water plans, and identify any opportunities for: ensuring that future regional and state water planning efforts include all statutorily-required analyses; and defining "interregional conflict" in a manner that is consistent with the ruling of the 11th Court of Appeals in *Texas Water Development Board vs. Ward Timber, Ltd.,* 411 S.W.3d 554 (Tex. App.-Eastland 2013, no pet.).
- 3. The Region C and Region D regional water planning groups are encouraged to continue to participate in the Sulphur River Basin Study.

Issue Date: August 8, 2014

TEXAS WATER DEVELOPMENT BOARD

Carlos Rubinstein, Chairman

Region D Response to "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State" (December 17, 2014)

JIM F. THOMPSON Attorney at Law P.O. Box 1107 Atlanta, Texas 75551 (903)799-5331 Fax: (903)796-6366

December 17, 2014

Office of General Counsel Attn: Les Trobman Texas Water Development Board P.O. Box 13231 Austin, TX 78711-3231

> Re: Region D's Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy

Dear Mr. Trobman:

As designated by the Region D Planning Group and requested by the Texas Water Development Board, I am submitting Region D's Response regarding the above-referenced matter. I am sending you the Response by U.S. Mail and email and am also sending it by U.S. Mail and email to all other persons on the mailing list in your letter of November 6, 2014.

Very truly yours,

cc: w/enc Jim Parks Jody Puckett Russell Laughlin Bret McCoy Richard LeTourneau Walt Sears Joe Reynolds Linda Price Richard Lowerre Molly Cagle The Interim Order of the Board of August 8, 2014 directed Region C to conduct and submit

an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State.

Region C did not conduct or submit such an analysis and quantification of the impacts. Its

report, "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water

Management Strategy on the Agricultural and Natural Resources of Region D and the State"

(hereinafter referred to as the "Region C report"), failed in at least three ways.

- The Region C Report does not analyze or quantify the impacts on the forest wetlands or bottomland hardwoods downstream of the proposed reservoir, despite the fact that
 - a. the TWDB staff prepared a study documenting such impacts;
 - b. USFWS has declared these as priority areas;
 - c. significant areas of these forested areas are part of the White Oak Mitigation Creek WMA, which are mitigation lands for Jim Chapman Reservoir; and
 - d. The Region C report admits that the reservoir will eliminate the significant flooding of these lands that is needed to protect these forested areas.
- 2. The Region C report fails to use the current methodology of the U.S. Army Corps of Engineers to analyze the extent and location of mitigation that will be required for lands inundated by the reservoir and completely fails to analyze the mitigation that will be required as a result of the impacts downstream of the reservoir. As a result
 - a. the Region C report grossly underestimates the amount and type of lands that will be required for mitigation; and
 - b. the Region C report fails to explain that these mitigation lands must be located within the Sulphur River Basin or analyze whether there are even enough such lands for mitigation.
- 3. The Region C report also fails to analyze the impacts of the loss of bottomland hardwoods on the timber industry and the economy of Region D. It fails to

- a. address the impacts that the loss of hardwood timber supplies would have on the timber industry in Northeast Texas and Region D;
- b. address any impacts that would result from the loss of agricultural/timber land for required mitigation; and
- c. submit an analysis and quantification of the impacts to the agricultural/timber sector of Northeast Texas and Region D.

By failing to provide the information required by the Interim Report, Region C has also failed to meet the requirements of the Board's rules for approval of regional plans. As a result, the Board should reject the Marvin Nichols Reservoir Strategy from the 2011 Region C regional water plan.

The Board cannot make the required findings that

*Region C's 2011 regional plan meets the requirements of the Interim Order or the TWDB rules and Texas law on which that Order is based, and

*the inclusion of Marvin Nichols Reservoir in the Region C Regional Water Plan is consistent with the long-term protection of the State's agricultural and natural resources, a clear requirement for Board approval of a regional water plan pursuant to Section 16.053 of the Texas Water Code.

Legal Requirements:

The Interim Order of the Board of August 8, 2014 provides sufficient legal basis for rejecting the Region C plan. That order is, however, based on clear language in Board rules, both those rules that existed at the time of the initial Board approval of the Region C plan and as those rules are currently in effect for approval of regional plans and amendments.

Pursuant to Sections 16.051 and 16.053 of the Texas Water Code, the Board adopted the following rules, which were applicable when the Board initially approved the Region C plan in 2011:

§357.7. Regional Water Plan Development

(a) Regional water plan development shall include the following...

(8) evaluations of all water management strategies the regional water planning group determines to be potentially feasible by including:

(A) a quantitative reporting of...

(ii)environmental factors including effects on environmental water needs, wildlife habitat, cultural resources,

(iii) impacts on agricultural resources...

(C) for each threat to agricultural and natural resources identified pursuant to paragraph(1) of this subsection, a discussion of how that threat will be addressed or affected by the water management strategies evaluated;

Those rules were repealed and replaced in 2012. The current rules repeat the requirements that were also set out in the Board's Interim Order in this matter. The rules provide:

§357.34. Identification and Evaluation of Potentially Feasible Water Management Strategies

(d) Evaluations of potentially feasible water management strategies shall include the following analysis:

(3) A quantitative reporting of...

(B) Environmental factors including effects on environmental water needs, wildlife habitat, and cultural resources...

(C) Impacts to agricultural resources...

(5) A discussion of each threat to agricultural or natural resources identified pursuant to §357.30(7) of this...including how that threat will be addressed or affected by the water management strategies evaluated...

(7) Consideration of third-party social and economic impacts resulting from voluntary redistributions of water including analysis of third-party impacts of moving water from rural and agricultural areas...

and

§357.40. Impacts of Regional Water Plan

(b)RWPs shall include a description of the impacts of the RWP regarding:

(1)Agricultural resources pursuant to §357.34(d)(3)(C) of this title (relating to Identification and Evaluation of Potentially Feasible Water Management Strategies)...

(3) Threats to agricultural and natural resources identified pursuant to 357.34(d)(5) of this title

These rules are a clear recognition by the Board of its responsibility under Section 16.053 of the Texas Water Code, which states:

(h)(7) The Board may approve a regional water plan only after it has determined that:

(C) the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles adopted under Section 16.051(d).

Section 16.051(d) required coordination with the Texas Department of Agriculture and Texas Commission on Environmental Quality to assure interests of the state in agricultural and natural resources are balanced.

Board rules emphasize that provision by requiring that prior to approval of any regional water plan, the Board must make such a finding. (See, the Board's prior rules at 357.14(2)(C) and the current rules at 357.41.)

Thus, both Texas law and Board rules are clear. The Board is responsible for assuring a balancing of the State's interests, which clearly include statewide and regional interests in a strong economy and healthy natural resources on which the economy is based.

Board rules then require regions to provide data and analysis by which the Board can do that balancing and consistency determination. These are requirements under Texas law that all regions **must** meet.

It is compliance with these rules that Region D is requesting in this current process to resolve the interregional conflict.

Were Region C to properly comply with Board rules and provide what the Interim Order requires, the Board would be free to resolve the interregional conflict. Region D may disagree if the Board decides that the Marvin Nichols Reservoir should stay in the Region C plan, but, at least, the Board and the public will have, for the first time, a reasonable description of the impacts on Region D and the state of the proposed reservoir. By failing to comply with the Interim Order, Region C's proposal to include the Marvin Nichols Reservoir must be rejected.

Failure of the Board to require any region to meet the requirement to identify impacts beyond the region would create a terrible precedent and significant limitation on the Board's future decisions. The Board needs to be able to require the preparation of regional and state water plans that can be used by the Board to determine how it will use the limited state funds it has to help the state meet its future water needs. A bad precedent here will also limit the ability of the Texas Commission on Environmental Quality to focus its work on applications for water rights that both are needed and meet the balancing test required in the water planning process.

The Failures of the Region C Report

As summarized above, the Region C report, in response to the Interim Order, fails to comply in three significant ways: it lacks 1) a quantification of impacts downstream of the project, 2) a proper analysis of the mitigation that will be required, and 3) an assessment of the impact the loss of hardwood timber will have on the timber industry and economy of Region D. In each case, Region C could have provided the level of analysis and quantification of impacts of the Reservoir needed by the Board. Region D recognizes that the Board's rules do not require the level of detail as required in an environmental impact statement. The level of work required for regional plans is tied to the consistency finding that the Board must make to approve any regional water plan. Greater detail is required during the permitting process by TCEQ.

Still, the basic information needed by Region C to respond to the Interim Order is readily available. For example, in 2004, TWDB staff prepared for the Board and the U.S. Army Corps of Engineers a report entitled "Analysis of Instream Flows for the Sulphur River: Hydrology, Hydraulics & Fish Habitat Utilization," which is discussed in more detail in the attached report by Trungale Engineering and Science, et al. In that Report, TWDB staff did a significant amount of work identifying, quantifying and analyzing the impacts of a Marvin Nichols Reservoir on downstream wetland forests and bottomland hardwoods. While the site of the dam for that proposed reservoir was somewhat downstream, it is clear from the report that there will be very

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Summary of Region D's Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy

significant loss of bottomland hardwoods and other wetland forests from any reservoir in this area. Moreover, this study provides a basic approach that Region C could have used to provide the information that the Board requested in its Interim Order. Region C did not even attempt to evaluate these or other types of losses downstream of the currently proposed reservoir configuration.

Likewise, the Region C report simply is incorrect in its methodology for analyzing the likely extent and location of the mitigation that will be required as a result of the inundation of lands in the reservoir footprint. In the intervening years since the U.S. Army Corp of Engineers published its 2008 Mitigation Rule, methods have developed to allow the quantitative assessment of impacts and mitigation. While it may be justified to defer full application of those methods until a project is nearer the permitting process than the Marvin Nichols Reservoir is at this time, these methods could be utilized in a simple form to produce the required quantitative estimates and analysis.

Moreover, the Region C report does not mention the possibility of mitigation for important forested areas downstream of the proposed reservoir, a substantial portion of which are in the White Oak Creek Wildlife Management Area. Nor does the Region C report identify the types of mitigation, extent of mitigation lands possibly needed, or where such lands could be found.

Even on the issue that has been at the heart of Region D's concern, loss of the economic value of timber, the Region C report is fatally flawed. The Report omits from its analysis the impacts that would occur from the removal of significant amounts of hardwood resources from the Sulphur River Basin. The proximity of these hardwood supplies to the numerous paper mills and hardwood sawmills in the area are extremely important to the viability of the timber industry in Northeast Texas and Region D.

The Region C report completely omits from its analysis any discussion of the agricultural/timber impacts that will result by the removal of lands from production for required mitigation. These lands, together with the lands that would be inundated by the proposed reservoir, would be lost from production forever.

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Detailed Analysis in Attached Reports

Attached to this Summary are three reports produced in response to Region C's Report which include detailed examinations of the following: 1) impacts to natural resources by Marvin Nichols Reservoir; 2) impacts to agricultural resources by Marvin Nichols Reservoir; and 3) mitigation impacts and requirements for Marvin Nichols Reservoir. These reports establish the failure of the Region C report to provide an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State.

Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy on Natural Resources

Prepared By:

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December 15, 2014

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INTRODUCTION

A proposal to include the Marvin Nichols Reservoir Project in the Texas Water Planning Process (SB1) has resulted in an interregional conflict between the Region C Water Planning Area, which includes the Dallas-Fort Worth Metropolitan area, and the Region D Water Planning Area, which includes part of North East Texas, including the site of the proposed reservoir. In response to this conflict, and at the direction of the Texas Water Development Board (TWDB), the Region C planning group has produced a report entitled *Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State.*

While the Region C report contains limited quantitative data, including a table of different habitat types that would be inundated by the footprint of the reservoir, and a table and figure representing streamflows without and with the proposed project, the report provides no evaluation of the significance of these impacts Further, the report does not include any quantification or assessment of downstream impacts.

Development of the Marvin Nichols Reservoir project as proposed in the Region C water plan would permanently flood a large proportion of the last remaining intact bottomland hardwoods in East Texas. It would also result in a massive reduction in flows remaining in the river downstream of the proposed reservoir project which would result in significant, likely catastrophic, harm to an even larger bottomland hardwood forest area. As the plan acknowledges "Marvin Nichols Reservoir will have significant environmental impacts." (Region C 2011, p 4D.11)

Large, intact, bottomland hardwood forests (BLH) are valuable and rare natural resources, which provide numerous ecological and economic benefits. These forests require regular inundation resulting in high flow events for seed dispersal and growth, and exclusion of upland species encroachment. Analysis of results generated by the water availability modeling (WAM), developed to evaluate this reservoir project, indicate that the flows needed to maintain these forests would be severely diminished, if not entirely eliminated. Data and methodologies to perform this type of analysis, even at a planning level, are readily available, and examples of these approaches are provided within this report.

The clearest problem with the Region C report is that it contains no analysis or quantification of downstream impacts. By completely ignoring the largest and most significant impacts to natural resources resulting from the Marvin Nichols Reservoir Water Supply project, the Region C report does not meet the requirements of the TWDB order.

1 BOTTOMLAND HARDWOOD FORESTS

The proposed Marvin Nichols Reservoir would be located in East Texas in Red River, Titus and Franklin counties. The Sulphur River basin downstream of the proposed reservoir supports the largest, relatively undisturbed bottomland hardwood forest remaining in Texas (USFWS 1985 and 2000, see Figure 1)).

Floodplains with BLH and other ecologically important habitats are one of most altered and imperiled ecosystems on Earth (Opperman et al. 2010). The unique importance of this BLH ecosystem is largely based on its extensive swamp communities sustained by an active regime of high and overbank flows. More than any other factor, the sustainability of ecosystem processes within floodplains depends upon the longitudinal and lateral hydrologic connections that would be severed by the proposed reservoir. As currently modeled, the proposed Marvin Nichols I reservoir will not provide sufficient frequency and duration of high and overbank flows to sustain downstream BLH forest.

Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy on Natural Resources



Figure 1 Location of proposed Marvin Nichols Reservoir in relation to USFWS designated Priority Bottomland Hardwood Preservations Site.

The bottomland hardwood forest habitat diversity within the Sulphur River basin is high (USFWS 1985 and 2000). Primarily due to environmental variability, these floodplain forest communities exhibit a high diversity of tree species, unlike upland forests, which are often dominated by one or two tree species (McKnight et al. 1981). The interaction of a changeable inundation regime with the geomorphologic patchwork of microtopography and soil types also leads to high between-habitat diversity (Junk et al. 1989). As a consequence of this ongoing interplay between hydrology and geomorphology, the biodiversity of BLH forests is usually double that of nearby upland forests (Gosselink et al. 1981).

Though tolerance to water saturation of an individual species will vary according to interspecies competition, soil texture, soil nutrients, and available light, the presence of a particular BLH community consisting of many dominant and co-dominant species is defined by the characteristics of the flow regime (Huffman and Forsythe 1981b). Incorporating east Texas BLH habitat types (TPWD 2009), Figure 2 is a schematic presentation of the interdependence of landscape context (relative elevation), tree species, and flow regime (adapted from Diamond 2009 and Huffman and Forsythe 1981a).

The major riparian forest types within the overall project area are summarized in terms of species composition, relative elevation context, and flow regime in Figure 2. Flood frequency and duration (adapted from Huffman and Forsythe, 1981a) are also tabulated for these forest types in Figure 2. In this

manner, Figure 2 is a schematic presentation of the interdependence of landscape context (relative elevation), tree species, and flow regime (adapted from Diamond 2009 and Huffman and Forsythe 1981a), for East Texas riparian forest types.

1.1 Forested Wetland

Forested wetlands (swamps) are often dominated by monocultures of bald cypress. At relatively low surface elevations, these forests flood essentially every year and are only intermittently exposed. Slightly higher elevations support upper and backwater swamps, which are semi-permanently flooded (more than two months during the growing season) and receive flood inflows ranging from every year to every other year. In addition to bald cypress, upper swamps are characterized by admixtures of water elm, overcup oak, and sweetgum, while in backwater swamps, tupelo gum and green ash may become co-dominant with bald cypress.

1.2 Bottomland Hardwood Forest

1.2.1 Seasonally Flooded Forests

As depicted in Figure 2, the probability of seasonally flooded BLH forests being flooded in a given year is 51-100 percent. With the natural hydrologic regime relatively undisturbed, these forests are flooded a total of 1-2 months (12.5-25 percent) during the growing season. Species composition is diverse and dominated by various combinations of willow oak, water oak, sweetgum, and overcup oak, with water hickory, laurel oak, and green ash often as co-dominants.

1.2.2 Temporarily Flooded Forests

With an annual flood probability of 11-50 percent, these forests experience a total flood duration during the growing season of 5-30 days or 2-12.5 percent. Tree species diversity is high, and is currently characterized by water oak, sweetgum, loblolly pine, and cedar elm, along with sugarberry, ironwood, and other red oaks such as willow oak.

Though currently uncommon in northeast Texas and the study area, temporarily flooded forests that are undisturbed and approaching maturity are dominated by elms, ashes, and sugarberry, along with some red oaks (Hodges 1997). The now very uncommon, final successional stage for this community type is characterized by the addition of white oaks and hickories (Hodges 1997). Agriculture and altered hydrologic regimes have all contributed to the loss of this somewhat drier BLH forest type in east Texas. Such disturbances lead to invasion by sweetgum and red oaks in remaining forests.

Wet Prairie



² Huffman, T., and S.W. Forsythe. 1981. Bottomland hardwood forest communities and their relation to anaerobic soil communities. <u>in</u>: Clark, J.R., and J. Benforado. Wetlands of Bottomland Hardwood Forests, Elsevier Scientific Pub. Co., New York, N.Y., pp. 187-196. Footnotes: ¹ Diamond, D. 2009. FIA Bottomland Summary: East Texas. Unpub. document, Missouri Resource. Assessment Partnership, School of Natural Resources, U. Mo. - Columbia.

(< 5 days)

5-30 days)

2-12.5%

12.5-25% (1-2 mos.)

(> 2 mos.)

~ 8 mos.)

~~ 8 mos.)

100%

Growing-Season

Inundation-

total duration 2:

 $\sim 100\%$

>25%

< 2%

Figure 2 Bottomland Habitat Types in the Marvin Nichols Project Area, Northeast Texas: Landscape Context, Tree Species, and Hydrology

2 ENVIRONMENTAL FLOW REGIMES

The most important component of environmental variability, and the factor most directly affected by water development decisions, such as a new reservoir, is the flow regime. A river's flow regime is characterized by flow magnitude, duration, frequency, and timing. Recognition of the importance of maintaining critical components of the natural flow regime has now been firmly established in Texas (SAC 2009, TIFP 2008) and incorporated into the state environmental planning program (SB3). The process of developing a full-scale environmental flow recommendation has not been undertaken or even scheduled for the Sulphur River Basin. The Region C water planning group has, per TWDB rules, employed a default, desktop approach for determining the pass through requirements for environmental flow protection. Inclusion of this approach in the reservoir water availability analysis does not relieve the planning group of the responsibility of performing a qualitative assessment of the effects of a new project and, in doing so, to consider current environmental science regarding environmental flow needs. This consideration is completely lacking in Region C's quantitative analysis report.

2.1 Flows Needed to Maintain Bottomland Forests

River-floodplain landscapes consist of continuously changing environments and habitats. In undisturbed floodplains, habitats are dominated by a diversity of bottomland hardwood forests, along with shrub and herbaceous wetlands, and both lentic (still) and lotic (flowing) aquatic habitats. The different habitat patches naturally connect with each other via water level fluctuations (Thoms et al. 2005). In this manner, a floodplain is a highly dynamic "aquatic-terrestrial transition zone" (Junk et al. 1989).

Through its effect on habitat availability, the flow regime is the strongest determinant of BLH species composition for both plant and animal populations (King and Allen 1996). This is due to the evolutionarily-tuned correspondence among species distributions and hydrologic cycles (Bedinger 1981). Wetland forests are maintained by episodic high flow events defined by the site-specific flow regimes. If the Marvin Nichols project is constructed, downstream river flows, especially critical high flow events, will be significantly reduced.

The temporal distribution of repeated overbank flows is not only the primary determinant of habitat types, but also drives biogeochemical processes in floodplain soils, such as decomposition, sedimentation, and nitrogen (N) cycling (Hunter et al. 2008). Variable river levels trigger switches between biological production within floodplain habitats and the exchange of the resulting organic matter and nutrients among different terrestrial, aquatic, and estuarine habitats (Amoros and Bornette 2002). These inputs from productive floodplains are essential to the sustainability of downstream and other habitats linked by variable river flows. In east Texas floodplain forests, Dewey et al. (2006) pinpointed flood duration as the single most important component of the flow regime, in terms of influence on wetland vegetation and soil characteristics

Hydrologic variability produces spatial and temporal variability of habitats that increases biodiversity. Hydrologic connectivity is multi-dimensional and encompasses longitudinal, lateral, vertical, and temporal variables (Amoros and Bornette 2002). Various species and life cycle stages depend upon the complementary habitats provided by this connectivity. For example, fish migration between spawning and nursery habitats is evolutionarily adapted to floodplain variability.

During their research in floodplain hardwood forests of the southeastern United States coastal plain, Burke and Chambers (2003) conducted regression analyses that compared the annual durations of surface flooding and soil saturation. The analysis indicated the swamp and temporarily flooded forest, on average, flooded 61% and 3% of the year, respectively, compared to soil saturation in the upper 30 cm of soil lasting 84% and 20% of the year, respectively. In the swamp, the depth to the water table normally remained within 30 cm of the surface, while in the temporarily flooded forest the water table receded to a depth of more than one meter every summer.

The depth to persistent soil saturation strongly influences which tree species are sustained within a floodplain. In their study of relationships among hydrology and soil variables in a floodplain forest, Bledsoe and Shear (2000) determined tree species distributions to be most significantly correlated with depth to mottling ($r^2 = 0.75$), which is a measure of the average depth of soil saturation. This finding may be compared to their other significant correlations of tree species distributions to flooding frequency ($r^2 = 0.57$) and surface elevation ($r^2 = 0.70$).

Rood et al. (2005) describe the "flood pulse" as a natural disturbance that revitalizes floodplain habitats. For many BLH tree species, seed germination and seedling establishment must follow floods severe enough to remove existing vegetation and create new seedbeds from bare soil. In addition to providing new substrates in different configurations, floods distribute seeds and vegetative propagules to reestablish plants across the floodplain (Bendix and Hupp 2000). The timing of forest-regeneration floods is important, since not only do the flood-induced erosion and deposition of bare seedbeds need to occur before seed dispersal (Hughes and Rood 2003), but the timing of subsequent seed germination varies by tree species. The spatial configuration and timing of vegetation destruction and renewal during floods causes BLH forests to consist of mosaics of vegetation of different ages and species compositions.

Hughes and Rood (2003) list the most important considerations as: (1) timing inundation to coincide with the phenology (seed dispersal and germination) of target tree species, (2) varying the interannual timing of floods to increase plant diversity, (3) adjusting the rate of flood-water recession, and (4) promoting channel movement and new sedimentation sites to create regeneration sites. A distinctive characteristic of regeneration flows is their requirement for between-year variability of overbank events on a decadal scale, which are superimposed on annual "maintenance flows" that depend on within-year variability for seedling survival.

In addition to their importance in maintaining BLH species diversity, the frequency and duration of overbank flows need to be sufficient to exclude upland species. Extended flooding during extremely wet years has the strongest control on BLH species composition (Townsend 2001), largely due to its adverse impact on upland species. Figure 2 lists flood duration and frequency targets to maintain each BLH habitat type in the proposed project area.

The seasonal timing of flooding largely determines the tree species regenerating within floodplain forests. The high flow and overbank components of the flow regime are consequential determinant of the long-term survival of bottomland species and, thus, species dominance within mature floodplain forests (Townsend 2001). The species-specific effects of extreme flood events, in particular, maintain high species diversity. When flow variability is reduced, floodplain forests are degraded by artificially homogenous species composition with lower productivity.

Both terrestrial and aquatic species benefit from periodic inundation and nutrient exchange caused by floodwater. Proposed water development projects that have the potential to alter the flow regime also have the potential to alter the inundation frequency of low-lying flood-prone areas. Since native species could be affected by such an alteration to their regime, an analysis of inundation extent has been performed to quantify the flooded area for typically recurring floods. (See Section 3.2.1 below)

2.2 Environmental Flows in the Regional Plan

The environmental flow requirements used to evaluate the Marvin Nichols Reservoir Water Supply Project are based on an approach developed in the 1990's called the "Consensus Criteria". Under this

approach, the flows passed through the reservoir for instream protections are dependent on reservoir levels. The specific target flows are based on statistics calculated based on daily-naturalized inflows. When the reservoir is greater than 80% full, the project is supposed to pass the median flows; when greater than 50% full, the project is supposed to pass the 25th percentile flows. Otherwise the project is supposed to pass the 7Q2 flows. Unlike the more recent environmental flow criteria developed as part of SB3, there are no requirements, under the consensus criteria, to pass any high flow pulse flows. The maximum pass through for the proposed Marvin Nichols Reservoir Project, as required by consensus criteria, would be 514 cfs in May and then only if the reservoir is greater than 80% full.

Month	Mee	dian	25th Pe	rcentile	7Q2	
WOITT	acft/mo	cfs	acft/mo	cfs	acft/mo	cfs
Jan	13,621	221.5	3,351	54.5	79	1.3
Feb	20,928	373.5	6,192	110.5	72	1.3
Mar	30,522	496.4	8,753	142.4	79	1.3
Apr	17,947	301.6	5,712	96.0	76	1.3
May	31,613	514.1	6,019	97.9	79	1.3
Jun	11,488	193.1	2,748	46.2	76	1.3
Jul	2,524	41.1	530	8.6	79	1.3
Aug	906	14.7	211	3.4	79	1.3
Sep	943	15.8	111	1.9	76	1.3
Oct	1,550	25.2	242	3.9	79	1.3
Nov	4,687	78.8	943	15.9	76	1.3
Dec	11,488	186.8	2,173	35.3	79	1.3

Table 1 Consensus Criteria for Environmental Flow Needs for Marvin Nichols I Reservoir.

Unless the reservoir is full and spilling flows in the river downstream of Marvin Nichols will be less than 514 cfs. During most times, flows passed through the reservoir will be much lower. The impact on flows is evident from the flow frequency figure included in the Region C report, which shows the significant differences in flows with and without the reservoir.





While the Region C report presents this flow frequency curve and a table of monthly flow frequency relationship with and without Marvin Nichols I reservoir, the report provides no interpretation of these results or any context with which a reviewer might evaluate their importance.

The changes depicted in Figure 3 are massive. The entire flow regime is impacted and the resulting flows would be only a small fraction of the natural regime. Components of this natural flow regime are critical to the maintenance of a sound environment. As discussed above, the most important components of the flow regime for the protection of BLH forests are the occurrence and frequency of high flow pulse and overbank events.

In 2004, the TWDB and the U.S. Army Corps of Engineers (USACE) conducted a study on the Sulphur River (TWDB 2004). Direct observations and technical evaluations reported in this study indicate that flows in the range of 862 cfs (approximately 50,000 ACFT per month) are transitional between inchannel and overbank flow. Figure 3 suggests that the occurrence of these events would shift from happening close to 40-50% of the time to happening less than 15% of the time.

An analysis of the outputs from the water availability model, developed by Region C to evaluate the Marvin Nichols project, show that under existing conditions, there is only one year, out of the 57-year record, in which flows did not exceed this threshold volume in at least one month. When the proposed reservoir is included in the simulation, this number jumps to 29 years (more than half of the time) when no overbank events occur. The longest duration of time in which no over bank event occur under the without project scenario is 16 months; the flow regime resulting from the proposed reservoir indicates that at two separate times in the record, the river would go 80 months (almost 7 years) without overbank flow events. Figure 4 shows the 82month period between 1961 – 1968, during which releases from the project would rarely have exceeded 2 acft per month (1 cfs) flows. These flow rates, based on the 7Q2 water quality target, are intended to sustain the river during brief, infrequent and severe droughts, but with the Marvin Nichols project as proposed and modeled by Region C, these extremely low flows would occur much more frequently.





The lack of seasonal flooding identified in the water availability results indicates BLH forests cannot be maintained downstream of the proposed Marvin Nichols reservoir.

3 IMPACT ANALYSIS

The Region C report includes an estimate of the area of bottomland hardwoods that would be inundated by the reservoir itself. This analysis, while an important initial step, is incomplete in terms of providing even a preliminary or planning level assessment of the impacts of the proposed project. The Region C report makes no attempt to address the impacts to bottomland hardwood areas located immediately downstream of the reservoir.

3.1 Inundation within the Reservoir Footprint

The inundation analysis provided in the Region C report includes a table showing the acres of different land classification types both within the entire Region D planning area and within the reservoir footprint of the proposed Marvin Nichols Reservoir Project. These areas were determined based on land cover datasets.

The primary data set came from the Texas Vegetation Classification Project (TVCP) (TPWD 2009). The TVCP performed vegetation mapping of East Texas. TPWD, along with private and agency partners, conducted a multi-year effort to create a new vegetation map of Texas, using the NatureServe Ecological System Classification System (Comer et al. 2003). The basic method was to determine ecological sub-systems or community types, then collect satellite data and aerial photos to initiate a supervised classification. Supporting data regarding ecosystems, soils (SSURGO), elevation (DEM), and hydrology were then gathered into a geographic information system (GIS), in order to incorporate the ecological context of mapped sub-systems. Next, plot-based field data were gathered to quantify primarily vegetation variables describing mapping units. Modeling was then employed to implement a decision tree combining remotely sensed biotic and abiotic data into a land-cover classification with a resolution of ten meters. Region C grouped classifications from the TVCP into broader and more general categories based on the EPA's Level I National Land Cover Data (NLCD).

The Region C study then merged the dataset from TVCP with older U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data within each alternative reservoir site. This merging presents a number of challenges given the different scales, objectives and descriptions provided by the different datasets. No documentation is provided as to how merging was performed. It does appear from a review of maps provided in the report (see Figure 4 in Appendix H) that data classified by NWI as Freshwater Emergent Wetland was classified by Region C as Bottomland Hardwood Forest, and data classified by NWI as Freshwater Forested/Shrub Wetland was classified by Region C as Forested Wetland. However, according to NWI type definitions (USFWS 1992), these NWI types are herbaceous (marsh and wet prairie, pp. 19-20) and woody (successional shrub or forest, pp. 20-21), respectively. NWI Freshwater Forested/Shrub Wetland includes both swamp and BLH forests.

The result of this attempt to merge these datasets was that close to 200,000 acres that the TVCP would classify as Bottomland Hardwood Forest was classified by Region C as Forested Wetland. Since Forested Wetland is an important consideration in the designation of Priority 1 habitat this reclassification actually makes the reservoir project appear worse, however this appears to have been an error. For the present report only the TVCP database is used. Figure 2 presents the values calculated by Region C and the recalculated values based solely on the more recent TVCP land cover dataset. This table also includes areas within the Sulphur basin, which is the more appropriate geographic area for consideration of this impact.

	Re	gion C Rep	ort		Region	D Respons	e Report	
			Marvin				Marvin	Marvin
		Marvin	Nichols as			Marvin	Nichols as	Nichols as
	RegionD	Nichols	% of Reg D	Sulphur	RegionD	Nichols	% Sulphur	% of Reg D
Bottomland Hardwood Forest	417,265	10,156	2.4%	232,007	643,330	31,241	13.5%	4.9%
Forested Wetland	414,573	21,444	5.2%	47,053	90,639	529	1.1%	0.6%

Table 2 Areas of Vegetation types for Sulphur basin, Region D and the Marvin Nichols Reservoir according to the Region C report and the analysis conducted as part of this study.

When only the reservoir footprint is included in the analysis, as is the case with the Region C report, this project would impact 13% of the Bottomland Hardwood Forests in the Sulphur River Basin and 5% of the Bottomland Hardwood Forests area in Region D. These are very significant impacts, but the impacts to the forests downstream, due to the reservoirs impacts on the flow regime, would be even greater.

3.2 Downstream Impacts Due to Changes to Flow Regime

Unlike the FNI report, which ignores the downstream impacts of the proposed reservoir project, the TWDB and USACE conducted a study in 2004 that recognized critical need for overbank flow events to protect the BLH forests downstream of the proposed reservoir site. As discussed above, the loss of the high flow pulse and overbank flow events would have significant detrimental effects on the BLH forest located downstream of the proposed reservoir site. A quantitative assessment of these impacts can be made by determining how much of the existing forest would be lost because flows no longer will inundate these areas. An inundation analysis conducted as part of the TWDB/USACE study reported results based on an earlier configuration of the proposed reservoir, one which sited the dam about 10 miles further downstream. In this current report, the data and methodology used by TWDB/USACE are used to estimate areas of inundation based on the currently proposed reservoir site. The following sections mimic the TWDB/USACE report.

3.2.1 Floodplain Inundation Model

The TWDB determined inundation areas for six frequently occurring flood events listed in Table 3, which includes a description of the recurrence frequency of each of these flows based on application of a hydrologic statistics software program developed by TPWD (SAC 2009).

Table 3 Flow rates for flood inundation analysis in TWD	3 report (2004).
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Flows (cfs)	Recurrence Description (HEFR)
362	Within bank, base flow condition
862	Trnsition from in bank to out of bank, occur multiple times in most years
3,000	Flows in these ranges occurre on average once per season in each of the
7,130	winter, spring and fall seasons
18,300	Occurrs once a year or once every two years on average
32,000	Occurs once every three or four years

Following the same approach and data used by TWDB, flood surfaces were developed for each of these flow rates and overlaid upon National Elevation Dataset (NED) digital elevation models to determine the area of inundation at each flow rate. Figure 5 shows the flood inundation areas produced by lowest (326 cfs) and highest (32,000) flow rates modeled.



Figure 5 Flood inundation areas produced by lowest (326 cfs) and highest (32,000) flow rates modeled.

Consistent with the finding reported by TWDB, the lower flow rates are mostly confined to the river channel, while the highest flow rates inundate much of the Bald Cypress Swamp area. These area polygons were then used to determine the areas for the most flow dependent Texas Vegetation Classification Project Cover Types.



Figure 6 Inundated area and vegetation map for 7,130 cfs flows.

As can be seen in Figure 6, the 7,130 cfs inundation area closely tracks the outline of the Forested Wetland (Bald Cypress Swamp) vegetation type, which is such a critical factor in the USFWS

determination to designate this area a Priority 1 Bottomland hardwood. This correlation is consistent with the scientific literature that identifies these overbank events as a primary factor in maintaining the health of these forests. With the Marvin Nichols Reservoir Project in place, flow might exceed 7,000 cfs very rarely, if at all, and flow between 1,000 -7,000 cfs, which currently occurs several times in most years, would become a rare event, putting the ecological soundness of these forests at significant risk.

Figure 7 show the acres inundated at each flow rate for Forested Wetland and Bottomland Hardwood Forest types. Table 4 shows the total areas that would be impacted due to the loss of inundation by overbank flows.



Figure 7 Vegetation areas downstream of the proposed Marvin Nichols project, main stem Sulphur River.

Table 4 Vegetation areas downstream of the proposed Marvin Nichols project, main stem Sulphur River.

										Reservo	oir Foot I	Reservoir Foo oss of induda	otprint plus ted area at
						Flows	(cfs)			Print	Only	32,00) cfs
			Marvin										
	Sulphur	RegionD	Nichols	362	862	3,000	7,130 1	8,300	32,000	Sulphur	RegionD	Sulphur	RegionD
Bottomland Hardwood Forest	232,007	643,330	31,241	732 1,	341	2,151	4,626	7,308	8,231	13%	5%	17%	6%
Forested Wetland	47,053	90,639	529	2,366 6,	335	9,743 1	4,938	9,426	20,339	1%	1%	44%	23%

When the effect on flows and the loss of episodic inundation are added to the impacts resulting within the reservoir footprint, the impacts from the Proposed Marvin Nichols Reservoir Project are huge. In the Sulphur basin 44% of the Forested Wetland area and 17% of the Bottomland Hardwood Forests would be at significant risk.

3.3 Downstream Impacts to Existing Mitigation Property

Finally, it is also important to note that a substantial portion of the existing White Oak Creek Wildlife Management Area (WMA) would be put a risk by the development of this reservoir project. The White Oak Creek WMA was created as part of the mitigation for Cooper Lake. A significant portion of the BLH within this protected WMA would be negatively impacted by the loss of flow resulting from the construction of the Marvin Nichols Reservoir Project.

The direct effects of the elimination of high and overbank flows downstream from the proposed dam are likely to be extremely detrimental to the long-term viability of the WMA. In addition to reducing the primary production of plant communities, King and Allen (1996) found that a diminished flow regime also adversely impacts downstream ecosystems by (1) shifting plant species composition to that of drier communities, (2) preventing river-floodplain connections leading to reduced sedimentation and water quality, and (3) causing failures in fish and herpetological reproduction. Less soil moisture prevents seed germination and slows tree growth, which alters the course of plant succession through the introduction of invasive and maladapted species (Kozlowski 2002). Direct effects of dams as biological barriers include depletion of woody debris, impeded dispersal of plant seeds and vegetative reproduction, and genetic fragmentation within riparian animal and plant populations (Rood et al. 2005).



4 BIOLOGICAL SIGNIFICANCE

The Sulphur River basin covers a large area that produces highly significant benefits, largely due to relatively undisturbed high and overbank flows that perform many important ecosystem and societal functions. Many important BLH ecosystem services peak with annual flooding, including primary production, plant diversity, animal habitat use, and organic matter export (Gosselink et al. 1981, Hunter et al. 2008, Opperman et al. 2010). Spanning several counties, the Sulphur floodplain is large enough to provide substantial amounts of such services.

Examples of the ecological importance of hydrologic connections within floodplains abound. The reduction in overbank flows results in the loss of backwater areas that comprise a primary source of labile carbon, which forms an essential foundation of riverine and estuarine food chains (Thoms et al. 2005). Where river and floodplains remain connected, freshwater fishery yields are consistently higher (Bayley 1995).

In addition to ecosystem processes, hydrologically-intact floodplains provide important economic benefits, increased biodiversity, and stable environmental services (Bayley 1995). BLH forests function as the foundation of local and regional food chains; supply critical nesting microhabitats, spawning, rearing, and resting areas for aquatic and upland species; and reduce storm and flood damage within adjacent and downstream areas (Gosselink et al. 1981). Though highly vulnerable to flow reductions, temporarily flooded BLH forests near the upland edge of the floodplain offer supplemental water storage, which is especially important during extreme flood events. These forests also serve as buffer-traps for pollution.

4.1 Water Quality

One of the most important ecosystem functions of BLH forests to society is improving water quality through the removal of high N concentrations. The wet-dry fluctuations of floodplain soils create successive aerobic and anaerobic environments. Nitrification is an aerobic process, which through microbial oxidation basically converts ammonia compounds to nitrate compounds. During the succeeding wet period, anaerobic soil conditions are created, which promote denitrifying bacteria that, in turn, convert the nitrate compounds to N gases such as nitrous oxide. In this fashion, high N concentrations in river flows are reduced. Healthy BLH forests have high and long-term capacities to remove N and retain phosphorous (P) from floodwaters (Ardon et al. 2010).

4.2 Bottomland Forests

King and Allen (1996) showed that reductions in natural flow regimes harm BLH forests by: (1) reducing the growth and primary production of plant communities, (2) shifting plant species composition to that of drier communities, (3) preventing river-floodplain connections leading to reduced sedimentation and water quality, and (4) causing failures in fish and herpetological reproduction. To be most effective, both in terms of maintaining BLH tree species and discouraging invasive upland species, early spring floods following leaf emergence should last a total of two to four weeks (Rypel et al. 2009).

Kozlowski (2002) found that reductions in the variability of river flows reduced groundwater levels, which in turn lowered BLH ecosystem productivity and species diversity. In many areas of the southeastern United States, including east Texas, where high and overbank flows have been reduced due to dams and water extraction, the composition of BLH forests is shifting to species adapted to drier environments (Stallins et al. 2009). This widespread successional change of BLH forests to increased dominance by upland species is first apparent in the understory, including tree seedlings and saplings.

4.3 Primary Productivity

The enhancement of primary productivity due to overbank flows allows river floodplains to achieve the highest biomass per area of any temperate ecosystem (Gosselink et al. 1981). An extensive literature review by Conner et al. (1990) shows that primary production of BLH forests with natural hydrology is greater than 1000 g/m2/y, which ranks these forests among the most productive wetland ecosystems. Recent research in northeast Louisiana found the range of carbon storage in BLH forests to be 90-124 Mg C/ha (Hunter et al. 2008). The potential role of BLH forests in mitigating climate change is substantial.

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Variable river levels trigger switches between biological production and transfer phases within floodplain habitats, which initiate the exchange of organic matter and nutrients among different terrestrial, aquatic, and estuarine habitats (Amoros and Bornette 2002). The temporal distribution of repeated overbank flows not only is the primary determinant of habitat types, but also drives biogeochemical processes in bottomland soils, such as decomposition, sedimentation, and N cycling (Hunter et al. 2008).

4.4 Fish and Wildlife Productivity

Decreased flood frequency reduces bird, mammal, and fish densities in riparian ecosystems (Gosselink et al. 1981). Access to floodplain resources during overbank flows is critical, since almost all animal biomass within riverine systems is produced within floodplains rather than rivers (Junk et al. 1989, Smock et al. 1992). Consequently, for animals the primary function of the main river channel is not production, but to act as an access route for fish and other biota to adjacent floodplain resources. A strongly positive relationship exists between fish production and the amount of accessible floodplain (Junk et al. 1989). Bayley (1995) documented that earlier and briefer overbank events disrupt the evolutionarily-synchronized timing of fish spawning and invertebrate prey availability.

CONCLUSION

The Region C report Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Water Management Strategy on the Agricultural and Natural Resources of Region D and the State contains very little analysis or qualification of the impacts of the Marvin Nichols Reservoir on Natural Resources. In the brief sections devoted to impacts on wildlife habitat and environmental water, the Region C report appears to contain errors in merging and reclassifying underling data and contains no meaningful interpretation of the impacts it does identify. More importantly, the report completely ignores the downstream impacts that the Marvin Nichols Reservoir Project would have on the last remaining Priority 1 Bottomland Hardwood Forest in the Sulphur River Basin.

In contrast to the Region C report, the analysis presented this report substantiates concerns expressed in USFWS comments on the Regional plan (USFWS 2000) "that there is not enough additional high valued bottomland hardwood habitat or lands suitable for habitat improvements available in the Sulphur River Basin to compensate for the large amount of habitat that would be lost due to the construction of the Marvin Nichols I reservoir." While USFWS comments were directed at an earlier reservoir configuration, the absence of any requirements to maintain flows essential to maintain habitat areas downstream of the newly proposed site means that habitats within both the reservoir footprint and priority conservation areas downstream are at significant risk. Consequently, neither mitigation nor compensation is a viable means of reducing environmental impacts due to the proposed Marvin Nichols I Reservoir.

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JOSEPH F. TRUNGALE, P.E.

Owner / Principal

FIELDS OF EXPERIENCE

Mr. Trungale is a professional engineer and the principal of Trungale Engineering & Science in Austin, Texas. He has over 15 years of experience working in water resource planning and environmental flow studies, including work for the river basin commission responsible for raw water supply for Washington D.C., as a consultant with HDR Engineering managing regional water planning and availability modeling and as the surface water hydrologist for the Texas Parks and Wildlife River Studies program. Mr. Trungale is currently an independent consultant with expertise in conducting instream flow studies to quantify the effects of changing flow regimes on aquatic habitat. His expertise extends to groundwater-springflow studies, freshwater inflows for bays and estuaries, and regional and state water planning including water availability analysis and water rights review. Mr. Trungale has an MS degree in Engineering from the University of Washington and has completed course work in pursuit of a PhD candidacy at Texas State University in Aquatic Biology.

EDUCATION

- Completed course work in pursuit of PhD candidacy, Aquatic Biology, Texas State University (San Marcos, Texas) 2010
- M.S. Engineering, University of Washington (Seattle, Washington), 1996
- B.A. English Literature, Georgetown University (Washington, D.C.), 1990

PROFESSIONAL/TECHNICAL AFFILIATIONS

- Texas State Board of Professional Engineers Professional Engineer No. 92040
- Member of American Society of Civil Engineers

TECHNICAL REPORTS, PUBLICATIONS AND CONFERENCE PRESENTATIONS

- Trungale Engineering and Science (February, 2012), Instream Flow-Habitat Relationships in the Upper Rio Grande River Basin, URGBBEST, Austin, Texas.
- Trungale Engineering and Science and the River Systems Institute (June, 2012), Instream Flow-Habitat Relationships in the Nueces River Basin, Nueces BBEST, Austin, Texas.
- Trungale Engineering and Science (October, 2011), Effect of Diversions from the Guadalupe San Antonio River Basins on San Antonio Bay, The Aransas Project, Austin, Texas.
- Colorado Lavaca Basin and Bay Expert Science Team (March, 2011), Environmental Flows Recommendations Report, Austin, Texas.
- Trungale Engineering and Science (August, 2010), Environmental Flows Regime Analysis and Recommendations Report, Cypress Flows Project, Austin, Texas.
- Trungale Engineering and Science (April, 2010), Flows Atlas Senate Bill 3 (2 separate reports Trinity-San Jacinto and Sabine-Neches), National Wildlife Federation, Austin, Texas.
- Trinity San Jacinto Basin and Bay Expert Science Team (December, 2009), Environmental Flows Recommendations Report, Austin, Texas.
- Espey Consultants, Inc. and Trungale Engineering and Science (August, 2009), Galveston Bay Salinity Zonation Analysis for the Trinity-San Jacinto and Galveston Bay Basin and Bay Expert Science Team, Austin, Texas
- Texas Commission on Environmental Quality (August, 2008), Review of Desktop Methods for Establishing Environmental Flows in Texas Rivers and Streams, Austin, Texas

- BIO-WEST, Inc. (March, 2008), Lower Colorado River, Texas Instream Flow Guidelines, Colorado River Flow Relationships to Aquatic Habitat and State Threatened Species: Blue Sucker, Round Rock, Texas. Lower Colorado River Authority and San Antonio Water System.
- Trungale Engineering and Science (July, 2007), Instream Flow Needs for the Brazos River Near Glen Rose, Texas, Friends of the Brazos River, Austin, Texas.
- Trungale, J.F., Mayes, K.B., Moss, R.E., and Kleinsasser, L.J. (October, 2003), Using Water Availability Models to Assess Alterations in Instream Flows. River Studies Draft Report Texas Parks and Wildlife Department, Austin, Texas.
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- HDR Engineering, Inc. (January, 2001), South Central Texas Regional Water Plan, Texas Water Development Board, Austin Texas.
- HDR Engineering, Inc. (December 1999), Water Availability in the Guadalupe-San Antonio River Basin, Texas Natural Resource Conservation Commission, Austin, Texas.

Owner and Principal

2004 - Present Trungale Engineering & Science

Austin, Texas

In 2004, Mr. Trungale established Trungale Engineering & Science and began working as an independent consultant. While continuing to conduct state of the science studies, he has brought his expertise in engineering and ecological science to into broader contexts within the public policy and legal arenas. He works with diverse groups of stakeholders and scientists to develop innovative solutions to natural resource challenges that balance growing human needs for water with the need to protect and maintain sound ecological environments. In addition to addressing the needs of individual clients, he has also served on several science committees and testified as an expert witness in a number of precedent settling decisions.

Analysis of the Lower Colorado River Authority Water Management Plan - Colorado Water Issues Committee of the Texas Rice Industry Coalition for the Environment

In response to the historic drought currently underway in central Texas the LCRA has applied for a number of emergency orders that allow them to completely curtail releases of water for rice irrigators. Mr. Trungale was retained by CWIC to analyze the proposed emergency order and develop alternatives that would achieve a more equitable balance among all of the water users in the basin. He reviewed the proposed, current and past water management plans, used LCRA's stochastic model to forecast future combined storage in the highland lakes assuming the proposed and alternative emergency orders and produced a technical report. Mr. Trungale testified as an expert witness testimony (TCEQ Docket No. 2-14-0124-WR / SOAH Docket No. 582-14-2123 (LCRA WMP Emergency Order)) describing his conclusions that the same a level of protection for upstream interests could be achieved with a more moderate order.

Learning from Drought: Next Generation Water Planning for Texas – Texas Center for Policy Studies

Under a grant from the Meadows Foundation, Mr. Trungale co-authored a report that analyses the Texas regional and state planning process. The report includes an analysis of the assumptions and methods employed to develop forecasts for municipal, irrigation and stream electric water demands, calculations water available from existing supplies including estimates of additional supplies that could be made available if drought contingency plans are incorporated, and a discussion of the need to provide water for the protection of a sound environment. The report includes several policy recommendations to develop a more sustainable water plan.

Effect of Diversions from the Guadalupe San Antonio River Basins on San Antonio Bay - The Aransas Project

Mr. Trungale produced a technical report on behalf of The Aransas Project an alliance of citizens, organizations, businesses, and municipalities seeking responsible water management of the Guadalupe River Basin and bays. In 2011, TAP filed a federal lawsuit in the United States District Court for the Southern District of Texas, Corpus Christi Division, against several officials of the Texas Commission on Environmental Quality (TCEQ) in their official capacities for illegal harm and harassment of Whooping Cranes at and adjacent to Aransas National Wildlife Refuge in violation of the Endangered Species Act. Mr. Trungale testified as an expert witness in this trial describing how future changes in inflow are expected to alter salinity patterns in San Antonio Bay. His analysis focused on salinity thresholds for Blue Crabs, an important for source for the cranes, in the vicinity of the Aransas National Wildlife Refuge.

Caddo Lake/Cypress Basin Environmental Flows Study - Caddo Lake Institute

Since 2005, Mr. Trungale has worked with local, state and federal agencies and the Nature Conservancy to develop flow recommendations to protect the rivers and wetland surrounding Texas' only natural lake. Mr. Trungale conducts and reviews scientific studies related to wetland connectivity and instream habitat to determine ecosystem flow needs for Caddo Lake and associated wetlands. Implementing a consensus based decision-making process; he has led a science based stakeholder process to develop recommendations for subsistence, base and high flow targets and conducted field studies to address priority research issues. He worked closely with the U.S Army Corps of Engineers and the local water supply organization to develop approaches to implement environmental flow recommendations and is currently developing a monitoring and adaptive management program to assess the efficacy of these recommendations on maintaining the ecological health of this system.

Instream Flow – Habitat Relationships for the Nueces River Basin and the Upper Rio Grande Basin

Mr. Trungale conducted extensive field data collections and developed instream habitat simulation models for selected locations in the Nueces and Upper Rio Grande River basins in order to develop predictive relationships which describe the response of instream available habitat over a range of flows. These relationships will be used to evaluate the flows that may be recommended by the Bay and Basin Expert Science Teams as part of their charge under the Senate Bill 3 Environmental Flows mandate.

Brazos River Instream Flow Study - Texas Rivers Protection Association & Friends of the Brazos River

Mr. Trungale analyzed the Brazos River Authority systems operation permit application and evaluated effects on instream flows to support environmental and recreation flow needs. Mr. Trungale characterized flow regimes under pre-development and currently modified management scenarios using a Water Availability Model (WAM) developed for the Brazos River Systems Operations Permit application which seeks to appropriate water from the Brazos River. He provided expert testimony in support of protestants (Friends of the Brazos River) in the matter of the application by Brazos River

Authority for Water Use Permit No. 5851 (SOAH Docket No. 582-10-4184; TCEQ Docket No. 2005-1490-WR).

Llano River Sand and Gravel Mining Protest

Mr. Trungale conducted analysis of potential impacts from sand and gravel operations in the Llano River specifically with respect to compliance with 31 TEX ADMIN. CODE § 69.108 (c) including the evaluating sediment budget, erosion rates of the river segment to be mined, and the effect on coastal and receiving waters. He provided expert report and testimony in support of protestants (Peron and others) in the matter of an application of Joe B. Long and Mark L. Stephenson for a Sand and Gravel Permit (SOAH Docket No. 802-09-4552).

Colorado and Lavaca River Basins and Matagorda Bay and Basin Expert Science Team (BBEST) and Trinity and San Jacinto River Basins and Galveston Bay and Basin Expert Science Team (BBEST)

As a Texas Senate Bill 3 Expert Science Team member, Mr. Trungale developed science based flow recommendations for rivers and freshwater inflows. This included analysis of hydrology and hydraulics, biology, water quality and geomorphology to refine and validate hydrology based instream flow recommendations. He applied a salinity zonation approach to predict ecologically relevant salinity response to changes in freshwater inflows.

Lower Colorado River Instream Flow Study – Lower Colorado River Authority/San Antonio Water System

Mr. Trungale developed models to evaluate the effects of flow alterations, specifically related to a proposed water development project to provide water from the Colorado River to the City of San Antonio. He was responsible for several components, which included performing reconnaissance to determine study sites, developing conceptual study flow charts, collecting physical and hydrologic data to model and characterize hydraulic habitat, analyzing results, recommending flow targets and preparing a final report.

Review of Desktop Methods for Establishing Environmental Flows in Texas Rivers and Streams – Texas Commission on Environmental Quality

Mr. Trungale provided technical support to the workgroup tasked with evaluating the current default method for determining instream flow needs, primarily for the purpose of defining special conditions within water rights permits. This included making comparisons between naturalized and gauged flows and between Lyons method and values derived from Indicators of Hydrologic Alteration (IHA) software as well as comparing estimates from desktop methods and recommendations from a comprehensive site specific study.

Kinney County Groundwater Management – Kinney Country Farmers and Ranchers Association

Mr. Trungale supported the coalition of ranchers and farmers to protect local wells and springs from excessive groundwater diversions and transfers. He evaluated previous and current studies, including Groundwater Availability Modeling (GAM) and provided support recommendations for springflow needs and approaches to meet these needs. Mr. Trungale provided affidavits to the Kinney County Groundwater Management District.

San Marcos River Foundation Instream Flow Permit Application – San Marcos River Foundation

Mr. Trungale provided technical guidance to the San Marcos River Foundation, a local non-profit which had applied for a permit for the protection of instream and freshwater inflows in the Guadalupe River. He also performed Water Availability Modeling (WAM) to support permit application, evaluated

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completed applications, and researched the TCEQ permitting policy to evaluate precedence and authority of the agency to grant such permits. Finally, Mr. Trungale evaluated state methodology to determine freshwater inflow needs for San Antonio Bay and continues to monitor activities to the Commission on Environmental Flows and their Science Advisory Committee. He provided affidavits in the matters of water rights applications from the San Marcos River Foundation and the Canyon Regional Water Authority.

Surface Water Hydrologist 1999 - 2004 Texas Parks and Wildlife Department

San Marcos, Texas

Mr. Trungale's work at TPWD encompassed a large scope of projects including collecting and analyzing field data and developing hydraulic and habitat models to determine instream flow needs to support healthy ecosystems. In addition, he collected physical and biological data which included surveying stream cross sections and benchmarks with levels, total stations and GPS, measuring discharge with flow meters, collecting bathymetry with digital transducer and echosounder connected to GPS units, characterizing and mapping stream cover and substrate, collecting biological data, primarily fish, using seines, boat and backpack shockers, and also some limited collecting of chemical data primarily using automated data loggers. He performed statistical and time series analysis on hydrologic and hydraulic data, specifically calculating watershed and stream channel and flow statistics that have biological significance, e.g. Indicator of Hydrologic Variability (IHA) (central tendency, recurrence intervals, frequency and duration) and that may be used to develop or refine instream flow standards and requirements. Also Mr. Trungale developed and ran 1D and 2D hydrodynamic models including PHABSIM, River2D and SMS/RMA2, water quality models (SNTEMP and BASINS). He developed spreadsheet and GIS tools to analyze outputs of habitat preference and utilization. At TPWD, Mr. Trungale served as an agency expert on issues related to surface water hydrology in statewide permitting and planning including a review of major water rights applications, water availability modeling, reservoir yield calculations and departmental and state water planning processes.

Water Availability Models to Assess Alterations to Instream Flows

Mr. Trungale used water availability models to assess alterations to instream flows under current conditions and full authorized use assumptions. He developed monthly benchmark flow values at 72 sites throughout Texas based on a percentage of daily naturalized median flow (similar to the regulatory default method) and calculated the frequency of meeting or exceeding these benchmarks under natural and modeled assumptions. Finally, Mr. Trungale characterized the level of alteration based on the difference in percent of time targets met between natural conditions and full authorized use.

Guadalupe Instream Flow Study

Mr. Trungale was responsible for characterizing flow regime at three sites on the Guadalupe River by reviewing and comparing historical stream flow records, calculating flow statistics, and producing cumulative frequency graphs. He also collected physical and biological data at three sites on the Guadalupe River by several methods, including surveying cross section depths and water surface elevations, taking velocity measurements according to USGS protocol and calculating discharge, collecting bathymetry data using a boat mounted Echosounder/GPS system, and making substrate and cover calls and fish collections. Mr. Trungale developed 1D (PHABSIM) and 2D (SMS/RMA2 and River2D) hydraulic-habitat models including calculating stage-discharge relationship (rating curve), running and calibrating models and producing maps of model depths, velocities and habitat.

Regional Environmental Monitoring Assessment Program (REMAP)

Mr. Trungale's involvement in REMAP included collecting physical and biological data for small streams in East Texas including surveying cross section depths and water surface elevations, measuring velocity according to USGS protocol and calculating discharge. He also made substrate and cover calls, and developed spreadsheets to calculate summary statistics for more than 200 sites. The calculated statistics for each cross section included calculation of wetted width, maximum and median depth for current water surface elevations, bank full and flood prone areas. Mr. Trungale also summarized fish species collected at each site. Using GIS Software, Mr. Trungale calculated drainage areas for more than 200 sites using digital elevation models and land use density for each site according to Anderson scale and land use land cover data sets. Finally, Mr. Trungale developed programs to calculate the regionalized Index of Biotic Integrity (IBI) for fish and benthic macroinvertebrate metrics.

Evaluation of Spring Flows to Support the Upper San Marcos River Spring Ecosystem, Hays County, Texas

Mr. Trungale characterized flow regime by reviewing and comparing historical stream flow records, calculating flow statistics, and producing cumulative frequency graphs. He also developed a 1-D hydraulic-habitat model (PHABSIM) including calculating stage-discharge relationship (rating curve), by performing log-log regression between observed stage and discharge pairs at 28 cross sections, calculating velocities at each station within each cross section at a range of discharges using Manning's equation to solve for "n" at each station (in this context "n" acts as a roughness distribution factor across the cross section), calculating weighted usable area as a function of flow for target species (in this case five native plant species) by relating habitat suitability indices to modeled depths and velocities, and performing time series analysis to calculate weighted usable area over period of record to access historical variable and duration of "good" habitat conditions. In addition, Mr. Trungale developed a stream temperature model (SNTEMP) using results from hydraulic modeling and additional observed data to create inputs for a stream temperature model including latitude, elevation, travel time, stream width, shading data, and historical meteorological data (used for alternative scenarios). Finally, he modeled net heat flux = solar radiation + atmospheric radiation + vegetative radiation + evaporation + convection + conduction + friction-water's back radiation on a monthly time step, validated results against observed water temperatures, and predicted flow rates at which temperature thresholds might be violated.

Project Engineer

1997 - 1999 HDR Engineering, Inc.

Austin, Texas

As a Project Engineer for HDR Engineering, Inc., Mr. Trungale developed water availability models and regional water plans. He was a principle programmer for state water availability models for the Guadalupe and San Antonio River Basins. Mr. Trungale was a project manager for new reservoir alternatives in the South Central Texas Regional Planning Study. He integrated long-range water supply plans for state sponsored regional planning studies based on demand projections, availability of new supplies, cost and environmental impacts. He modified reservoir yield simulation models for analysis and assessment of water supply alternatives on a daily time step. Models were evaluated for both the reliability of these alternatives to supply water as well as their impact on natural and aquatic resources downstream. Other projects included sizing and laying out potential pipeline routes and accessing costs for municipal water, sewer and drainage structures.

Guadalupe River Basin Water Availability Model

Serving as a Principle Modeler for the Guadalupe San Antonio Water Availability Model (GSA WAM), Mr. Trungale built a GSA water rights dataset which included reviewing permits, assigning priority dates

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and a diversion location to a geographical coordinate. He calculated monthly distribution factors, created storage area curves, and estimated historical evaporation rates. Mr. Trungale modified naturalized flow sets including updated spring flow sets. Basin specific modifications were made to the WAM source code to calculate daily operations for Canyon Reservoir to meet FERC and hydropower daily flow requirements, including modifications to handle special permits (Braunig/Calveras/Victoria), and Medina/Diversion Lake leakage. Alternative scenarios were devised to evaluate changing return flow assumptions, exclusion of cancelable and term permits, and accounting for reservoir sedimentation. Model runs were performed to validate and present results.

South Central Texas (Region L) Water Planning

Mr. Trungale was a Project Manager for the SB1 Region L planning study for five new reservoir alternatives in the GSA. He managed a \$20,000 budget and supervised the work of other project engineers. He calculated availability for water diversion into storage facilities with the constraints of meeting downstream senior water rights and bay and estuary flow requirements. He calculated reservoir yields subject to local evaporation and meeting a three-tiered environmental flow pass through, the impact of diversion at the site and at the mouth of the bay and the unit cost of water for the project. Mr. Trungale summarized yield estimates, costs and implementation/feasibility issues.

Environmental Criteria Refinement Study

Mr. Trungale modified the Texas Water Development Board's reservoir yield model (SIMDLYYD) to accept monthly flows, pass throughs for senior downstream water rights, bay and estuary flows, daily flows from a nearby reference gage, and to convert the daily values to monthly values. The model performs a mass balance on a proposed reservoir, passing flows to meet environmental targets based on triggers and iterating on storage to calculate evaporative losses. He calculated reservoir yield by increasing diversions until reservoir volume goes to zero. Options were also included for "stacking" pass throughs for instream flows on top of flows for bays and estuaries. Mr. Trungale performed this analysis on 7 proposed reservoirs in the South Central region. At one site, Sandies Creek, he made additional model runs to examine the effects of changing pipeline capacity. He compared resulting flows at the diversion site and the bay inflow with pre-project flow by calculating cumulative exceedence and monthly medians. Mr. Trungale ran fish production and salinity models to evaluate bay and estuary impacts.

Water Resource Systems Engineer

1996 - 1997 Interstate Commission on the Potomac River Basin

Rockville, Maryland

During this period, Mr. Trungale managed raw water supply sources and planned for future water supply needs for the Washington, D.C. metropolitan area. He designed and maintained a hydrologic computer simulation model of the Potomac River Basin for use in long term planning of water supply needs. He issued monthly water supply outlook forecasts to alert Washington area water suppliers as to the likelihood of drought. He was responsible for scheduling water supply releases from storage facilities in the event that natural stream flow in the Potomac would be insufficient to meet current water supply demands. Mr. Trungale provided technical support and participated in planning efforts related to a range of water supply issues including yield analysis of current and future projects, management of water supply agreements across state lines, development of alternatives to meet future water supply needs, maintenance of historic flow and demand databases, development of local watershed groups and investigation of threats to future safety of area water supply.

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Engineering Technician 1994 - 1996 ACT-ACF Comprehensive Water Resource Study

Seattle, Washington

Serving as an Engineering Technician, Mr. Trungale developed a user-friendly computer simulation model to develop and analyze alternatives to manage water resources shared between three states and a wide range of stakeholders. He designed and programmed an object oriented computer simulation model using Stella[™] software for use by local and regional stakeholders, Alabama-Coosa-Tallapoosa (ACT) river basin. Mr. Trungale incorporated surface and ground water resources as well as findings from 14 concurrent studies. He met with public and private contractors and with representatives of environmental and planning departments from Georgia, Alabama, Florida and the federal government. Mr. Trungale consulted with these and other groups and developed measures of performance for municipal, industrial, and agricultural demands, hydro and thermal power production, environmental impacts on streams and reservoir lakes, and navigation and economic impacts. As a working group member, he had an extensive role interacting with stakeholders and making public presentations.

COMPUTER EXPERIENCE

- Surface Water Modeling (TxBLEND, WRAP, HEFR, RMA-2, River-2D, HEC-RAS)
- Statistical Software Packages (S-Plus, R, Conoco, Primer)
- Productivity (MS Excel, Word, Power Point)
- GIS (ArcView/ArcInfo, Spatial Analyst, 3D Analyst)
- Database (Access, SQL)
- HTML, FORTRAN, VB, C

THOMAS DAVID HAYES, Ph.D.

Executive Director and Senior Scientist, Environmental Conservation Alliance <u>Mailing address</u>: P.O. Box 685039, Austin, TX 78768 <u>Email</u>: Tom@ECAscience.org; <u>Telephone</u>: 512-439-9597 (office/cell)

PROFESSIONAL SUMMARY:

Tom Hayes earned his B.A. in biology from Rice University, Masters of Forest Science in ecosystem biology from Yale University, and Ph.D. in landscape conservation and forest biogeochemistry from the University of California, Berkeley. He has authored over 100 publications and technical papers, plus conference and workshop presentations. Since 2011, Dr. Hayes has been employed by Environmental Conservation Alliance (ECA), a 19-year old nonprofit [501 (c) (3)] corporation. This nonprofit model provides scientific and technical services (consultation and implementation) to public agencies, the conservation community, and private businesses and landowners, in the areas of land and water stewardship, biodiversity and ecosystem management, rare species conservation, and sustainable development.

For 35 years, Dr. Hayes has worked as a land-water resource manager, landscape ecologist, conservation biologist, and administrator. His direct experience encompasses ecological restoration, rare species conservation, habitat management plans (writing and evaluation), wetland determination, ecological and environmental monitoring, impact and mitigation assessment, reserve design and implementation, regulatory compliance, and issue-oriented research. His conservation and adaptive-management experience encompasses a broad range of animal and plant species and biotic communities; and their terrestrial, wetland, and aquatic habitats.

Starting with a 2009 National Wildlife Federation grant to study East Texas (Sabine, Neches, San Jacinto, and Trinity river basins), Dr. Hayes has developed tools to quantify environmental-flow requirements to sustain floodplain habitats and their downstream benefits to fisheries and ecosystems. Since 2010, he has worked with the Caddo Lake Institute, Austin TX, and other collaborators in the Cypress-Caddo basins of northeast Texas, to continue the analyses. With state funding, Dr. Hayes is currently expanding the Texas floodplain research network with additional long-term stations in the Guadalupe, Brazos, and Trinity river basins.

Dr. Hayes' technical experience includes:

- Biogeochemistry: nutrient cycling and ecosystem processes
- · Conservation easements and other permanent-protection planning and implementation
- Ecological and environmental studies: baseline inventory and impact analyses
- Flow analyses to sustain and restore riparian, wetland, and estuarine habitats
- Environmental forestry: urban and rural management plans, implementation, and policy
- Expert testimony: judicial and administrative, hearings and proceedings
- · GIS and remote-sensing: project management, habitat analysis, and environmental assessment
- Habitat conservation plans: endangered species and sustainable landscapes
- · Habitat management and trend analyses: endangered and rare species, and biotic communities
- Land and wildlife management, including related agricultural tax valuations
- Low-impact development, including best management practices
- · Species inventories and monitoring, including adaptive management
- Water resource analyses: surface and ground water, rural and urban, land-use effects on water quality
- Wetland determination: implementation, permitting, mitigation

EDUCATION:

Ph.D.	Biogeochemistry and Conservation Biology, Dept. of Integrative Biology, Univ. of California,
	Berkeley, CA, 2002.
M.For.Sci.	Ecosystem Biology, School of Forestry and Environ. Studies, Yale Univ., New Haven, CT, 1977.
B.A.	Biology, Cum Laude, Rice Univ., Houston, TX, 1975.
Diploma	McClellan High School, Mabelvale, AR, 1971.
Diploma	Marine Biology and Higher Mathematics, National Science Foundation Summer Fellow,
	Humboldt State Univ., Arcata, CA, 1970.

WORK EXPERIENCE:

Executive Director and Senior Scientist, Environmental Conservation Alliance, Austin, TX, 2011-present. **Science Director**, Greater Edwards Aquifer Alliance, Austin, TX, 2008-11.

WORK EXPERIENCE: concluded

Research Ecologist (3-mo grant), Lower Colorado River Habitat Conservation Project, Marine Sciences Institute, U. of California, Santa Barbara, 2008.

Vallier Resident Ecologist & Associate Scientist (3-year grant), Treehaven Environmental Learning Center, Tomahawk, WI, & College of Natural Resources, U. of Wisconsin - Stevens Point, 2005-08.

Project Manager (post-doc), Flambeau Experiment, Forest Landscape Ecology Laboratory, Dept. of Forest Ecology & Management, U. of Wisconsin, Madison, 2003-05.

Research Faculty (adjunct), Dept. of Forest Science, Oregon State U., Corvallis, 1996-2003.

Ph.D. Candidate (part time), Dept. of Integrative Biology, U. of California, Berkeley, 1993-2002.

State Stewardship Ecologist, The Nature Conservancy of Texas, San Antonio, 1989-92.

Biologist III, Habitat Assessment, Resource Protection Div., Texas Parks & Wildlife Dept, Austin, 1986-89.

Biologist II, Resource Management, Parks Div., Texas Parks & Wildlife Department, Austin, 1985-86.

Project Manager/Conservation Biologist, Espey, Huston & Associates, Austin, TX, 1978-84.

Research Assistant, Hubbard Brook Exp. Forest, USDA Forest Service, in cooperation with School of Forestry & Environmental Studies, Yale U., New Haven, CT, 1976-77.

Research Assistant, Biology & Environmental Engineering Depts., Rice U., Houston, TX, 1972-75.

Biological Technician, Southwest Research Institute, Houston, TX, 1973-74.

OTHER QUALIFICATIONS:

Technical Skills:

Environmental and ecological inventory and monitoring, environmental-flows analysis, estuarine bioaccumulation and bioassay, forestry, habitat typing and restoration, invasive species control, project coordination and consensus building, regulatory compliance, land protection (reserve design, conservation easements), wetland determination.

Selected Honors/Committees:

Urban Forestry Board, Vice Chair, City of Austin, TX, 2011-14.

Biological Advisory Team. Member, Southern Edwards Plateau Habitat Conservation Plan, US Fish & Wildlife Service, San Antonio, TX, 2010-12.

Science Advisory Board, Member, Hill Country Alliance, Austin, TX, 2009-present.

Vallier Foundation Fellowship, Treehaven Field Station, UW-Stevens Point, Tomahawk, WI, 2005-2008.

Post-Doctorate Fellowship, Forest Landscape Ecology Laboratory, Department of Forest Ecology and Management, University of Wisconsin-Madison, 2003-2005.

STAR Graduate Fellowship, Environ. Sci. Res. Div., US Environ. Protection Agency, 1997-2000. National Network for Environ. Manag. Studies, Fellow, US Environ. Protection Agency, 1994-96. Texas Organization for Endangered Species, Communities Committee Chair/Steering Committee, 1991-92. Texas Academy of Science, Conservation Section Chair, 1989-1990.

Texas Organization for Endangered Species, Plant Committee Chair/Steering Committee, 1982-1984.

Phi Beta Kappa, Rice University, Houston, TX, 1975.

President's Honor List, Rice University, Houston, TX, 1971-1975.

National Science Foundation Fellowship, Humboldt State University, Arcata, CA, summer 1970.

PRIOR WORK HISTORY:

Throughout his undergraduate and graduate studies at Rice and Yale, respectively, Dr. Hayes was at the same time employed in environmental and ecological studies of stream runoff, aquatic and estuarine ecosystems, and biogeochemical processes within disturbed landscapes. Upon earning his Master's degree in 1977, he worked for Espey, Huston, and Associates, Austin, Texas, first as manager of an estuarine bioassay/bioaccumulation laboratory in Galveston, and subsequently as senior biologist and project manager for aquatic and terrestrial impact assessments and mitigation, wetland determinations, habitat restoration, and Section 404/10 and water-rights regulatory compliance.

In 1985, Dr. Hayes gained employment as Biologist II with the Resource Management Section, Parks Division, Texas Parks & Wildlife Department (TPWD), Austin. He primarily trained and organized resource-management teams throughout the State Park System, to lessen human impacts and proactively restore native terrestrial and aquatic habitats. He also completed special projects, including large volunteer restoration efforts, regulatory and endangered-species assessments, and water-rights testimony.

Upon his promotion to the Resource Protection Division (Wetlands Program, 1986-89), TPWD, Austin, Dr. Haves continued to oversee regulatory assessments (Sec. 404/10, etc.), water-rights studies, community outreach,

PRIOR WORK HISTORY: concluded

and related mitigation implementation. Notable projects included wetland determinations and in-stream flows analyses in support of regulatory hearings for floodplain and coastal development and of state water rights, including Proposed wetland development and reservoir projects. He was the primary TPWD liaison to the U.S. Forest Service, coordinating and writing the formal State responses to 10-year plans and other activities concerning all National Forests and Grasslands in Texas. Dr. Hayes was also the lead expert witness for TPWD in several federal cases that achieved permanent protection on federal lands in 17 states for the endangered Red-cockaded Woodpecker.

Later, as the first State Stewardship Ecologist for The Nature Conservancy of Texas (TNC), his projects included acquisition and restoration of coastal and inland habitats, such as the Mad Island Marsh Preserve and WMA near Palacios, the Diamond Y Springs Preserve near Fort Stockton, Dolan Falls Preserve in Val Verde County, Caddo Lake WMA near Jefferson, and many other conservation projects.

Returning in 1993 to academic research at the University of California-Berkeley (UCB) and Oregon State University (OSU), Dr. Hayes managed a long-term field and lab study of the biogeochemical impacts of landscape-scale old-growth forest disturbance. Upon completing concurrent Ph.D. (UCB) and research-faculty (OSU) appointments in 2003, he continued his research on disturbed ecosystem processes, along with teaching duties, at two University of Wisconsin campuses: Madison and Stevens Point. In 2008, Dr. Hayes accepted a 3-month grant with the Marine Sciences Institute, University of California-Santa Barbara, to help design a wetlands and riparian restoration project, spanning the Mojave Desert in southern Nevada and portions of three adjacent states.

In October 2008, Dr. Hayes returned to applied conservation and impact assessment in Texas (see above).

PUBLICATIONS AND TECHNICAL REPORTS:

During his career, Dr. Hayes has authored over 100 publications and technical papers, as well as numerous conference and workshop presentations. The following abbreviated publication list is representative:

- Hayes, T., and R. Reid, 1979, "Fish, Wildlife, and Recreation Resources of the Matagorda Bay System," prepared for U.S. Fish and Wildlife Service, Albuquerque, NM, Espey, Huston, and Associates (EH&A) Doc. No. 79240.
- Sexton, C., and T. Hayes, 1980, "Biological Assessment of the Impact of Florida Gas Transmission Company's Proposed Trans-Gulf Pipeline Construction and Conversion Project on Threatened and Endangered Species of the Apalachicola River Basin," prepared for Federal Energy Regulatory Commission, Environmental Evaluation Branch, Washington, D.C., EH&A Doc. No. 80131.
- Reid, R., T. Hayes, and C. Perino, 1980, "Vegetation and Wildlife Resources of the Black Mesa and Kayenta Mine Sites," prepared for Peabody Coal Company, Flagstaff, AZ, EH&A Doc. No. 8071.
- Hayes, T., P. Jensen, and C. Green, 1981, "Critical Area Mapping and Spill Probability Evaluation of the Houston Ship Channel," prepared for The Clean Channel Association, Houston, TX, EH&A Doc. No. 81149.
- Hayes, T., and EH&A staff, 1981, "Acid Deposition in Texas: Technical Summary and Perspective," prepared for Texas Energy and Natural Resources Advisory Council, Austin, TX, Energy Dev. Act Project 80-L-11-6, EH&A Doc. No. 81305.
- Hayes, T., P. Price, and B. Stewart, 1982. "Ecological Baseline Studies of the Shell Vanderrick Mine Facilities Area, Vanderburgh County, Indiana," prepared for Shell Oil Company-Mining, Houston, TX, EH&A Doc. No. 82367.
- Hayes, T., 1984, "Remote Sensing Analysis: Impacts to Forest Vegetation Due to Cooling Plume Drift, Farley Nuclear Power Plant," prepared for Alabama Power Company, Birmingham, Alabama, EH&A Doc. No. 83775.
- Hayes, T., 1984, "Vegetation and Wetland Inventory, Proposed Bosque Reservoir," prepared for Paul Price Associates, Austin, TX, Hayes Environmental Science Doc. No. 1984-01.
- Hayes, T., and D. Riskind, 1985, "Instream-Flows Impact Assessment of Proposed Paluxy Reservoir upon Dinosaur Valley State Park," Testimony Preparation, TWDB Water Rights Hearing; Resource Protection Div., Texas Parks and Wildlife Dept., Austin, TX.
- Hayes, T., D. Riskind, and W. Pace, 1987, "Patch-Within-Patch Restoration of Man-Modified Landscapes Within Texas State Parks," Chapter 10, pp. 173-198, <u>in</u> M. Turner (editor), <u>Landscape Heterogeneity and Disturbance</u>, Springer-Verlag Publisher, New York, NY.
- Hayes, T., 1987, "Downstream Impacts of the Proposed Little Cypress Reservoir upon Bottomland Hardwood Forests and Swamps," Special Report and Expert Testimony, TWDB Water Rights Hearing; Resource Protection Div., Texas Parks and Wildlife Dept., Austin.
- Riskind, D., R. George, G. Waggerman, and T. Hayes, 1987, "Restoration in the Subtropical United States," <u>Restoration and Management Notes</u> 5(2): 80-82.
- Pace, W., III, D. Riskind, and T. Hayes, 1988, "Restoration and Management of Native Plant Communities on Texas Parklands: The Mixed-prairie Experience," in <u>Proceedings of the Tenth North American Prairie Conference</u>, Native Prairies Association of Texas, Dallas.

PUBLICATIONS AND TECHNICAL REPORTS: continued

Hayes, T., 1990, "Reclamation Plan and Surface Use Agreement for Oil and Gas Operations at Diamond Y Spring Preserve, Pecos County, Texas," The Nature Conservancy of Texas, San Antonio.

Hayes, T., 1992, <u>Endangered</u>, <u>Threatened</u>, and <u>Watch List of Natural Communities of Texas</u>, Publication # 8, Texas Organization for Endangered Species, Austin, TX.

Hayes, T., 1993, "Long-term Integrated Monitoring Plan, Diamond Y Spring Preserve, Pecos County, Texas," The Nature Conservancy of Texas, San Antonio, Texas.

Hayes, T., 1993, "Invited Written and Oral Testimony Before Congress in Support of H.R. 1164, Forest Biodiversity Act of 1993," U.S. House of Representatives, Committee on Agriculture, Washington, DC, October 28, 1993.

Hayes, T., 1994, "Standard Operating Procedure 5.1: Litter Decomposition," Environmental Research Laboratory, US Environmental Protection Agency, Corvallis, OR.

Hayes, T., R. Griffiths, and C. D'Antonio, 1997, "Biogeochemical Attributes of Old-growth Forest-Clearcut Edges," <u>Bulletin of the Ecological Society of America</u> 78 (4):105.

Hayes, T., R. Griffiths, and C. D'Antonio, 1999, "Nitrogen and Carbon Cycling in Fragmented Old-growth Forest," oral paper, Ecological Society of America annual meeting, Spokane, WA.

Hayes, T., A. Swanson, C. D'Antonio, and R. Griffiths, 2002, "Biogeochemical Edge Effects on Nitrogen and Carbon Retention in Fragmented Old-growth Forest," invited oral paper, Forest Edges Symposium, Ecological Society of America annual meeting, Tucson, AZ.

Hayes, T., 2002, <u>Ecosystem Consequences of Forest Fragmentation in the Pacific Northwest: Biogeochemical Edge</u> <u>Effects within Oldgrowth Forest Remnants</u>, Ph.D. Dissertation, Dept. of Integrative Biology, U. Calif.-Berkeley.

Hayes, T., 2005, "Field and Laboratory Manual for the Flambeau Experiment: Methods for Examining Canopy Gaps and Coarse Woody Debris to Determine the Mechanisms of Sustainable Forest Management," Forest Landscape Ecology Laboratory, Dept. of Forest Ecology & Management, U. Wisc.-Madison.

Hayes, T., 2006, "Strategic Plan for Integrating Research, Education, and Outreach at Treehaven Center," NSF Proposal Number 0627273, awarded to U. Wisc.-Stevens Point.

Hayes, T., 2007, "Treehaven Land Management Plan," Treehaven Field Station, U. Wisc.-Stevens Point.

Hayes, T. 2008. "Lower Colorado River Habitat Conservation Project: Monitoring and Restoration Database for Riparian and Spring Habitats," U. Calif.-Santa Barbara, with Clark County, NV, and USGS, Henderson, NV.

Hayes, T. 2010, "Selected Spatial Data for Bexar County: Endangered Species, Conservation, and Land Use," submitted to Biological Assessment Team, Southern Edwards Habitat Program, San Antonio, TX. Greater Edwards Aquifer Alliance, San Antonio. TX.

Hayes, T., 2010, "Data Analyses in Support of Out-of-Bank Stream Flow Recommendations for the Maintenance of East Texas Bottomland Hardwoods: Thematic-Mapper Inundation-Area and Hydrologic Results," Greater Edwards Aquifer Alliance, report to National Wildlife Federation, Austin, TX.

Hayes, T., and J. Trungale, 2010, "Sustainable Rivers Project, Phase 1: Floodplain Forest Inundation – Data Analysis and Monitoring Design, Cypress-Caddo Watershed," Greater Edwards Aquifer Alliance, report to Caddo Lake Institute, Austin, TX.

Hayes, T., 2011, "Wildlife Management Plan," Bingham Creek Ranch, Travis County, TX, ECA project # 2011-02.

Hayes, T. 2011, "Environmental Analysis of the White Stallion Energy Center: Sections 10/404 Permit

Application," prepared for Glenrose Engineering, Austin, TX, ECA project # 2011-06.

Hayes, T., and J. Trungale, 2011, "Cypress Flows Project: Floodplain Inundation Analysis Interim Report, Phase 2," Caddo Lake Institute, Austin, TX, December 2011, ECA project # 2011-05.

Hayes, T., and S. Ramirez, 2012, "Southern Segment of the Proposed Keystone XL Pipeline Project, Impact Assessment: Wetlands, Jurisdictional Waters, and Endangered Species," Sierra Club, Boulder, CO, ECA project # 2011-07.

Hayes, T, 2012, "Proposed Post Oak Landfill Project, Impact Assessment: Rare and Endangered Species." Lowerre, Frederick, Perales, Allmon, and Rockwell, Austin, TX, ECA project # 2011-08.

Hayes, T., 2012, "Proposed 460-Acre Post Oak Landfill Project, Impact Assessment: Wetlands and Jurisdictional Waters," Lowerre, Frederick, Perales, Allmon, and Rockwell, Austin, TX, ECA project # 2011-08.

Hayes, T., 2012, "Big Cypress Bayou Monitoring Report, High-Flow Release: May 7-17, 2012," Caddo Lake Institute, Austin, TX, December 2011, ECA project # 2011-09.

Diaz, P., K. Anderson, S. Ramirez, and T. Hayes, 2013, "Land Use Data for the Central Texas Urban Intensity Index, Phase 1," US Fish and Wildlife Service, San Marcos, TX, and Save Barton Creek Association, Austin, TX, ECA project # 2011-10.

Heger, N., and T. Hayes, 2013, "Change in available Golden-cheeked warbler habitat through time: An assessment of change in mature Central Texas juniper-oak woodlands." Golden-cheeked Warbler Symposium, Lady Bird Johnson Wildflower Center, Univ. of Texas, Austin, January 25, 2013.

PUBLICATIONS AND TECHNICAL REPORTS: concluded

Hayes, T. 2013. "Urban Forest Carbon-Offsets Protocol," submitted to Watershed Protection Department, City of Austin, Texas, September 12, 2013.

Hayes, T. 2014. "Proposed Austin Urban Forest Plan: Updated Review," submitted to City Council, Austin, TX, February 21, 2014.

Hayes, T. 2014. "Strategy and Cost Estimate to Revise Austin's Urban Forest Plan as a Comprehensive Plan including Private and Public Trees," submitted to City Council, Austin, TX, February 25, 2014.

SELECTED SPECIAL PROJECTS: Geography Dept., Texas State U.-San Marcos

- "Analysis of Golden-cheeked Warbler Habitat Change from 2005 to 2010, Twelve Central Texas Counties," Fall 2010 semester, Four-student class project (GEOG 4427, Prof. A. Giordano), Advisor: T. Hayes (GEAA).
- "Mapping Wastewater Pipelines on the Recharge Zone of the Southern and Barton Springs Segments of the Edwards Aquifer, TX," Spring 2011 semester, Four-student class project (GEOG 4427, Prof. Y. Lu), Advisor: T. Hayes (GEAA).
- "Determination of Tree-Shade Indices for Streets and Trails, City of Austin, TX," Fall 2011 semester, Six-student class project (GEOG 4427, Prof. A. Giordano), Advisors: A. Hanson (City of Austin) and T. Hayes (ECA).
- "Watershed analysis: Spatial Correlations Among Tree-Canopy Cover, Land Use, and Water Quality, City of Austin, TX," Spring 2012 semester, Four-student class project (GEOG 4427, Prof. Y. Lu), Advisors: A. Hanson (City of Austin) and T. Hayes (ECA).

Response to Region C's Quantitative Analysis of Marvin Nichols Reservoir On Agricultural Resources

Prepared By:

Jim Thompson P.O. Box 1107 Atlanta, Texas 75551

December 12, 2014

ISSUES PRESENTED

- Does the report presented by Region C comply with the Interim Order of August 8, 2014 requiring Region C to conduct an "analysis and quantification of the impacts" of the Marvin Nichols Reservoir Water Management Strategy on the agricultural resources of Region D as required by TWDB and pursuant to Sections 16.051 and 16.053 of the Texas Water Code?
- 2) Does the report satisfy the requirement that Region C show that the inclusion of Marvin Nichols Reservoir in the Region C Regional Water Plan is consistent with the long term protection of the State's agricultural resources?

ISSUE #1

The Report submitted by Region C does not comply with the requirements of the Interim Order and TWDB rules with respect to impacts to agricultural resources.

The Region C report contains inaccurate and cursory data. More importantly, it does not provide TWDB with the required analysis and quantification of the impacts.

The report either ignores or intentionally omits from its discussion the required analysis and quantifications of impacts on the agricultural/timber industry of Northeast Texas and Region D that would result from removal of significant amounts of vitally important hardwood resources from the Sulphur River Basin. The Sulphur River Basin, where the proposed Marvin Nichols Reservoir would be located, is a primary source of hardwood timber inventories for three (3) paper mills in the area, as well as numerous hardwood sawmills, one of which is largest hardwood sawmill in Texas.

If Region C had asked Region D, or any of the timber companies in Region D for the information necessary to do this analysis, Region D and these industries would readily have assisted in the required analysis and quantification. That work is relatively straight forward. Region C would need to identify the lands to be inundated or otherwise impacted by the operations of the reservoir, and provide a reasonable estimate of the location and amount of land that would be required for mitigation in Region D. The result of a proper analysis would make it clear that the removal of the productive value of this timberland, which lies in close proximity to the timber markets, would have very significant impacts on the timber industry in Northeast Texas and Region D. TWDB would then have the information it needs to resolve the issue before it, which would include the impacts the Marvin Nichols Water Management Strategy would have on the agricultural resources of Region D.

The fact that there are potentially other hardwood supplies located in distant areas of the State of Texas, as referenced in the Region C Report, has no relevance to the impacts to Region D's and Northeast Texas' timber industry. The key factor is the proximity of the hardwood supplies to the location of the paper mills and hardwood sawmills. The impacts of loss of the hardwoods will be on these mills. The existence of other hardwoods, such as those located in Southeast Texas, is not a viable replacement given the transportation costs.

The paper mills in our area utilize a mixture of hardwood and pine to manufacture their products. It is essential that hardwood supplies be a component of this manufacturing process in order to produce the type of paper products produced by these paper mills. The hardwood sawmills use only hardwood for the production of their products. The very reason these mills are located where they are is due to the location of the hardwood supplies. If these hardwood timber lands are inundated, their productive value would be lost forever, as will all production value of hardwood timberlands lost by mitigation. To jeopardize the availability and affordable cost of the raw material supplies of hardwood timber would imperil the ability of these mills to remain viable in the regional, national and international markets in which they operate.

These hardwood supplies are not only threatened by the loss of timber through inundation of the Reservoir and required mitigation, but also by the loss of hardwood supplies due to the operation of the Reservoir. According to the Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy on Natural Resources filed with this Report, Marvin Nichols Reservoir "would also result in a massive reduction in flows remaining in the river downstream of the proposed reservoir project which would result in significant, likely catastrophic, harm to an even larger bottomland hardwood forest area." (Page 1)

The Region C report failed to analyze or quantify these impacts, or to provide a reasonable basis for TWDB to do so.

The clearest example of the failure of the Region C Report to address agricultural impacts is the complete lack of assessment of the impacts of the mitigation lands that will be required for the proposed Marvin Nichols Reservoir. Region C limits any significant discussion in its report to the lands inundated by the proposed Reservoir. The Report does mention in its discussion that farming and timber production on mitigated lands will probably be impossible (Section 4, Page 24), but does not give TWDB any quantitative reporting or analysis of the impacts this loss of farmland and timberland would have on the agricultural resources of Region D, and of the State, as required by the Interim Order and TWDB rules.

Like the lands that are inundated, the loss of the farmland and timberland set aside for mitigation would be lost from production forever. This would create even greater loss of hardwood supplies in close proximity to the market places of Northeast Texas and Region D, further crippling the agricultural/timber economy of the area. The methodology and amount of mitigation which would be required as set forth in the Region C Report are extremely

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Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy on Agricultural Resources

inaccurate and misleading and will be discussed in greater detail by a separate study submitted with this response.

Table 9 of the Region C Report, regarding the estimated impact of Marvin Nichols Reservoir on Timber Harvest Values (page 22), is also laden with errors and inaccurate assumptions. The estimated stumpage value for the Marvin Nichols area, using Region C's figures, would be \$423,000 annually, not \$423 as contained in the table. The 8.2% percentage used in the table is also inaccurate and misleading. As can be seen from the table, 57% of the total timber production from the 3 counties listed is hardwood production. The vast majority of this hardwood production is derived from the Sulphur River Basin, where hardwoods thrive, and where the proposed Marvin Nichols Reservoir would be located. Using the total acreage of the timberland in the counties involved, much of which does not produce hardwood, results in an underestimation of the impacts that Marvin Nichols Reservoir would have on agricultural/timber production of the area. It is apparent from Table 9, despite its inaccurate and misleading components, that a full 18% of the total hardwood volume harvested from Region D is from the 3 county area of Franklin, Red River and Titus County, the counties where Marvin Nichols Reservoir would be located. In addition, pursuant to the Texas A&M Forest Service Report cited in the Region C Report, 24% of all hardwood saw logs produced in Region D in 2013 came from Franklin, Red River, and Titus Counties.¹ Since some of the land in Region D is outside the supply zones of the hardwood mills in the area, the impact of inundating so much land within the mill's supply zones would be even more significant. Again, these figures reflect only lands inundated and not the additional impacts and loss of production resulting from required mitigation.

It should be further noted that the prices used to compile stumpage value of the harvest were derived from 2013 prices. Hardwood prices in Northeast Texas have risen 50% - 60% in 2014, so a more accurate number, even using the misleading data contained in the Region C Report, will be substantially greater in 2014. This represents annual losses from a renewable resource. Region C's figures also do not include the economic value to the Northeast Texas and Region D areas from logging and transportation of hardwood timber which are certainly an additional value to the Northeast Texas and Region D areas, nor does it include any enhanced valuation from the manufacturing and production of paper supplies and lumber supplies that result from this harvesting of timber. The Harvest Trends 2013 Report reflects that delivered prices are more than double the stumpage prices.²

In addition, the Region C Report is apparently basing its analysis and reporting on a different concept of the Reservoir than the one that is listed in the 2011 Region C Plan (see page 11 of the Report). While Region C apparently sees no problem with making this analysis based on a different concept, it reverses its opinion with respect to previous analysis done regarding impacts of Marvin Nichols Reservoir to the timber and agricultural industries of Northeast Texas

¹ Texas A&M Forest Service. Harvest Trends 2013. Texas A&M Forest Service. Sept. 2014 Table 2

² Texas A&M Forest Service. Harvest Trends 2013. Texas A&M Forest Service. Sept. 2014 Figure 2

Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy on Agricultural Resources

and Region D. The report states "because these studies analyze a different project, they are not considered to be relevant for the current analysis." (See Report at pages 17-18). It is not consistent for Region C to base its current analysis and reporting on a different concept of the Reservoir while ignoring useful previous work based on that concept.

Prior studies are relevant. Region C should not be able to state that prior studies are no longer relevant. Much of the footprint of the current proposal for the reservoir is in the same location as the prior proposals. As set forth in the Region D Plan and prior briefs submitted to this Board, the independent study of this issue (one not paid for either by the entities seeking to build this reservoir or the opponents of the Reservoir) was done by the Texas Forest Service. "The Texas Forest Service Study estimated forest industry losses based on three (3) separate mitigation options. The low end impacts where estimated to be an annual reduction of \$51.18 million output, \$21.89 million value-added, 417 jobs and \$12.93 million labor income. The high end impacts were estimated to be an annual loss of \$163.91 million industry output, \$70.10 million value-added, 1334 jobs and \$41.4 million labor income."³ These studies and others identify the important impacts, and provide quantification and analysis of those impacts that should have been used by Region C in doing its work under the Interim Order.

In summary, the Report submitted by Region C does not satisfy the Interim Order, the TWDB rules in effect at the time of the original approval, or the rules currently in effect. That Order and those rules clearly require Region C to do much more to conduct an analysis and quantification of the impacts of Marvin Nichols Reservoir on the agricultural resources of Region D and the State than is presented in Region C's report.

ISSUE #2

The Region C report does not satisfy the requirement that Region C show that the inclusion of Marvin Nichols Reservoir in the Region C Regional Water Plan is consistent with the long-term protection of the State's agricultural resources pursuant TWDB rules and Section 16.053 Texas Water Code.

TWDB rules and the Interim Order require the analysis and quantification of impacts because its rules and Texas law require the Board to determine whether a given water management strategy, such as the Marvin Nichols Reservoir, can be developed in a way that is consistent with other significant needs of the State, including a healthy agricultural sector. That determination is required by TWDB's prior rules at 357.14(2)(C) and the current rules at 357.41.

It is the position of Region D that because Region C did not provide the analysis and other information required by the rules, the Board cannot make the consistence determination required by Texas law. Therefore, the Board cannot now approve the Region C plan.

³ 2011 Region D Water Plan §7.6.2

Response to Region C's Analysis and Quantification of the Impacts of Marvin Nichols Reservoir Water Management Strategy on Agricultural Resources

The Board needs to make it clear that no region can take shortcuts in the planning process or take any steps to downplay the impacts of a strategy, especially when doing so will have such significant impacts outside that region.

5 E E

Expert Analysis and Opinion Concerning "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Management Strategy on the Agricultural and Natural Resources of Region D and the State." (Hereinafter the 'Report')

By: Sharon Mattox, PhD, JD December 16, 2014

I. Introduction

I was asked to provide my expert opinion on the following question:

Is the quantification of impacts contained in the Report reasonable?

This question is important because without a reasonable quantification of impacts that will result from the MNR Strategy it is not possible to translate accurately the physical impacts to service losses to natural resources and agricultural resources in Region D. My conclusion is that the Report fails to provide a reasonable quantification of impacts.

The Texas Water Development Board (TWDB) has directed Region C "to conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir Management Strategy [(MNR Strategy)] on the agriculture and natural resources of Region D and the State. . . ." The Report limits its assessment of impacts to natural and agricultural resources on the area of inundation, ignoring secondary impacts and treating impacts to waters of the United States and the attendant requirement for mitigation separately and without any grounding or reasonable explanation. Mitigation is an integral part of the MNR Strategy and the impacts of the MNR Strategy on Region D and the State can be neither analyzed nor quantified without considering the required mitigation. The reservoir cannot be constructed, and the hoped-for benefits cannot be secured, without significant mitigation as required under the Clean Water Act. Although the Report states that mitigation "may increase the impacts to agriculture," it says no more. Report at 25. Simply recognizing a potential impact is neither an analysis of nor a quantification of that impact.

On its face, the Report underestimates jurisdictional waters by failing to make any quantification of streams and excluding likely jurisdictional wetlands.

That error is compounded when the underestimated acreage is used to project the land that will be needed for mitigation, mitigation that will necessarily be located in Region D. The underestimated jurisdictional area is simply multiplied by an arbitrary factor of two that bears no relationship to the current regulatory framework for mitigation. Critically, the Report contains no consideration of a truly major change in the way mitigation is determined for projects such as the MNR Strategy. On April 10, 2008 the U.S. Army Corps of Engineers (USACE) and the USEPA published their final rule, "Compensatory Mitigation for Losses of Aquatic Resources," better known as the "2008 Mitigation Rule." The policies and procedures laid out in the 2008 Mitigation Rule render it improper and utterly illogical to conduct an analysis of a future project based solely on historical information (even if Region C had gathered accurate and relevant historical data). Under well-developed tools and practices stemming from the 2008 Mitigation Rule, losses of functions and values are the emphasis and simple ratios are not the

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touchstone. If a ratio is used, that ratio should be in the range of 3:1 to 10:1. The quantification is so erroneous as to be unreasonable because it drastically underestimates the lands that will be needed as mitigation and then uses a baseless multiplier. As a result, the impacts to Region D are underestimated. Vastly underestimated impacts are worthless as a basis for any meaningful analysis.

Further, the Report is purely an adoption, with very limited repackaging, of portions of an earlier USACE report that was designed to make a *qualitative* comparison of projects in the Sulphur River Basin and, without additional analysis, does not properly form the basis for a *quantitative* analysis of impacts on resources in Region D.

As a result of these flaws, neither the Report's estimates of impacted waters nor the amount of required mitigation, is supported by the data. Simply put, the Report fails to provide a quantitative backbone so that impacts to natural resources and agricultural resources of Region D and the State can be determined.

II. The 2008 Mitigation Rule Shifts the Focus to Functions and Values of the Waters Lost and Resulted in the Development of Tools for Estimating Mitigation Requirements.

When the USACE and the USEPA published the final 2008 Mitigation Rule it was the culmination of a major stage in the evolution of the mitigation landscape from the mid-1970's until the adoption of the rule. The Rule represented a true sea-change in the way the federal regulatory process handles the mitigation process. The 2008 Mitigation Rule is really the first formal codification of a requirement for a quantitative analysis of the functions and values (chemical, physical, and biological) of the waters of the US taken by a project, and of the ecological lift contained in the mitigation proposed for that project under the federal Clean Water Act (CWA). The Report recognizes that mitigation of impacts occurs by ". . . improving the ecological functions of other land." Report at p. 24.

While the 2008 Rule is clearly critical to any analysis of the amount of mitigation required, it is also important for another reason. Over the more than six years since the adoption of the rule, methods have developed to allow the quantitative assessment of impacts and mitigation. While it may be justified to defer full application of those methods until a project is nearer the permitting process than the Marvin Nichols reservoir is at this time, ¹ they could be utilized in a simple form to produce

¹ The 2008 Mitigation Rule would be applied in detail in the permitting process to develop the mitigation for the various types of impacts that result from the MNR Strategy and as such is the backdrop for making early estimations of the nature of the impacts and attendant need for mitigation. The Mitigation Plan required for the permit would necessitate vastly greater information than is appropriate at an early stage including: an analysis of the objectives of the mitigation (resource type and amount to be provided, method of compensation, and how the compensation will address the needs of the watershed), a description of the site selection process for the mitigation site protection instrument, baseline ecological information on both the mitigation site and the impact site, a determination of credits, a mitigation work plan, a maintenance plan, performance standards to determine if the mitigation is meeting the objectives, monitoring requirements to determine if the project is on track to meet the performance standards and if adaptive management is needed, a long term management plan, an adaptive management plan, financial assurances, and other information requested by the District Engineer as needed to determine the appropriateness, feasibility, and practicality of the mitigation project.

quantitative estimates rather than the assumption-based estimates in the Report. Due diligence periods are often only 60 to 90 days in length and reasonable quantification of impacts can be accomplished, so a preliminary quantification of the impacts of the MNR Strategy was certainly doable, even within the almost three month period directed by the TWDB. When one considers that this issue of the impact of the mitigation on Region D is not a new issue in this interregional conflict, the failure to employ current accepted and available analytical tools becomes even less justifiable.

An example may be helpful. The 2008 Mitigation Rule places a strong focus on mitigation for streams and riparian habitat, an issue that is ignored by the Report. An estimate of the nature and extent of this type of impact is critical to a determination of the impacts of the MNR Strategy and of the mitigation that will be necessary. Preliminary estimates of the number of linear feet of jurisdictional tributaries can be made using aerial photographs and USGS Quadrangle Maps. If even a relatively few typical stream segments were assessed using TXRAM, a field method used in the Fort Worth District of the USACE, an actual quantitative assessment of stream mitigation required could have been made.

This type of information concerning mitigation for project impacts is also required at an earlier stage than before the 2008 Rule. Now a mitigation statement is required with the initial permit application to the USACE.

The 2008 Mitigation Rule also affects the analysis of the extent of mitigation required in numerous other ways as is discussed below.

After more than six years, the 2008 Rule is phased in and fully applicable to future projects such as the MNR Strategy. None of the historical examples given in the Report are, therefore, relevant to a determination of future mitigation requirements.

III. The Report underestimates the number of acres that will have status as waters of the US.

The Report estimates there are 23,530 acres of waters of the US, other than non-stream open waters, which will be taken by the MNR Strategy. No basis is provided for this number, nor is a basis readily discernible by an examination of the Report. *See* Report at 25.

Initially, the Report estimates impacts only for the inundation area of the Reservoir itself – that is, the footprint of reservoir. The Report fails to estimate jurisdictional areas for the 2,751 acres of "ancillary facilities" recognized in the Region C Plan. The ancillary facilities must be part of the USACE permit, which must assess the complete project. In addition, the Report fails to include any estimates for lands used during the construction process. The estimate also fails to include any estimate of critical secondary impacts to waters of the US, which will also require mitigation if losses of waters of the US result. One example of a secondary impact that would likely have a material impact is wetlands adjacent to the Sulphur River downstream of the proposed dam that will no longer be inundated by frequent flood events.

The 23,530 acre estimate of jurisdictional areas is not consistent even with the data on land coverage types provided in Table 2² of the Report. Based on my review of the EEIR-SRBCA, I would include the estimated acreages for bottomland hardwoods, forested wetlands, herbaceous wetlands, open water³, and shrub wetland. In addition other habitat types identified in Appendix G as subtypes under Grassland/Old Field, Shrubland, and Upland Forests that are not broken out but likely qualify as waters of the U.S., include Pineywoods: Bottomland Wet Prairie, Pineywoods: Small Stream and Riparian Wet Prairie, Pineywoods: Small Stream and Riparian Evergreen Successional Shrubland, and Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed Forest.

The total of only the habitat types listed in Table 2 of the Report is 35, 411 acres, which I believe to be a more realistic minimum estimate of the number of acres that require mitigation, if one is limited to the numerical data provided in the Report. This number, however, still excludes the additional habitat types given above, which will also contain jurisdictional areas. It further excludes the small, but identifiable wetlands, streams, and other waters that are certainly present in other habitat categories. Although no data on these omitted waters is included, it would certainly increase the realistic minimum number of jurisdictional waters of the US. For planning purposes, an estimate of at least 40,000 jurisdictional acres is reasonable. To deal with uncertainty in early estimates I often use a range of potential jurisdictional acres to aid in understanding possible impacts and costs.

IV. The Report underestimates the number of acres that will be required for mitigation.

The failure to accurately estimate the amount of acreage for which mitigation is required leads inevitably to a more severe underestimate of lands needed for mitigation. This is true because in virtually every case, more than one acre of land is required to compensate for the functions and values associated with the destruction of one acre of jurisdictional waters.

A. The Report fails to quantify impacts to streams.

The Report simply asserts, without further basis, that required mitigation is estimated as twice the acreage of waters of the US, other than non-stream open waters, which totals 43,060 acres.

While apparently recognizing that the impacts to streams will require mitigation, the Report fails to quantify stream impacts. Streams are a major focus of the 2008 Rule. The functions and values for streams are calculated on a linear basis. A desk top analysis could have been conducted to estimate the linear feet of tributaries that will be impacted by the project. As mentioned earlier, even limited quantitative evaluation of those streams would provide the needed quantitative picture of mitigation required.

The acreage approach to stream mitigation seriously underestimates the total area required for stream mitigation. Creation of new tributaries is often very difficult or even impossible as a result of limited

² Note that this Table is based on secondary rather than primary sources.

³ This number presumably includes some streams, the river, and herbaceous flatwoods ponds that likely would require mitigation.

watershed to maintain newly created streams. Thus restoration or enhancement, often combined with preservation, is more usually employed for mitigation. The number of acres of land required to mitigate for a given length of stream is much greater than the actual acreage that is included within the bed and banks for the stream. Thus, a hypothetical stream segment 1000 feet in length and 30 feet wide physically occupies a little over ¾ acre. It will take many times that much land to permanently protect the stream functions and values of that 1000 feet of stream, since a functional stream must meander, and much of its value is in its connection to the riparian area surrounding it. Moreover, if because of the difficulties involved in stream mitigation a mitigation plan proposes to use "out of kind" mitigation to compensate for functions and values, the ratios required are greater.

B. Preserving land as viable mitigation requires that economically-useful lands be taken out of production.

Compensation for impacts by preservation, a common historical approach to mitigation of forested wetlands, and one permit applicants often favor for stream mitigation, is difficult under the 2008 Rule and will certainly require more than 2:1. Indeed, when bottomland hardwoods or other forested wetlands are involved, a more typical preservation ratio would be **10:1**. Preservation is allowed under the 2008 Mitigation Rule only when five criteria are met. See 33 CFR 332.3 (h)(1). One of those criteria is that the preserved lands be under threat of destruction or adverse modification.

Simple preservation of existing habitat, even at 2:1, does not result in no net loss of functions and values, the ecological lift is what counts. Land that is not at risk of use (e.g., sand and gravel, timbering, agriculture) or development, which is simply preserved, produces very little ecological lift. If a project destroys 100 acres of bottomland hardwood wetlands, and proposes to mitigate by preserving 200 acres of nearby bottomland hardwoods, there is still a decrease in total bottomland hardwoods in the region of 100 acres. So the land that is of value for preservation is also that land with other economic uses, whether for agriculture or development.

Thus, the 2008 Rule provides that when preservation is used for compensatory mitigation, it shall be done in conjunction with restoration, establishment, and/or enhancement activities. While this requirement can be waived by the District Engineer in certain circumstances, the rule requires that "compensation ratios shall be higher." 33 CFR 332.3 (h)(2).

C. Historic experiences cannot predict future mitigation requirements.

None of the historic examples presented in the Report are a fair surrogate for the MNR Strategy, although even that data recognizes that mitigation requirements were trending upward. An important limitation of the data presented in the Report is that it contains absolutely no information about the acreage of jurisdictional waters that may have been present within the inundation pool of each reservoir project. It merely compares mitigation to the total surface area of the reservoir. So, to the extent that the information is supposed to support the conclusion that a 2:1 ratio of jurisdictional waters to mitigation acreage will be required for the MNR Strategy, it relies on a misplaced apples to oranges comparison. This is not reasonable even without consideration of the 2008 Rule.

Pre -1990		
1986-1989	3 Projects	No Mitigation
1987	1 Project	0.31 to 1
1989	1 Project	1.0 to 1.0
	1990-1997	
1990	1 Project	0.31 to 1.0
1991	1 Project	1.85 to 1.0
1993	1 Project	No Mitigation
1993	1 Project	1.04 to 1.0
1997	1 Project	1.54 to 1.0

Region C Assertion of Ratio of Reservoir Surface Area (Not Jurisdictional Waters) to Mitigation Acreage

Moreover, the pattern of mitigation history from the 1970's to the present day has been one of increasing complexity of ultimate calculation and ever increasing ratios, when the ratio method of conceptualizing mitigation is used.⁴ As a result in over 30 years of advising clients in the development of projects about the need for mitigation I have learned that at an early stage of a project in particular, it is not wise to ignore realistic indicators and be blindly optimistic about the amount of mitigation that will be required or what it will cost.

D. An Analysis of Other Reservoir Projects and Mitigation.

There is one historic example of reservoir development within the Sulphur River basin that is an instructive point of reference concerning what mitigation may be required for the MNR Strategy, although it pre-dates the 2008 Mitigation Rule. That example is Lake Jim Chapman, previously known as Cooper Lake. Cooper Lake was authorized by Congress in 1955, in a project that included the lake and an associated system of channels and levees. Much of the levee and channel work was done between 1955 and 1967. In 1971 the USACE received funding to begin work on the dam. The project was stopped to address requirements under the National Environmental Policy Act (NEPA). Construction finally began in 1986. The need for mitigation was a prime factor in the lengthy NEPA and related-litigation process. The Final Environmental Impact Statement (FEIS) for the project was released in 1977, but a court halted the project in December 1977. The court found the FEIS legally flawed for its lack of a mitigation plan for loses of fish and wildlife habitat, among other issues. The USACE prepared a Supplemental EIS, which was released in 1981 and included a mitigation plan.

The plan included the preservation and management of approximately 10,000 acres of reservoir perimeter lands, and the preservation and management of the approximately 25,500 acres White Oak Wildlife Management Area. In July 1981 the USACE asked the Court to dissolve the injunction against the project. The district court responded with a memorandum opinion over 100 pages in length, describing detailed inadequacies in the EIS. In March 1983 the district issued a second injunction against

⁴ Under the 2008 Rule, quantitative methods are used for measuring impacts and mitigation lift. The measured chemical, physical, and biological values are generally expressed as Functional Capacity Units or FCUs.

the project. In July 2004, after the mitigation plan had been submitted to Congress for authorization, the Fifth Circuit Court of Appeals applied the now well established "hard look" test for judicial review of the USACE 1981 SEIS and dissolved the injunction. *Texas Committee on Natural Resources v. Marsh*, 736 F.2d 262 (1984). Nevertheless, even by the earliest approximations of calculating mitigation, the mitigation implemented for Jim Chapman was nearly 2:1 using the inundation pool area. When a 2:1 ratio is applied to the 66,103 acres of surface area for the MNR Strategy given in Table 2 of the Report, the estimate of mitigation required for MNR is 132,206 acres.

While it is true that the laws that led to the mitigation plan for Lake Jim Chapman are different than those laws that will drive the mitigation plan for the MNR Strategy, the 2008 Mitigation Rule, the 404(b)(1) guidelines, and the other policies and guidance will certainly cause the aquatic values to be used in the development of the MNR Strategy to be valued at least that greatly. Even by the standards of the early 1980's, when a hard look was taken at the natural resources impacted at Lake Jim Chapman, significant mitigation was required and it was placed in Region D.

As the Report notes there are other reservoirs that are further along the USACE permitting process that leads to construction that may be relevant to an analysis of MNR Strategy mitigation. Two of these reservoirs are planned for Fannin County, Texas in the Sulphur River Basin, the Lower Bois d'Arc Reservoir and Lake Ralph Hall. Lower Bois d'Arc is undergoing analysis by the Tulsa District of the Corps. Scoping began in 2009. Preparation of an EIS has been proceeding since that time. The reservoir will impact about 6,000 acres of wetlands, largely forested, and approximately 125 miles of streams. The EIS is still in the pre-draft stage, although a draft EIS is expected to be available in 3 to 4 months, and it will contain a formal mitigation plan consistent with the 2008 Rule. (Personal communication Jamie Highslope, USACE Project Manager). Information about the mitigation plan is not publically available from the USACE until the release of the DEIS. That mitigation plan is being prepared by Freese and Nichols. *Id.* The mitigation plan is likely considerably advanced, and yet it was not used to support the suggested 2:1 ratio in the Report, a report also drafted by Freese and Nichols.

Lake Ralph Hall has also had a mitigation plan prepared as part of the permit process but that mitigation plan has apparently been rejected by the Fort Worth District of the USACE, at least partially because it did not adequately compensate for impacts to streams. Water Rights Hearing, SOAH Docket No. 582-12-5332, Transcript Vol. 2, 518-1;519-12 and Vol. 5, 1036:1319. This serves as a clear example that the federal government will push back against inadequate mitigation plans. Lake Ralph Hall is currently undergoing the preparation of a draft EIS, which is scheduled for release sometime in the second half of 2015. (personal communication Chandler Peter, Fort Worth District USACE Technical specialist).

The Lake Columbia Regional Water Supply Reservoir is proposed to be constructed in the Neches River Basin in Cherokee and Smith Counties. It is undergoing analysis by the Fort Worth District of the USACE. The Lake is proposed to have a surface area of 10,133 acres; a total of 5,746.5 acres of waters of the U.S. were delineated (56.71% of the total surface area), including 589,248 linear feet of streams and channels. The mitigation includes 3,500 acres on-site (timber purchased and left standing); 3,750 acres near-site and 6,000 acres off-site, for a total of 13,250 acres. This exceeds the 2:1 ratio used in the Report. Indeed the mitigation plan notes that this plan depends on the 3,500 acres of off-site preserved land proposed for preservation being given greater credit than is usual because the preserved land is proposed to be adjacent to the Big Thicket preserve. The plan seeks a variance from the usual 10:1 ratio and proposes that a 5:1 ratio should be used. If a 10:1 ratio is employed the mitigation lands required by the plan would increase to 16,750 acres or approximately 3:1. There is no indication that the USACE has approved this mitigation proposal. The project is currently on hold at the Fort Worth USACE District office. (personal communication Chandler Peter).

The shift away from simple ratios to modelling and Functional Capacity Units (FCUs) makes a comparison of the 2:1 ratio suggested in the Report with recent mitigation projects rather difficult. What is clear, however, is that the 2:1 ratio of jurisdictional acreage cannot be directly compared to the surface acreage to mitigation data shown in the Report and is not derived from any framework associated with the 2008 Mitigation Rule. Further, the reasonable implications of the recent projects are that a 2:1 ratio is far too optimistic, particularly when impacts to streams and bottomland hard woods must be figured in. Mitigation for bottomland hardwoods had reached high multiples for preservation before the 2008 Rule, which further disfavors preservation.

V. The Mitigation Will Be Located in Region D

Importantly, even historically, all required mitigation occurred in the watershed of the reservoir. According to Table 10 of the Report in each occasion mitigation was located either "downstream" or "next to" the reservoir. Further, given that the watershed approach is a central focus of the 2008 rule, all mitigation required for the MNR Strategy must certainly occur within Region D. The Report, however, is silent on the location of the required mitigation. Clearly it is not possible to assess the impact of the MNR Strategy on Region D without explicit recognition that both the reservoir and the mitigation will be located in Region D.

The impacts of the MNR Strategy on the natural and agricultural resources can only be understood when the mitigation is understood. The reservoir permit application must satisfy the legally binding 404(b)(1) guidelines. These guidelines require a process of avoidance of impacts, minimization of impacts, and compensation for impacts, or mitigation. Since the adoption of the 2008 Rule, mitigation has increasingly been thought of less as acres and more as FCUs. This is true not only for mitigation banks but also for permitee responsible mitigation. The focus on FCUs means that the USACE is able to look at what reduction in values – physical, chemical, and biological – will result from the construction of a project and then also measure the anticipated ecological lift in the proposed mitigation using the same units. This allows a fair comparison of impacts and compensation during the regulatory process.

The Clean Water Act, under section 404(c), gives EPA the ability to veto a section 404 permit when it determines that there is an unacceptable adverse effect on municipal water supplies, shellfish beds, fishery areas, wildlife or recreational areas. This veto process has been used sparingly over the decades.

Only 13 final vetoes have been issued; four of those have involved water supply reservoirs and inadequate mitigation has been a key reason for each veto.⁵

VI. The Quantitative Data contained in the Report is Not Sufficient in Light of Available Resources.

Preliminary assessments of the nature and likely magnitude of environmental issues are a recognized part of the due diligence process in private real estate transactions. Particularly for large real estate transactions it has been common for the past several years to perform an accelerated 'desk-top reconnaissance' to estimate the nature and extent of waters of the US. While such an abbreviated analysis and quantification cannot form the basis of a jurisdictional determination for permitting purposes, it can provide a good indication of the potential jurisdictional waters on the property analyzed. This analysis is done because the cost of permitting and mitigation can have a material impact on the feasibility of the real estate transaction. This type of analysis was not done for the Report and could have provided a more realistic picture of the impacts on Region D.

Instead, Region C provided a restatement of a previous report made for a different purpose without appropriate acknowledgment of its limitations, or refinement or supplementation of its data. All of the "quantitative" information on natural resources to be found in the Report is taken from the *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment* ("EEIR-SRBCA").⁶ The purpose of the EEIR-SRBCA was to develop preliminary evaluations to compare various potential projects within the Sulphur River Basin. EEIR-SRBCA at p.1-1. The result of the study was a structured comparison of the various projects assessed in that report. *See* EEIR-SRBCA p. 1-1, 2-8, 3-8 to 3-9, 4-4, 5-1, and 6-1. So long as the same methodology was used for every project to assess the relative magnitude of the impacts, a comparative assessment can be done. The importance of the accuracy or precision of the underlying estimates is reduced in that situation. The USACE does not say that the information in the EEIR-SRBCA can be used as a basis for either a jurisdictional determination or to determine mitigation. *See* p. 2-7 ("areas should not be considered jurisdictional until a formal jurisdictional determination Rule clearly establishes that such was not the intent of the USACE.

Moreover, the language used in the Report tends to inflate the use made of the data in the EEIR-SRBCA.⁷ For example, the USACE concluded that since "all of the reservoir sites evaluated fell within the area surveyed in the Ecological Classification System project. . . . (the data from that project) was considered

⁵ In the Lake Alma veto the loss of 1,350 acres of bottomland hardwoods was sufficiently adverse to warrant an EPA veto. Approximately 10,156 acres of bottomland hardwoods are present in the inundation footprint of the MNR.

⁶ Freese and Nichols, Inc., U.S. Army Corps of Engineers, *Environmental Evaluation Interim Report – Sulphur River Basin – Comparative Assessment* (2013).

⁷ The Report does not contain any independent analysis of the data taken from the EEIR-SRBCA. This can clearly be seen by a comparison of the description of the work on page 10 of the Report with the excerpt from the EEIR-SRBCA included as Appendix G to the report. The Report relies only on the EEIR-SRBCA, a secondary source, and not the underlying data.

to be the most recent, readily available data collected for all alternative reservoir sites that would allow for a balanced comparison." Report at G-2. The Report concludes that the EEIR-SRBCA data— the secondary source — is "the most recent, readily available data on land cover types in the Sulphur River Basin." Report at 10. Moreover, the Report recognizes that the reservoir project in the EEIR-SRBCA is at least somewhat different from the project proposed by Region C. Report at 11. Further, in the USACE discussion of its methodology, the agency notes that it performed an "additional re-classification" utilizing USFWS NWI data. Report at G-2. In the Report the NWI data were used "to further refine the classifications." Report at 10.

It is true that the MNR Strategy remains in the planning stage, and that more detailed assessments of at least "the quality of wildlife habitat" will be part of the permitting of the Marvin Nichols Reservoir. Report at 11. But the mere potential that additional work will be done in the permitting process does not eliminate the reality that is reasonable and feasible to conduct a meaningful quantitative analysis as a basis for the resolution of an interregional conflict right now. Region C was directed to conduct both an analysis and quantification but did not utilize readily available resources and tools to comply with the Board's Order.

VII. Conclusion

Based on the available data and my experience with mitigation plans, the mitigation required for the MNR Strategy will require at least 3 times as much land as the acres of jurisdictional waters, and potentially much more. Any of the reasonable estimates suggest the mitigation land required for the MNR Strategy will exceed 100,000 acres. Thus, the quantification of impacts in the Report is not reasonable.

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Education and Professional Background

- Sharon M. Mattox, PLLC, 2014 present
- Vinson & Elkins, L.L.P. 1981 2013
- University of Texas School of Law, J.D., 1981 (Order of the Coif; Order of the Barristers)
- University of Texas, Ph.D. Botany, 1978
- Emporia State University, B.A. Biology and Chemistry, 1974
- Admitted to practice: Texas, 1981; U.S. Court of Appeals for the Fifth Circuit; U.S. Court of Appeals for the District of Columbia; numerous federal district courts

Representative Experience Involving Mitigation

- Environmental Permit Counsel for various coastal residential, resort, and marina development
- Successfully obtained all environmental permits required for the construction of a \$1.5 billion marine terminal for container and cruise ships; this high-profile, controversial project opened its first phase in late 2006; the mitigation package was approved by all state and federal environmental agencies
- Resolved numerous Clean Water Act enforcement actions
- Advised on NEPA and land use issues for a commercial space launch facility.
- Providing strategic permitting counsel for a several thousand acre new community
- Represents the developer of a 15,000-acre development on issues involving endangered species, wetlands, floodplains, archaeology, oil field wastes, and other environmental issues
- Represented the developer of a central Texas surface coal mine
- Represented the City of Houston in litigation brought by the Sierra Club to block the Wallisville Dam
 Project; the project was ultimately approved by the U.S. Court of Appeals for the Fifth Circuit (Sierra Club
 v. Siegler)
- Counseled clients on NEPA compliance in a wide variety of large projects including highways, airports, levee improvement districts, and marine terminals
- Represented a client in a NEPA case that involved a proposal to dredge a deep water port and build an oil terminal on Pelican Island in Galveston Bay (Sierra Club v. Marsh)

- Environmental counsel for numerous pipelines and other energy facilities
- Environmental counsel on various navigation channel construction and improvement projects
- Advice on the re-licensing of the Trans-Alaska Pipeline
- Advice on the expansion of a major airport
- Numerous clients with levee and floodplain issues

Professional Recognition

- The International Who's Who of Business Lawyers in environment, 2008 2009 and 2011
- Who's Who Legal: Texas in environmental law, 2007 and 2008
- The Legal 500 US: Volume III (Litigation) in environment, 2007
- Chambers USA: America's Leading Business Lawyers in environmental law and litigation, 2005 2006, 2008 - 2014
- The Best Lawyers in America® in environmental law, 2005 2015; in water law, 2011 2015
- Recognized in Texas Super Lawyers, 2003 2005, 2007 2011
- "Texas' Top 50 Women Lawyers," *Texas Monthly*, 2003 2005

Highlights of Publications and Presentations

- Chair for 25 years of CLE International's Texas Wetlands Conference
- "New Worries for Section 404 Permit Recipients: D.C. Circuit Rules that EPA May Retroactively 'Veto' Permits Already Granted by the Army Corps," V&E Environmental Law Update E-communication, April 25, 2013 (co-author)
- "High Court Leaves Road Wide Open For CWA Citizen Suits," Law360, April 12, 2013 (co-author)
- "D.C. District Court Overturns EPA Final Clean Water Act Guidance on Appalachian Surface Coal Mining Operations," V&E Environmental Law Update E-communication, August 6, 2012 (co-author)
- "U.S. Supreme Court to Review Two Controversial Decisions on Clean Water Act Jurisdiction," V&E Environmental Law Update E-communication, July 2, 2012 (co-author)
- Author on numerous environmental articles
- Speaker on land-use regulations and their impact on the use and value of property, toxic torts, expert witnesses, and Daubert

TWDB memo related to Region C's Response to Interim Order of August 8, 2014 (December 17, 2014)



P.O. Box 13231, 1700 N. Congress Ave. Austin, TX 78711-3231, www.twdb.texas.gov Phone (512) 463-7847, Fax (512) 475-2053

TO:	Board Members
FROM:	Kevin Patteson, Executive Administrator
DATE:	December 17, 2014
SUBJECT:	Region C Response to Interim Order of August 8, 2014

ACTION REQUESTED

Direct Region C and Region D to revise their regional water plans to reflect resolution of the interregional conflict by Region C's readoption of its current regional water plan with Marvin Nichols Reservoir as a recommended water management strategy and Region D's amendment of its current regional water plan to reflect that the conflict has been resolved.

BACKGROUND

On August 7, 2014, the Texas Water Development Board (TWDB) Board considered in an open meeting the interregional conflict between the Region C and Region D 2011 regional water plans. The Board issued an Interim Order on August 8, 2014 that requested additional information from Region C and included the following instructions:

"Region C is directed to conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir Water Management Strategy on the agricultural and natural resources of Region D and the State, pursuant to Sections 16.051 and 16.053 of the Texas Water Code and Chapters 357 and 358 of Board rules. Region C should submit this analysis and quantification to the Board by November 3, 2014. Upon receipt of the analysis and quantification, the Executive Administrator and Region D will be given the opportunity to submit a written response to the submission, and the matter will be scheduled for Board consideration. If no submittal is received by the Board on or before November 3, 2014, this matter will set for a Board Meeting to direct the Regions to revise their regional water plans reflecting the removal of the Marvin Nichols Reservoir Water Management Strategy from the 2011 Region C Plan, without prejudice."

Our Mission

To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas

Board Members

Carlos Rubinstein, Chairman | Bech Bruun, Member | Kathleen Jackson, Member

Board Members December 17, 2014 Page 2

On October 29, 2014, Region C submitted an "Analysis and Quantification of the Impacts of the Marvin Nichols Reservoir Management strategy on the Agricultural and Natural Resources of Region D and the State. On October 31, 2014, the TWDB Office of General Counsel provided instructions and a timeline for responses to and consideration of Region C's quantitative analysis.

KEY ISSUES

Staff Review of Compliance with 31 TAC § 357.34(d)(3) and the Interim Order

TWDB rules in 31 Texas Administrative Code § 357.34(d)(3) set out the elements of the quantitative reporting required by the Board in its Interim Order:

- Environmental factors, including effects on:
 - environmental water needs,
 - wildlife habitat,
 - cultural resources, and
 - effect of upstream development on bays, estuaries, and arms of the Gulf of Mexico; and
- Impacts to agricultural resources.

Region C's quantitative analysis discussed each of these impacts and also included discussions of impacts to threatened and endangered species and to natural and agricultural resources from mitigation. Based on the information provided, TWDB rules, and the interim order, the Executive Administrator finds that Region C has complied with the interim order and current rules.

Amendments to Regional Water Plans

Under Tex. Water Code § 16.053(h)(6), on resolution of the conflict, the involved regional water planning groups must prepare revisions to their respective plans; consider all public and Board comments; prepare, revise, and adopt their respective plans; and submit their plans to the Board for approval and inclusion in the state water plan. The Executive Administrator makes the following recommendation in accordance with those statutory instructions. Both Region C and Region D are regional water planning groups involved in the conflict. Therefore, both regions must reflect the Board's resolution of the conflict by amending their plans accordingly.

Section 357.51 of the TWDB rules provides the process for amending regional water plans. The procedures a regional planning group must follow vary depending on whether the amendment is a major or a minor amendment. A minor amendment is defined as an amendment that:

1. does not result in over-allocation of an existing or planned source of water;

Board Members December 17, 2014 Page 3

- 2. does not relate to a new reservoir;
- 3. does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries;
- 4. does not have a significant substantive impact on water planning or previously adopted management strategies;
- 5. does not delete or change any legal requirements of the plan;
- 6. is for a clean coal project and meets the requirements of 31 TAC 357.51(d); or
- 7. substitutes an alternative water management strategy for a recommended strategy under 31 TAC 357.51(e).

A major amendment is one that does not meet any of the above criteria. The regional water planning group must hold a public hearing on a major amendment and provide a public comment period of at least 30 days before and after the public hearing for a major amendment. The regional water planning group must hold a public meeting to act on a minor amendment, but is not required to hold a public hearing and the comment periods.

The Executive Administrator intends to treat the amendments of the Region C and Region D 2011 regional water plans as minor amendments to those plans. The Region C Analysis does not result in over-allocation of an existing or planned source of water. It does not relate to a new reservoir, but to one that is already in the plan. The Region C Analysis indicates that Marvin Nichols may have a significant effect on instream flows and environmental flows, but will not have a significant impact on freshwater flows to bays and estuaries; nor does it delete or change any legal requirements of the plan. Therefore, the addition of the analysis to the Region C regional water plan and the amendments to the Region D Plan as outlined in the Executive Administrator's memorandum to the Board on May 19, 2014 will follow the procedures for a minor amendment.

RECOMMENDATIONS

Based on the above, the Executive Administrator recommends that the Board resolve the conflict between Region C and Region D in the manner recommended in the Executive Administrator's memorandum to the Board on May 19, 2014 with the following modification.

In place of Recommendation 2.a, the Executive Administrator recommends that the Board:

Instruct Region C to retain Marvin Nichols as a recommended strategy in its 2011 Water Plan; to update Chapter 7 of its Plan, relating to Plan Consistency with Long-term Protection of Resources, by incorporating the quantitative analysis into the plan; and to update Chapter 10 of its Plan, relating to the Plan Approval Process, to reflect the mediation, the TWDB interim order, the TWDB final action, and other actions taken to effect that final action.

TWDB Order

Concerning the Interregional Conflict (January 8, 2015)

TEXAS WATER DEVELOPMENT BOARD



AN ORDER concerning the interregional conflict between the 2011 North Central Texas Regional Planning Area Regional Water Plan and the 2011 North East Texas Regional Planning Area Regional Water Plan in accordance with Texas Water Code § 16.053.

On January 8, 2015, the Texas Water Development Board (Board) considered the interregional conflict between the 2011 North Central Texas Regional Planning Area (Region C) Regional Water Plan and the 2011 North East Texas Regional Planning Area (Region D) Regional Water Plan.

In reaching its decision, the Board considered the following information: the 2011 Regional Water Plans for Regions C and D including all attachments thereto; oral arguments of the parties made in front of the Board on August 7, 2014 and January 8, 2015; the May 19, 2014, recommendation made by the Executive Administrator; the Briefs submitted on June 20, 2014 and Reply Briefs submitted by Regions C and D submitted on July 7, 2014; the analysis and quantification submitted by Region C on October 29, 2014; Region D's response to that analysis submitted on December 17, 2014; and the Executive Administrator's Recommendation based on Region C's analysis and quantification submitted on December 17, 2014; and the Executive Administrator's Recommendation based on Region C's analysis and quantification submitted on December 17, 2014;

The Board finds that Region C's 2011 Regional Water Plan together with the analysis and quantification submitted on October 29, 2014, meet the applicable statutory and regulatory criteria. Further, the Board finds that in accordance with Texas Water Code (TWC) §§ 16.051 and 16.053, the interregional conflict as asserted by Region D is hereby resolved with the inclusion of the Marvin Nichols Reservoir Project as a recommended water management strategy in the 2011 Region C Regional Water Plan. Accordingly, the Board adopts the following Findings of Fact and Conclusions of Law:

I. FINDINGS OF FACT

Procedural History

- Every five years, each of the sixteen Regional Water Planning Areas submits a Regional Water Plan (RWP) to the Board for approval and incorporation into the State Water Plan (SWP) in accordance with TWC §§ 16.051 and 16.053.
- 2. On October 4, 2010, the Board approved the 2011 Region D RWP, which asserted that the inclusion of the proposed Marvin Nichols Reservoir as a water management strategy in any 2011 RWP or the 2012 SWP would create an interregional conflict based on negative impacts to Region D.
- 3. On December 6, 2010, the Board approved the 2011 Region C RWP, which included the proposed Marvin Nichols Reservoir as a recommended, long-term water management strategy for Tarrant Regional Water District, North Texas Municipal Water District and the Upper Trinity Regional Water District, and as an alternative strategy for Dallas Water Utilities and the City of Irving.
- On January 12, 2011, Ward Timber Ltd., et. al. filed a lawsuit in Travis County District Court, seeking judicial review of the Board's decision approving the Region C 2011 RWP.
- 5. On December 5, 2011, the District Court denied the Board's plea to the jurisdiction, declared that an interregional conflict existed between the Region C and Region D water plans, reversed the Board's approval of Region C's 2011 RWP, and remanded the case back to the Board to resolve the conflict.
- 6. On May 23, 2013, the 11th Court of Appeals of Texas, Eastland, affirmed the ruling of the District Court.
- 7. On December 16, 2013, in an attempt to negotiate a resolution to the conflict, the TWDB facilitated mediation for the Region C and D regional water planning groups. The mediation was conducted by the State Office of Administrative Hearings.
- 8. On December 17, 2013, the mediator reported the mediation as unsuccessful.
- 9. On March 4, 2014, the Executive Administrator issued a preliminary draft recommendation to resolve the conflict between the Region C and Region D 2011 RWPs.

- 10. After publishing notice in accordance with 31 TAC § 357.14, on April 29, 2014 a public hearing was held in Region C and on April 30, 2014, a public hearing was held in Region D during which the Executive Administrator received input from the public regarding the Executive Administrator's draft resolution of the conflict.
- 11. The Executive Administrator issued his final recommendation regarding resolution of the interregional conflict on May 19, 2014.
- 12. Regional water planning groups for Regions C and D submitted briefs to the Board on June 20, 2014 and reply briefs on July 7, 2014.
- On August 7, 2014, the Board heard comments from designated representatives from Regions C and D as well as from the Executive Administrator.
- 14. After consideration of the comments and all information submitted by the Executive Administrator and Regions C and D, the Board then issued an Interim Order in which Region C was ordered to conduct an analysis and quantification of the impacts of the Marvin Nichols Reservoir on the agricultural and natural resources of Region D and the State, pursuant to TWC §§ 16.051 and 16.053 and Title 31 Texas Administrative Code, Chapters 357 and 358. Region C was to submit this analysis and quantification to the Board by November 3, 2014.
- Region C submitted the analysis and quantification of the impacts of the Marvin Nichols Reservoir to the Board on October 29, 2014.
- 16. Region D submitted comments related to Region C's October 29, 2014, analysis and quantification on December 17, 2014. The Executive Administrator submitted a recommendation to the Board related to Region C's analysis and quantification on December 17, 2014.
- 17. The Board relies upon and adopts the information contained in the filings submitted for consideration in this matter as support for its ultimate determinations on resolution of this conflict, to the extent consistent with its decision.

Project Description and Cost

18. The Marvin Nichols Reservoir as proposed by Region C is to be located on the main stem of the Sulphur River Basin in Franklin, Titus, and Red River Counties, and entirely within the boundaries of Region D.

- 19. The Marvin Nichols Reservoir is a recommended water management strategy for Tarrant Regional Water District and North Texas Municipal Water District, and the Upper Trinity Regional Water District. It is an alternative strategy for Dallas Water Utilities and the City of Irving.
- 20. Region C indicates in its 2011 RWP that the capital cost of the Marvin Nichols Reservoir, including the primary delivery infrastructure, is approximately \$3.43 billion.
- 21. The cost per thousand gallons of water from the Marvin Nichols Reservoir will be approximately \$2.07 until the debt service is paid. Once the debt service is paid, the cost per thousand gallons of water will be reduced to approximately \$0.57.
- 22. The range of costs for other potentially feasible water management strategies for Region C vary between just over \$.50 to \$7.78 per thousand gallons.
- 23. As proposed, the current site for the Marvin Nichols Reservoir conflicts with existing cemeteries, electric lines, oil and gas pipelines, oil and gas wells, water wells and roads. Region C has estimated that 10 percent of the capital costs would be applied to address these issues.
- 24. The projected yield of the Marvin Nichols Reservoir is 612,300 acre-feet per year. Of this, 489,840 acre-feet per year will be allocated to Region C. Region D will be allocated 20 percent of the yield.
- 25. As noted in Region C's 2011 RWP, the division of the 489,840 acre-feet per year assumed to be available to Region C from the proposed Marvin Nichols Reservoir is:
 - a. 280,000 acre-feet per year for Tarrant Regional Water District;
 - b. 174,840 acre-feet per year for North Texas Municipal Water District; and
 - c. 35,000 acre-feet per year for Upper Trinity Regional Water District.

Public Health, Safety, and Welfare

- 26. Ensuring that municipal demands are met is a way to safeguard the public's health, safety, and welfare. Municipal demand includes potable water supply as well as sufficient supply for sanitation and fire protection. Municipal demand also includes the needs of residential, commercial, and institutional water users.
- 27. In 2006, 90.7 percent of the water use in Region C was directed for municipal purposes.

- 28. As shown in the Region C 2011 RWP, the supply from the Marvin Nichols Reservoir is an integral supply to Tarrant Regional Water District, North Texas Municipal Water District and Tarrant Regional Water District, each of which provide a large supply of its water for municipal demands.
- 29. Including the Marvin Nichols Reservoir in the Region C 2011 RWP as a recommended strategy will enable the Region to meet its projected municipal needs.

Furtherance of Economic Development

- 30. Timber is abundant and supports a large timber industry in Region D.
- 31. The development of a new reservoir in the Sulphur River Basin could act as a catalyst for economic development and growth in the area. New reservoirs may stimulate the economy through new recreational business and local improvements.
- 32. The Board Staff provides technical assistance to regional water planning groups. One aspect of the technical assistance is the development of the socio-economic impacts of failing to meet projected water needs. The Board Staff estimated that the annual economic value and income loss associated with the projected Region C potential water shortages in 2060, is over \$50 billion.

Protection of Natural Resources

- 33. Both Regions acknowledge that there are negative impacts to natural resources associated with the Reservoir.
- 34. The analysis and quantification submitted by Region C on October 29, 2014 relied on a 2013 report prepared by Freese and Nichols, Inc. for the United States Army Corps of Engineers.
- 35. The analysis and quantification provided by Region C on October 29, 2014, is based primarily on the area to be inundated by the Marvin Nichols Reservoir, which is a total of 66,103 acres.
- 36. The quantification of impacts to natural resources provided by Region C included a summary of the flow-frequency relationship for the Sulphur River immediately below the proposed Marvin Nichols Reservoir with and without the Reservoir.

- 37. It is estimated that the proposed Marvin Nichols Reservoir will inundate 5.2 percent of the forested wetlands, 2.4 percent of the bottomland hardwood forests, and 0.4 percent of the upland forests in Region D.
- 38. It is estimated that the proposed Marvin Nichols Reservoir would reduce flows discharging to bays, estuaries and arms of the Gulf of Mexico by approximately 670,000 acre-feet per year.
- 39. There are an estimated 5.973 million acres of bottomland hardwoods in Texas.
- 40. There are an estimated 831,838 acres of bottomland hardwoods in Region D.
- 41. The Marvin Nichols Reservoir as proposed would inundate 31,600 acres of bottomland hardwood.
- 42. Mitigation will be required to offset impacts of the Marvin Nichols Reservoir on natural resources, but the estimates of mitigation land are wide-ranging at this stage. The estimates for the required mitigation that have been provided to the Board at this time have been between approximately 47,000 and 749,000 acres.
- 43. In the counties in which the proposed Marvin Nichols Reservoir would be located, there are three federally endangered species, none of which are expected to be impacted by the Reservoir; and 21 species listed as threatened or endangered by the Texas Parks and Wildlife Department, three of which are considered to have moderate potential to be impacted by the Reservoir.
- 44. It is estimated that the proposed Marvin Nichols Reservoir will impact 34 sites that are likely eligible for the National Register of Historic Properties, and 18 sites that are not likely eligible for the National Register of Historic Properties.

Protection of Agricultural Resources

- 45. Of the approximately 66,000 acres of land to be inundated by the Marvin Nichols Reservoir, close to 43,000 acres are useful in the growth and harvesting of timber.
- 46. It is anticipated that mitigation land required for the Marvin Nichols Reservoir will be located in Region D and that farming and timbering activity on mitigation land will be prohibited or significantly restricted.
- 47. The inundation of the Marvin Nichols Reservoir will impact an estimated 1.6 percent of the total timberland in Region D.

48. As proposed, the Marvin Nichols Reservoir would inundate an estimated 0.76 percent of the prime farmland in Region D and an estimated 0.04 percent of the prime farmland in the state.

Water Conservation Practices and Drought Management Measures

- 49. Region C recommended water management strategies that are expected to reduce water use by 567,473 acre-feet by the year 2060.
- 50. The water conservation plans and drought contingency plans for the required entities in Region C were reviewed and updated in the 2011 Region C RWP.
- 51. Consistent with TWDB rules, both Region C and Region D included water management strategies in their RWPs that if built, would provide a greater supply than their projected demand.

Long-Term Protection of State's Water Resources

- 52. Region C's 2011 RWP is consistent with the long-term protection of the state's water resources, in part because the Region used the surface water availability models and groundwater availability models approved by the Texas Commission on Environmental Quality and the Board, the results of which were used to determine the amount of supply that could be allocated while still protecting the sustainability of the resource.
- 53. Region C undertook several studies to address the rapid population growth and other changing conditions in Region C. The results of those studies were incorporated into the development of the 2011 Region C RWP.

II. CONCLUSIONS OF LAW

- 1. The Board has jurisdiction over this matter pursuant to TWC § 16.053(h)(6), which states that the Board shall facilitate coordination between regions to resolve an interregional conflict, and if a conflict remains, the Board shall resolve the conflict.
- 2. The Board is required to approve RWPs pursuant to TWC §16.053.

- 3. The Board is required to prepare and adopt a comprehensive SWP that incorporates the RWP approved from each region under TWC § 16.051.
- 4. Pursuant to TWC § 16.053(h)(7), the Board may approve and incorporate a RWP only after determining that all interregional conflicts involving that regional planning area have been resolved; the plan includes water conservation practices and drought management measures; and the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources as embodied in the guidance principles adopted under TWC § 16.051(d).
- 5. The Board resolves this conflict pursuant to TWC § 16.053(h)(6) after following the procedures contained in the Board's rules.
- 6. There are no outstanding interregional conflicts related to the 2011 Region C RWP.
- 7. The Region C 2011 RWP together with the analysis and quantification submitted on October 29, 2014, meets the statutory requirements related to the Regional and State Water Plans under TWC §§ 16.051 and 16.053 as well as the Board's rules.
- The projected cost per thousand gallons of water from the Reservoir is reasonable under TWC §§ 16.051 and 16.053.
- 9. The public health, safety, and welfare of the state will be ensured, in part through the provision of water from the proposed Marvin Nichols Reservoir and therefore, including it in the 2011 RWP for Region C, complies with the requirements of TWC §§ 16.051 and 16.053.
- Region C has submitted a reasonable analysis and quantification of the impacts of the Reservoir on the agricultural and natural resources of Region D and the State, in accordance with TWC §§16.051 and 16.053.
- 11. Region C's 2011 RWP is consistent with the long-term protection of the state's agricultural and natural resources as provided for in TWC §16.053(h)(7)(C).
- 12. In reviewing a regional water plan, the Board must consider and balance the statutory criteria contained in TWC § 16.053.
- In accordance with TWC § 16.053(h)(7), the water conservation plans and drought contingency plans for the required entities in Region C were reviewed and updated in the 2011 Region C RWP.
- 14. Region C included a drought management plan in its 2011 RWP that met the requirements of TWC § 16.053(h)(7).

- Region C included reasonable and comprehensive water conservation practices in its
 2011 RWP and is therefore in compliance with TWC § 16.053(h)(7).
- 16. Pursuant to 31 TAC § 357.62, this Order is final and not appealable to the Board.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS WATER DEVELOPMENT BOARD, IN ACCORDANCE WITH THESE FINDINGS OF FACT AND CONCLUSIONS OF LAW THAT:

- The Region C Regional Water Planning Group shall revise, pursuant to TWC § 16.053(h)(6), Chapter 10 of its 2011 RWP, relating to the Plan Approval Process to reflect the mediation, this Board action, and other actions taken to effectuate this decision. Region C shall adopt the revisions and submit its revised RWP and supporting documents to the Board on or before March 20, 2015, for Board consideration.
- 2. The Region D regional water planning group shall revise, pursuant to TWC § 16.053(h)(6), its 2011 RWP by revising all references to a conflict to reflect that the conflict has been resolved, and to revise Chapter 10 of its 2011 RWP, relating to the Plan Approval Process, to reflect the mediation, this Board action, and other actions taken to effectuate this decision. Region D shall adopt the revisions and submit its revised RWP and supporting documents to the Board on or before March 20, 2015, for Board consideration.
- 3. The Executive Administrator is directed to undertake an examination of current rules and guidance pertaining to the development of regional water plans as well as an evaluation of Board staff's review process, and identify any opportunities for: completing a more substantive review of the plans; ensuring that future regional and state water planning efforts include all statutorily-required analyses; involving the Regional Water Planning Groups Stakeholder Committee in considering ways to identify potential conflicts and facilitate resolution early in the planning process; and defining "interregional conflict" in a manner that is consistent with the ruling of the 11th Court of Appeals in *Texas Water Development Board vs. Ward Timber, Ltd.*, 411 S.W.3d 554 (Tex. App.-Eastland 2013,

no pet.). Once the Executive Administrator has completed his review, the Executive Administrator will report back to the Board for further guidance.

- 4. The Region C and Region D regional water planning groups are encouraged to continue to participate in the Sulphur River Basin Study.
- 5. If any provision, sentence, clause, or phrase of this order is for any reason held to be invalid, the invalidity of any portion shall not affect the validity of the remaining portions of this order.
- 6. Authority is delegated to the General Counsel to make non-substantive changes to this order, as needed.

Issue Date: January 8, 2015

TEXAS WATER DEVELOPMENT BOARD

Carlos Rubinstein, Chairman

Public Hearing Notice
REGION C WATER PLANNING GROUP

- TO: Each mayor of a municipality with a population of 1,000 or more that is located in whole or in part in the Region C water planning area; each county judge of a county located in whole or in part in the Region C water planning area; each special or general law district or river authority with responsibility to manage or supply water in the Region C water planning area; each retail public utility that serves any part of the Region C water planning area; or receives water from the Region C water planning area; and each holder of record of a permit, certified filing, or certificate of adjudication for the use of surface water the diversion of which occurs in the Region C water planning area.
- FROM: Region C Water Planning Group
- RE: Public Notice of Public Hearing on Proposed Revisions to the 2011 Region C Water Plan
- DATE: January 27, 2015

PUBLIC NOTICE

To All Interested Parties:

Notice is hereby given that the Region C Water Planning Group will convene a <u>public hearing</u> pursuant to TEX. WATER CODE § 16.053 and as directed by an Order of the Texas Water Development Board (TWDB) issued on January 8, 2015. A copy of that Order may be found at https://www.twdb.texas.gov/home/tabs/doc/hot/twdb_order.pdf.

The Public Hearing Will Be Held:

FRIDAY, FEBRUARY 27, 2015 AT 1:00 P.M. BOB DUNCAN COMMUNITY CENTER 2800 SOUTH CENTER STREET ARLINGTON, TEXAS 76014

This public hearing is for the purpose of soliciting public comments on proposed revisions to the *2011 Region C Water Plan* that resolve an interregional conflict as described in the foregoing Order. A copy of the proposed revisions to the *2011 Region C Water Plan* may be found at http://www.regioncwater.org/Documents/Misc/Revision_to_2011_Region_C_Plan.pdf.

Questions relating to the public hearing or requests for additional information should be referred to J. Kevin Ward, Secretary/Administrator, at (817) 467-4343 or submitted in writing to the address listed below.

The Region C Water Planning Group will accept written and oral comments at the public hearing. All written public comments may be submitted to the RCWPG up to and including thirty (30) days prior to Friday, February 27, 2015, and should be submitted to:

J. KEVIN WARD RCWPG Secretary/Administrator c/o Trinity River Authority of Texas P.O. Box 60 Arlington, Texas 76004 Public Hearing Transcript



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MR. KEVIN WARD: Good afternoon. I am Kevin Ward, Secretary of the Region C Water Planning Group. I have heard from Chairman Puckett, and she is in transit and expected to arrive soon.

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(Meeting began at 1:05 p.m.)

As an officer I am able to open and conduct 6 7 this public hearing. So, I now officially open the public hearing. This hearing is for the purpose of 8 9 taking public comments on proposed revisions to the 2011 Region C Regional Water Plan. The revisions will 10 incorporate documentation of the resolution of the 11 conflict related to Marvin Nichols reservoir by the Texas 12 Water Development Board. 13

As of yet, there are no cards submitted by individuals wanting to make public comment. Is there anyone in attendance that desires to speak at this time? Hearing none, in consideration of the inclement weather and likelihood of travel delays, I will recess the meeting for approximately one hour to allow travelers to get here. The meeting is now in recess.

(Recess until 2:01 p.m.)
MS. JODY PUCKETT: I'm Jody Puckett. I am the
chair of the Region C Planning Group. We are opening or
reconvening the public hearing regarding revisions to the
2011 plan.

So from that regard, we're looking for people
to speak. We have a number of Region -- Region C
representatives here: Jody Puckett, Kevin Ward, Russell
Laughlin -- I think that's about it -- and some of our
consultations. So is there anyone that has signed up to
speak?

7 MALE SPEAKER: Ferris Bueller here? Ferris8 Bueller?

9 MS. JODY PUCKETT: So we don't have any
10 attendees signed up to speak. We do have representatives
11 from our consulting team.

So in light of the fact that I believe we've met our public hearing requirement, I'm going to close the public meeting and move our process along for revision to our plan, which is scheduled to be voted on, on March 2nd.

Thank you. The meeting is adjourned at 2:02 onFriday, February 27th. Thank you for coming.

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(Meeting adjourned.)

1	REPORTER'S CERTIFICATION
2	
3	I, Jennifer L. Sanders, Certified Shorthand
4	Reporter, certify that the foregoing is a correct
5	transcription from the audio recording of the proceedings
6	in the matter discussed made to the best of my abilities
7	due to the quality of the audio recording.
8	I further certify that I am neither counsel
9	for, related to, nor employed by any of the parties to
10	the action in which this audio recording was taken, and
11	further that I am not financially or otherwise interested
12	in the outcome of the action.
13	GIVEN UNDER MY HAND AND SEAL OF OFFICE on this
14	day of <u>March</u> , 2015.
15	
16	Spiller Sounderk
17	JENNIFER L. SANDERS, CSR No. 5091
18	MWA/REPORTERS
19	6440 N. Central Expressway
20	Dallas, Texas 75206
21	Fax: 214-363-7760
22	
23	
24	
25	

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Written Comment from Public on Revision to 2011 Region C Water Plan



Protecting the land and our quality of life.

February 27, 2014

J. Kevin Ward RCWPG Secretary/Administrator c/o Trinity River Authority of Texas P.O. Box 60 Arlington, Texas 76004

RE: Written Comments for Marvin Nichols Reservoir Public Hearing

Mr. Ward,

This letter is being sent by the staff of Connemara Conservancy to notify you of a potential impact to preserved lands within the proposed footprint of the Marvin Nichols Reservoir and to inform you of the terms for compensation should this tract of land be taken in whole or in part by eminent domain.

The footprint of the proposed Marvin Nichols Reservoir would detrimentally impact an existing 79-acre perpetual conservation easement tract located north of CR1915 in Titus County called the "Hearts Bluff Mitigation Tract." The easement property is owned by Bobby Lide as part of the Hearts Bluff Game Ranch. This mitigation site was chosen to set aside a piece of quality bottomland hardwood forest in the watershed of Oliver Creek and the Sulphur River.

This mitigation tract was established in 2008 as compensation for a 2004 crude oil spill, and is protected lands under requirements of federal and state laws outlining conservation easements, along with the state's July 24, 2007 Restoration Plan for this spill remediation. This conservation easement is filed in the Titus County Court House in the Deed Records as document 20080000905 (64 pages.) A scanned copy of this easement is also available in our office should you require the documentation.

Should this tract of land be unavoidably impacted by the reservoir development and those lands acquired from the private landowner by eminent domain, this conservation easement spells out the terms for termination of the easement. Such terms would require the mitigation for the loss of property on at least a 1:1 acreage basis or recovery of the full value of the interests in the property subject to the taking or in lieu purchase and all direct or incidental damages resulting from the taking or in lieu purchase. Compensation shall be by the method as is set forth in IRC Treasury Regulation Section 1.170A-14(g)(6)(ii). Compensation received shall be placed in a trust account for the purpose of conducting additional land preservation activities consistent with the goals of the Restoration Plan at the Property or at an alternative property.

Sincerely,

In ha Sronway

Sandra Greenway Executive Director

President Marcus J. Yarbrough

Board of Directors Gailon Brehm George Brown Chris Ebling Kirk Evans Joe Milkes Ross Obermeyer Scott White

Advisory Council Skip Barnett Charles Bell Elta Chandler Bill Dahlstrom John Dugdale Jim Eidson Pat McBride Amy Monier Scott Norris Robert Potts Carter Smith Carol Strain-Burk Matt White

Staff Sandra Greenway Executive Director

R.J. Taylor Conservation Director

Mailing Address: 1314 W McDermott Suite 106-812 Allen, Texas 75013

Phone: 469-200-4083

www.connemaraconservancy.org