

Texas Water Advisory Council



2004 Report



Texas Water Advisory Council

December 31, 2004

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of Agriculture

Commissioner
Jerry Patterson
General Land Office

Commissioner
Kathleen Hartnett White
Texas Commission on
Environmental Quality

Commissioner
Joseph Fitzsimons
Texas Parks and
Wildlife Commission

Jack Hunt
Texas Water
Development Board

James Box
Public Member
Groundwater

Manuel Ibanez
Public Member
Environment

Ruth Schiermeyer
Public Member
Surface Water

Unnamed
Public Member
Coastal Region

The Honorable Tom Craddick
Speaker, Texas House of Representatives
Texas State Capitol
Austin, Texas 78701

Dear Mr. Speaker:

The Texas Water Advisory Council hereby submits its report for 2004. This report includes findings and recommendations on charges you submitted pursuant to Chapter 9 Texas Water Code.

Respectfully submitted,

Robert Duncan
Chairman

Ken Armbrister

Kip Averitt

Robert Puente

Robert "Robby" Cook

Scott Campbell

Susan Combs

Jerry Patterson

Kathleen
Hartnett White

Jack Hunt

Joseph Fitzsimons

Ruth
Schiermeyer

James Box

Manuel Ibanez

cc:

The Honorable Governor Rick Perry
The Honorable Lieutenant Governor David Dewhurst

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History of the Texas Water Advisory Council

The Texas Water Advisory Council (TWAC) was created in Senate Bill 2 during the 77th Legislative Session. The TWAC was formed to heighten the level of dialogue on significant water policy issues between a diverse group of state leaders and strive to provide focus and recommendations on state water policy. From September 1, 2001 to December 2002, the TWAC held four quarterly meetings as required by statute. The TWAC issued its first report in December 2002.

Since that time, it became apparent that the TWAC needed more flexibility and more input from the Governor, Lieutenant Governor, and Speaker of the House of Representatives. At a meeting on April 11, 2003¹, the TWAC members decided to move forward with a legislative change that would alter the governing statute and meet the needed objectives.

In the 78th Regular Legislative Session, the Legislature passed House Bill 1378, which altered the governing statute for the TWAC². These revisions have benefited the TWAC and resulted in several positive changes. The two primary changes included:

1. The addition of one state senator, appointed by the Lieutenant Governor, and one public member from the coastal region, appointed by the Governor. These changes brought the total TWAC membership to 15 members.
2. The ability of the Governor, Lieutenant Governor, and Speaker of the House of Representatives to issue charges to the TWAC. The TWAC can also submit a list of charges to the Governor, Lieutenant Governor, and Speaker of the House of Representatives for approval.

Summary of Charges

On August 6, 2003, the TWAC received a letter from Speaker of the House Tom Craddick³, which charged the TWAC to look at four state water policy issues. The charges included:

1. Evaluate the status of projects and strategies proposed by regional water planning groups to meet water supply needs. Identify impediments to the implementation of recommended strategies contained in regional water plans throughout the state.
2. Monitor implementation of H.B. 803 which set procedures in place for municipalities to follow before condemnation of water resources could occur and stated that if surface land were condemned for the purpose of groundwater production, compensation must be provided for the groundwater rights.
3. Evaluate and explore alternatives to condemnation of water for municipal purposes such as voluntary purchase or lease of water rights.

¹ See minutes in Appendix A

² See Appendix E

³ See Appendix B

4. Evaluate impact of federal drinking water standards for naturally occurring materials such as radionuclides and arsenic on water systems. Work with TCEQ to determine costs of compliance for small water systems. Monitor TCEQ in their efforts to cooperate with small community water systems in regard to regulatory discretion and possible aide to help bring water systems into compliance with federal standards.

In 2004, the TWAC held meetings on March 29, June 7, and November 4⁴ to address the charges issued by Speaker Craddick. The TWAC received invited and public testimony on charges one and four. On charge one, the TWAC received invited testimony from the Texas Water Development Board (TWDB) and on charge four, the TWAC received invited testimony from the United States Environmental Protection Agency (EPA), the Texas Commission on Environmental Quality (TCEQ), the Texas Rural Water Association (TRWA), and the cities of Eden, Midland, Seminole, and Andrews.

After monitoring and researching charges two and three, the TWAC did not feel there were enough new developments since the passage of H.B. 803, during the 78th Legislative Session, to warrant a hearing. Therefore, testimony was not taken. The TWAC will continue to monitor this issue in the future.

Recommendations and Findings

1. As a result of the passage of Senate Bills 1 and 2 in 1997 and 2001 respectively, the Legislature created a regional water planning process with 16 regional water planning groups. Each regional water planning group was tasked with creating a regional water plan that would recommend how each region would meet its water needs of the next 50 years. The result was the creation of the State Water Plan, which was adopted by the TWDB in 2002. The regional planning group recommendations, and consequently the overall State Plan, is updated every five years with the next update coming in 2007.

While the State Water Plan does an excellent job of prescribing methods to meet state water needs over the next 50 years, there has been little progress towards implementing the plan, its recommended strategies, and projects within each region. The TWDB did, however, take a major step towards the implementation of the agricultural conservation portion of the plan as a result of the passage of SB 1053 during the 78th Regular Legislative Session. The TWDB committed \$10 million toward two agricultural demonstration projects. These pilot projects will serve as state of the art models for agricultural producers on how to obtain water savings while maintaining economic viability.

The TWAC fully supports the regional water planning process. However, after receiving testimony from the TWDB and researching this issue, the TWAC feels there are two immediate impediments to the implementation of projects and strategies contained in the regional water plans and consequently the State Water Plan.

⁴ See minutes in Appendix A

Financing of water infrastructure

Current levels of federal, state, and local dollars are not sufficient to address the funding needs identified and recommended for strategies and projects in the 2002 State Water Plan. The TWDB completed a study in October 2002, titled *Infrastructure Financing Report*, which further details these needs, and in 2004 the TWDB researched and outlined several funding options for the Legislature to consider in a report titled “*Funding Analysis of the State Role in Financing Texas’ Water Needs*” at the request of Senator Robert Duncan and Senator Ken Armbrister⁵. In addition, the Senate Select Committee on Water Policy also received testimony on this issue during the 78th interim and included information in its report.

During the 77th Legislature in 2001, an important provision of Senate Bill 2 was the creation of the Water Infrastructure Fund, which was designed for the purpose of funding implementation of the regional water plans. While the fund was successfully created, no source of revenue was dedicated for funding. The TWAC finds that all necessary water infrastructure financing accounts remain in place; however the lack of dedicated revenue remains, despite several unsuccessful attempts by the Legislature. The TWDB estimates that \$713.9 million is needed over the next six years to leverage the approximate \$3.0 billion needed for municipal and agricultural water supply, disadvantaged areas water treatment and distribution systems, and disadvantaged areas wastewater collection and treatment systems through 2011⁶.

The 2002 State Water Plan identified almost \$18 billion in water supply projects that will be needed to meet demands over the next 50 years. The TWAC recommends that the Legislature make a long-term investment in water and wastewater infrastructure and explore ways to provide resources to the Water Infrastructure Fund or some other financing vehicle. This would allow regional water planning groups, the TWDB, and communities to implement the strategies and projects in the State Water Plan and ensure a consistent water supply for the next 50 years.

Surface water transfers

The selection of strategies for the regional water plans and the State Water Plan will be affected by current statutory provisions relating to the movement of surface water to different river basins. These provisions can be an impediment to the consideration of efficient regional water plan strategies that rely on surface water from other basins. The TWAC believes regional planning groups should have the ability to consider these strategies, with ultimate implementation by the appropriate entities subject to the relevant statutory provisions, assuming they do not conflict with other regional water plans or harm water users in the originating basin.

In some regions, statutory provisions penalize surface water transfers from one region to another and cause inefficient water planning. Eventually, population growth and drought conditions may dictate whether the legislature authorizes surface water transfers with a preservation of the priority dates of the water rights transferred. Limitations on surface water transfers, in some instances, encourage water suppliers to pursue groundwater transfers, which are only regulated by statutory and regulatory limitations of local groundwater conservation districts, where existent. A sole reliance on groundwater transfers may result in unnecessary costs and could be less efficient than surface water

⁵ See Appendix H

⁶ See Appendix C

transfers. However, certain regions of the state depend solely on groundwater because of the lack of availability of surface water and do not have any other water supply options. The TWAC supports the conjunctive use of surface and ground water and recommends that the Legislature clarify that any conjunctive use projects gain priority for any future funding available from the Water Infrastructure Fund. Conjunctive use is the integration of surface and groundwater resources for the optimal use of those resources.

The TWAC encourages competing interests to negotiate a solution that integrates economic, environmental, and social benefits for its citizens. Such a solution should explore mechanisms to facilitate the voluntary conversion of existing water and water rights to provide for environmental protections.

The TWAC stands ready to evaluate and comment on any such solution and/or proposal, pursuant to the charge in Chapter 9 of the Texas Water Code ⁷.

2. According to testimony given before the TWAC, public and private water suppliers work towards a goal of sustaining and developing a safe potable water supply that their citizens and customers can afford, while providing and, hopefully, enhancing economic stability to their respective regions. Without an adequate supply and quality of water, a region, city, county, and community cannot survive.

The Safe Drinking Water Act (SDWA) defines the “primacy” relationship between the State of Texas and the EPA, whereby upon EPA’s determination that the State has adopted drinking water standards that are “no less stringent” than the national primary drinking water regulations, the State has primary enforcement authority with respect to each new or revised national primary drinking water standard. The TCEQ is the Texas state primacy agency for enforcement of the SDWA and is thus compelled by the EPA to adopt and enforce all SDWA national primary drinking water standards.

According to the TCEQ, ⁸ failure by the agency to adopt federal drinking water standards will result in the automatic withdrawal of the State’s primacy status, the result of which would amount to the loss of federal drinking water revolving funds in the amount of approximately \$65 million over a five-year period. However, this result is unlikely. Of the 49 states with primary enforcement responsibility to administer their drinking water programs (Wyoming is not a primacy state), EPA has never withdrawn primacy status from any of them because the federal agency views both withdrawing primacy and withdrawing funding as options of last resort. However, it is the TCEQ’s position that the State must comply with the established federal drinking water standards set forth and that it must hold public and private water suppliers in Texas to the same standards. On December 1, 2004, the TCEQ adopted final rules⁹ relative to more stringent federal drinking water standards for arsenic and radionuclides, both of which have been regulated by the State since the late 1970s.¹⁰ The TCEQ was required to adopt the new standards for radionuclides and arsenic by December 2004 and January 2005, respectively.

⁷ See Appendix E

⁸ See written testimony from the TCEQ in Appendix D

⁹ http://www.tnrc.state.tx.us/oprd/rule_lib/adoptions/04038290_adoCLEAN.pdf

¹⁰ See written testimony from the TCEQ in Appendix D

Arsenic and radionuclides are naturally-occurring in many groundwater sources throughout Texas and the entire United States. Public and private water suppliers, particularly those that do not have the ability to blend surface water with groundwater and/or do not have an alternative supply of water, are susceptible to having a more difficult time consistently meeting these federal drinking water standards on the whole.

The costs associated with meeting the federal drinking water standards are prohibitive, especially for mid-to-small size water suppliers. According to the TCEQ,¹¹ the statewide estimated capital costs for complying with the new arsenic and radionuclides standards are over \$450 million. This places a large affordability burden on both private and public water suppliers and water users. It could even lead to some water suppliers becoming insolvent, particularly in rural areas.

Due to the high costs of compliance associated with the adoption of the national primary drinking water standards for arsenic and radionuclides, water suppliers should be given maximum flexibility for achieving compliance with the standards. Accordingly, in its recent rulemaking on the arsenic and radionuclides federal drinking water standards,¹² the TCEQ offered affordable and practical compliance alternatives for small water systems under the rules. For example, with TCEQ approval, small water systems will have the option of utilizing federally-approved point-of-use and/or point-of-entry devices as treatment technologies for compliance with the arsenic and radionuclides drinking water standards. Furthermore, small water systems will also have the option of providing their customers bottled water, with TCEQ approval and on a temporary basis, in order to avoid an unreasonable risk to health. These options are particularly ideal where the implementation of long-term capital improvements to small water systems is not feasible.

With the new rulemaking package, the use of point-of-use and point-of-entry devices and bottled water is no longer automatically tied to the use of the Bilateral Compliance Agreements. According to the rule, these alternatives may be utilized with TCEQ approval. This change in the agency's procedure is critical as the effect of the Bilateral Compliance Agreements was to keep the water supplier that signed it in a noncompliant status. Even though the agency still has the option of using the Bilateral Compliance Agreements, the TWAC recommends that the agreements cease to be utilized in order to achieve maximum flexibility for small systems' compliance with the federal drinking water standards.

Water suppliers that are making capital improvements to their water systems should also be allowed an adequate period of time by the TCEQ to implement any changes to their capital structures and compliance measures in order to satisfy the federal drinking water standards. This would allow water suppliers to work with state and federal agencies and elected officials to locate potential grant and/or loan assistance, amortize capital costs, focus on operation and maintenance, and better manage limited public and/or private resources.

While cost estimates have been completed for capital improvements to water systems, there needs to be an accurate and continual assessment of the costs associated with the disposal of the residuals derived from the removal of contaminants in a water supply and whether or not water suppliers can afford these additional costs as part of their efforts to achieve compliance. It should also be the policy of the TCEQ to provide the methodology by which the agency determines whether compliance

¹¹ See written testimony from the TCEQ in Appendix D.

¹² http://www.tnrcc.state.tx.us/oprd/rule_lib/adoptions/04038290_adoCLEAN.pdf

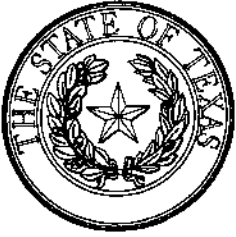
is affordable for each system. This would assist water suppliers in evaluating their plans for compliance strategies that might be needed.

Water users, customers, and affected communities should continue to be notified of drinking water safety concerns related to abnormal levels of naturally-occurring arsenic and radionuclides. However, such notification should be provided in a factual presentation that relates both the extent of the concern and the various unknowns as to the underlying health-related information.

Issues Recommended For Further Study

During the review of the charges, the TWAC heard testimony on other related issues that could impact the State Water Plan and water policy in Texas. The TWAC recommends further study on the following issues: Certificates of Convenience and Necessity (CCNs), the regulatory process within the U.S. Army Corps of Engineers to create mitigation banks to restore and enhance wetlands, surface and ground water rights, State-Federal relations on water funding and policy, and the use of free market initiatives to create and enhance a viable water market in Texas to protect environmental flows.

APPENDIX A



Texas Water Advisory Council

REVISED

AGENDA

March 29, 2004

8:30 a.m.

Room E1.028 Capitol Extension

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of Agriculture

Commissioner
Jerry Patterson
General Land Office

Commissioner
Kathleen Hartnett White
Texas Commission on
Environmental Quality

Commissioner
Joseph Fitzsimons
Texas Parks and
Wildlife Commission

Jack Hunt
Texas Water
Development Board

James Box
Public Member
Groundwater

Manuel Ibanez
Public Member
Environment

Ruth Schiermeyer
Public Member
Surface Water

Unnamed
Public Member
Coastal Region

- I. Call to order
- II. Council business
- III. Election of Chairman
- IV. Briefing on legislative interim activities
-Chairman Ken Armbrister
-Chairman Robert Puente
- V. Update on implementation of TWAC section of HB 1378
- VI. Discussion of charges and plan of action
- VII. Public comment
- VIII. Recess



Texas Water Advisory Council

MINUTES

March 29, 2004

Room E1.028 Capitol Extension
Austin, Texas

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of
Agriculture

Commissioner
Jerry Patterson
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Kathleen Hartnett White
Texas Commission on
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Joseph Fitzsimons
Texas Parks and
Wildlife Commission

Jack Hunt
Texas Water
Development Board

James Box
Public Member
Groundwater

Manuel Ibanez
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Environment

Ruth Schiermeyer
Public Member
Surface Water

Unnamed
Public Member
Coastal Region

Pursuant to a notice posted in accordance with the Texas Government Code, Section 551.041, a public meeting of the Texas Water Advisory Council was held on March 29, 2004 in Room E1.028 of the Capitol Extension.

Members present: Senator Robert Duncan, Senator Ken Armbrister, Commissioner Kathleen Hartnett White, Commissioner Susan Combs, Manuel Ibanez, Jack Hunt, Commissioner Joseph Fitzsimons, Commissioner Jerry Patterson, Representative Robert Puente, Ruth Schiermeyer, James Box, Senator Kip Averitt, Representative Scott Campbell

Member absent: Representative Robert "Robby" Cook

Chairman Duncan called the meeting to order at 8:35 a.m.

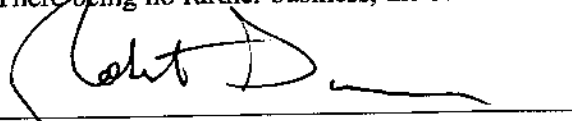
The council adopted minutes from TWAC meetings held on November 18, 2002 and April 11, 2003.

The council elected Senator Robert Duncan to be Chairman pursuant to Chapter 9 of Texas Water Code by a vote of 11 ayes, 0 nays, and 1 withstaining (Senator Duncan). Senator Duncan will serve a two-year term starting March 29, 2004.


The council agreed to have two future meetings regarding charges issued by Speaker Craddick.

Chairman Duncan advised council members to submit names of people to testify on the charges issued by Speaker Craddick at future meetings. Chairman Duncan also advised council members to submit possible charges and the Chair would submit those for approval to the Governor, Lieutenant Governor, and Speaker of the House Representatives.

There being no further business, the council stood recessed subject to call of the Chair.



Senator Robert Duncan, Chairman



Jason Skaggs, Clerk



Texas Water Advisory Council

AGENDA

June 7, 2004

9:30 a.m.

Room E1.012 Capitol Extension

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of Agriculture

Commissioner
Jerry Patterson
General Land Office

Commissioner
Kathleen Hartnett White
Texas Commission on
Environmental Quality

Commissioner
Joseph Fitzsimons
Texas Parks and
Wildlife Commission

Jack Hunt
Texas Water
Development Board

James Box
Public Member
Groundwater

Manuel Ibanez
Public Member
Environment

Ruth Schiermeyer
Public Member
Surface Water

Unnamed
Public Member
Coastal Region

I. Call to order

II. Council business

III. Invited testimony

Council charge relating to regional water planning

Bill Mullican - Texas Water Development Board

Council charge relating to federal drinking water standards

Tom Poeten - United States Environmental Protection Agency

Tony Bennett - Texas Commission on Environmental Quality

Ken Petersen - Texas Rural Water Association

Municipal Panel:

Genora Young - City of Eden

Kay Snyder - City of Midland

Tommy Phillips - City of Seminole

Glen Hackler/Larry Fleming - City of Andrews

IV. Public comment

V. Recess



Texas Water Advisory Council

MINUTES

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of
Agriculture

Commissioner
Jerry Patterson
General Land Office

Commissioner
Kathleen Hartnett White
Texas Commission on
Environmental Quality

Commissioner
Joseph Fitzsimons
Texas Parks and
Wildlife Commission

Jack Hunt
Texas Water
Development Board

James Box
Public Member
Groundwater

Manuel Ibanez
Public Member
Environment

Ruth Schiermeyer
Public Member
Surface Water

Unnamed
Public Member
Coastal Region

June 7, 2004

Room E1.012 Capitol Extension
Austin, Texas

Pursuant to a notice posted in accordance with the Texas Government Code, Section 551.041, a public meeting of the Texas Water Advisory Council was held on June 7, 2004 in Room E1.012 of the Capitol Extension.

Members present: Senator Robert Duncan, Representative Robert "Robby" Cook, Commissioner Kathleen Hartnett White, Commissioner Susan Combs, Jack Hunt, Commissioner Joseph Fitzsimons, Commissioner Jerry Patterson, Representative Robert Puente, Ruth Schiermeyer, James Box, Senator Kip Averitt, Representative Scott Campbell

Members absent: Senator Ken Armbrister, Manuel Ibanez

Chairman Duncan called the meeting to order at 9:35 a.m.

The council adopted minutes from the TWAC meeting held on March 29, 2004.

The council heard testimony from the following individuals on charges issued by Speaker Craddick:

Council charge relating to regional water planning
Bill Mullican - Texas Water Development Board

Council charge relating to federal drinking water standards

Tom Poeten - United States Environmental Protection Agency

Tony Bennett - Texas Commission on Environmental Quality

Ken Petersen - Texas Rural Water Association

Municipal Panel:

Genora Young - City of Eden, Texas

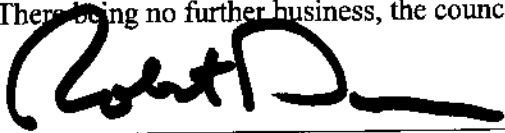
Kay Snyder - City of Midland, Texas

Tommy Phillips - City of Seminole, Texas

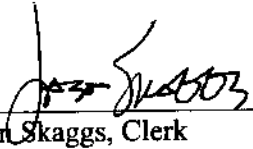
Larry Fleming - City of Andrews, Texas

Chairman Duncan advised council members to submit a letter to the Chair on ideas for further discussion and possible meetings on the council's charge relating to regional water planning.

There being no further business, the council stood recessed subject to call of the Chair at 12:03 p.m.

A large, stylized handwritten signature in black ink, appearing to read "Robert Duncan", written over a horizontal line.

Senator Robert Duncan, Chairman

A smaller, stylized handwritten signature in black ink, appearing to read "Jason Skaggs", written over a horizontal line.

Jason Skaggs, Clerk



Texas Water Advisory Council

AGENDA

November 4, 2004

1:00 p.m.

Room E1.012 Capitol Extension

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of Agriculture

Commissioner
Jerry Patterson
General Land Office

Commissioner
Kathleen Harnett White
Texas Commission on
Environmental Quality

Commissioner
Joseph Fitzsimons
Texas Parks and
Wildlife Commission

Jack Hunt
Texas Water
Development Board

James Box
Public Member
Groundwater

Manuel Ibanez
Public Member
Environment

Ruth Schiermeyer
Public Member
Surface Water

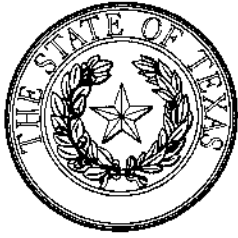
Unnamed
Public Member
Coastal Region

- I. Call to order
- II. Council business
- III. Discuss draft report
- IV. Invited testimony

Council charge relating to regional water planning

- **Bill Mullican - TWDB**
Status of the regional water planning process and impediments to the implementation of recommended strategies contained in regional water plans throughout the state
- **Doug Holcomb - TCEQ**
Presentation on issues related to Certificates of Convenience and Necessity (CCNs) for water and sewer services issued by the TCEQ
- **Jorge Arroyo - TWDB**
Status of three desalination projects and their relationship to the regional water planning process

- V. Public comment
- VI. Recess



Texas Water Advisory Council

MINUTES

November 4, 2004
Room E1.012 Capitol Extension
Austin, Texas

Pursuant to a notice posted in accordance with the Texas Government Code, Section 551.041, a public meeting of the Texas Water Advisory Council was held on November 4, 2004 in Room E1.012 of the Capitol Extension.

Members present: Senator Ken Armbrister, Representative Robert "Robby" Cook, Commissioner Susan Combs, Jack Hunt, Commissioner Joseph Fitzsimons, Commissioner Jerry Patterson, Representative Robert Puente, Ruth Schiermeyer, James Box, Senator Kip Averitt, and Representative Scott Campbell

Members absent: Senator Robert Duncan, Commissioner Kathleen Hartnett White, Manuel Ibanez

Due to a conflict, Chairman Duncan was unable to attend. Therefore, Senator Armbrister acted as chairman and called the meeting to order at 1:08 p.m.

The council adopted minutes from the TWAC meeting held on June 7, 2004.

The council heard invited testimony from the following individuals on a charge issued by Speaker Craddick:

Council charge relating to regional water planning

Bill Mullican - TWDB

Status of the regional water planning process and impediments to the implementation of recommended strategies contained in regional water plans throughout the state

Doug Holcomb - TCEQ

Presentation on issues related to Certificates of Convenience and Necessity (CCNs) for water and sewer services issued by the TCEQ

Jorge Arroyo - TWDB

Status of three desalination projects and their relationship to the regional water planning process

Senator Robert Duncan
Chairman

Senator Ken Armbrister

Senator Kip Averitt

Representative
Robert "Robby" Cook

Representative
Scott Campbell

Representative
Robert Puente

Commissioner
Susan Combs
Department of
Agriculture

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Texas Commission on
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Surface Water

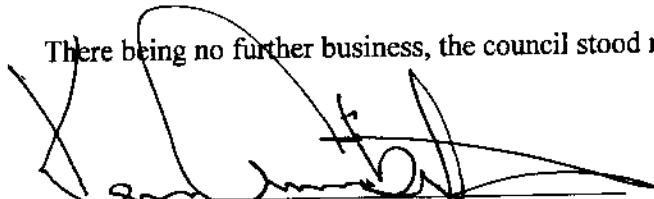
Unnamed
Public Member
Coastal Region

The Council also heard public testimony on the CCN issue from:

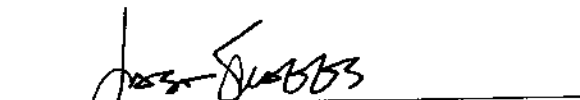
Mr. Joe B. Allen, representing himself
Mr. Ken Petersen, representing Texas Rural Water Association
Mr. David K. Langford, representing the Texas Wildlife Association
Mr. Steve Kosub, representing San Antonio Water System
Mr. Bryan Daniel, representing United States Department of Agriculture-Rural Development

Acting-Chairman Armbrister advised council members that a draft report was given to them for review and that additional information would be added to reflect testimony presented at this meeting. Acting-Chairman Armbrister also indicated that comments would be accepted on the draft report and that the report deadline was December 31, 2004.

There being no further business, the council stood recessed subject to call of the Chair at 4:03 p.m.



Senator Ken Armbrister, Acting-Chairman



Jason Skaggs, Clerk

APPENDIX B



TEXAS HOUSE OF REPRESENTATIVES

TOM CRADDICK
SPEAKER

August 6, 2003

HAND-DELIVER

The Honorable Robert L. Duncan, Chair
Texas Water Advisory Council
State Capitol, Room 3E.12

Dear Senator Duncan:

Pursuant to Texas Water Code, Sec. 9.008, as adopted in House Bill 1378 during the 78th Regular Session permitting the Speaker of the House to issue charges to the Texas Water Advisory Council on state water issues, I recommend that the Council undertake the following:

- Evaluate the status of projects and strategies proposed by regional water planning groups to meet water supply needs. Identify impediments to the implementation of recommended strategies contained in regional water plans throughout the state.
- Monitor implementation of H.B. 803 which set procedures in place for municipalities to follow before condemnation of water resources could occur and stated that if surface land were condemned for the purpose of groundwater production, compensation must be provided for the groundwater rights.
- Evaluate and explore alternatives to condemnation of water for municipal purposes such as voluntary purchase or lease of water rights.
- Evaluate impact of federal drinking water standards for naturally occurring materials such as radionuclides and arsenic on water systems. Work with TCEQ to determine costs of compliance for small water systems. Monitor TCEQ in their efforts to cooperate with

The Honorable Robert Duncan
August 6, 2003
Page Two

small community water systems in regard to regulatory discretion and possible aide to help bring water systems into compliance with federal standards.

I will look forward to the Council's recommendations, as appropriate, based on these charges.

Sincerely,



TOM CRADDICK
Speaker

TC/nfc

cc: The Honorable Robert Puente, Chair, House Committee on Natural Resources
The Honorable Ken Armbrister, Chair, Senate Committee on Natural Resources

APPENDIX C

**Written Testimony of William F. Mullican III,
Deputy Executive Administrator for the Office of Planning at the
Texas Water Development Board
November 4, 2004**

Good afternoon Mr. Chairman and members of the Council. Today I have been asked to respond to two questions related to ensuring the future water supplies of Texas. The first question is what are the impediments to the implementation of recommended strategies contained in regional water plans throughout the state.

The greatest and most urgent impediment to implementation of the 2002 State Water Plan is the cost and finding adequate resources to pay for the strategies and projects recommended to meet future water supply needs. Current levels of federal, state and local dollars are not sufficient to address the needs identified in the 2002 State Water Plan.

Texas will require significant investment in its water infrastructure over the next 50 years if we are to meet our water supply needs. While local and regional entities can generally finance most of the needed internal systems to treat and distribute water, or to collect and treat wastewater, state financial assistance is crucial to provide:

- Municipal water supply;
- Agricultural water supply, primarily through conservation; and
- Disadvantaged areas water treatment and distribution systems, and wastewater collection and treatment systems.

The Texas Water Development Board (TWDB) estimates that a state investment of \$713.9 million over the next six years (average of \$119 million per year) would leverage the \$3.0 billion required through 2011 for these purposes.

- \$506 million over the next six years (average of \$84.3 million per year) would leverage the \$2.4 billion required through 2011 in state assistance for municipal water supply needs;
- \$67.7 million over the next six years (average of \$11.3 million per year) would leverage the \$133 million required through 2011 in state assistance for agricultural water; and
- \$140.2 million over the next six years (average of \$23.4 million per year) would leverage \$462 million in assistance through 2011 for disadvantaged infrastructure needs. While this does not take care of the total *immediate* needs of these disadvantaged areas (estimated at \$4.8 billion), the funds would be expected to leverage other resources, and also represents what TWDB expects can realistically be administered over this time period.

The legislature has given the TWDB a wide range of programs that can provide this assistance. However, the most crucial assistance will require a state subsidy to be effective, and a dedicated revenue source to provide for this subsidized financing.

Another major impediment to implementation of the 2002 State Water Plan is related to interbasin transfers (IBTs). Under current law, the priority date for an interbasin transfer based on the amendment of an existing water right to include the IBT is "junior" (i.e., later in time) to all rights granted before the time the application to a surface water right to include the IBT. This statutory provision essentially precludes the pursuit of an IBT strategy due to the impact on yield that the junior priority date will effect. Moreover, the statute imposes significant additional procedural and evidentiary requirements on the permitting of an IBT.

The IBT issue is a significant impediment for large metropolitan areas such as San Antonio, the Dallas-Ft. Worth metroplex and Houston, all of which are currently, or in the future will be, largely dependent on surface water transfers to meet current needs and for future growth and development.

The changes to IBT requirements as discussed above may explain at least in part the shift in emphasis to a focus on groundwater transfers. The transfer of groundwater supplies across basin boundaries or otherwise, in contrast to surface water, is not subject to any statutory requirements. In addition, Senate Bill 1 recognized local groundwater conservation districts rather than the state as the preferred method of regulating groundwater use. The threat of groundwater transfers has caused a large number of counties and in some instances groups of counties to form groundwater conservation districts to enable the regulation of groundwater transfers. Presently there are 87 confirmed or pending confirmation groundwater conservation districts, of which 41 were created since passage of Senate Bill 1.

Only three groundwater transfers were adopted as water management strategies in the 2001 regional water plans, and those were all by the Far West Texas Regional Water Planning Group. It is anticipated that this number will increase in the next regional water plans, at least in part due to the challenges of obtaining an IBT for surface water.

More recently, water suppliers may now face a relatively new impediment to implementing strategies in the State Water Plan. The U.S. Army Corps of Engineers (USACE) regulates a process to create mitigation banks to restore and enhance wetlands. The bank can then be used by land developers and other to buy credit to offset wetlands damage caused by development projects. In October, the USACE published notice soliciting public comments for the proposed Hearts Bluff Mitigation Bank. If approved, Hearts Bluff will be a mitigation bank operating in the impoundment area of the site proposed for Marvin Nichols Reservoir. While the law is not entirely clear on the implications of USACE granting the permit, all indications are the mitigation bank would prevent the construction of Marvin Nichols Reservoir by local sponsors in the Dallas-Fort Worth metroplex.

A review of the USACE guidelines of developing mitigation banks reveals any landowners with land along navigable waters can file an application to create a mitigation bank. This has the potential of preventing any new reservoirs in the state. While mitigation banking is important to the environment, water providers must be able to work with USACE to develop mitigation banking sites in a fashion that does not eliminate the state's ability to develop needed water resources.

The next question relates to the role that Regional Water Planning Groups have in amending the state water plan.

Currently, the TWDB is working on a proposal to streamline the regional water plan amendment process. After the initial plans were approved in 2001, the TWDB had to ensure that projects for financial assistance addressed needs in a manner consistent with applicable regional water plans. There have been a few projects however that Regional Water Planning Group (Planning Group) members believed were appropriate but that could not proceed because their regional water plans did not adequately address water management strategies to encompass the proposed project.

As a result of the TWDB's experience since approving the first round of regional water plans, the TWDB is developing a proposal for legislative consideration that will permit Planning Groups to put minor amendments on a fast track through an expedited notification process in order to avoid harming applicants for financial assistance and to save resources dedicated to water planning efforts. The administrative costs of amending a regional water plan can be as high as \$15,000. If an amendment were merely a minor change to the plan, the TWDB proposes to minimize the time and costs associated with amending regional water plans

APPENDIX D



Understanding the Safe Drinking Water Act

SAFE DRINKING WATER ACT • CELEBRATING 25 YEARS • PROTECT OUR HEALTH FROM SOURCE TO TAP

Overview:

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources – rivers, lakes, reservoirs, springs, and ground water wells. (SDWA does not regulate private wells which serve fewer than 25 individuals.) SDWA authorizes the United States Environmental Protection Agency (USEPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. USEPA, states, and water systems then work together to make sure that these standards are met.

Millions of Americans receive high quality drinking water every day from their public water systems, (which may be publicly or privately owned). Nonetheless, drinking water safety cannot be taken for granted. There are a number of threats to drinking water: improperly disposed of chemicals; animal wastes; pesticides; human wastes; wastes injected deep underground; and naturally-occurring substances can all contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or which travels through an improperly maintained distribution system, may also pose a health risk.

Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap.

Roles and Responsibilities:

SDWA applies to every public water system in the United States. There are currently more than 170,000 public water systems providing water to almost all Americans at some time in their lives. The responsibility for making sure these public water systems provide safe drinking water is divided among USEPA, states, tribes, water systems, and the public. SDWA provides a framework in which these parties work together to protect this valuable resource.

USEPA sets national standards for drinking water based on sound science to protect against health risks, considering available technology and costs. These National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water or required ways to treat water to remove contaminants. Each standard also includes re-

...of public water systems...
...connection...
...standards...
...community water system...
...non-transient non-community water system...
...transient non-community water system...

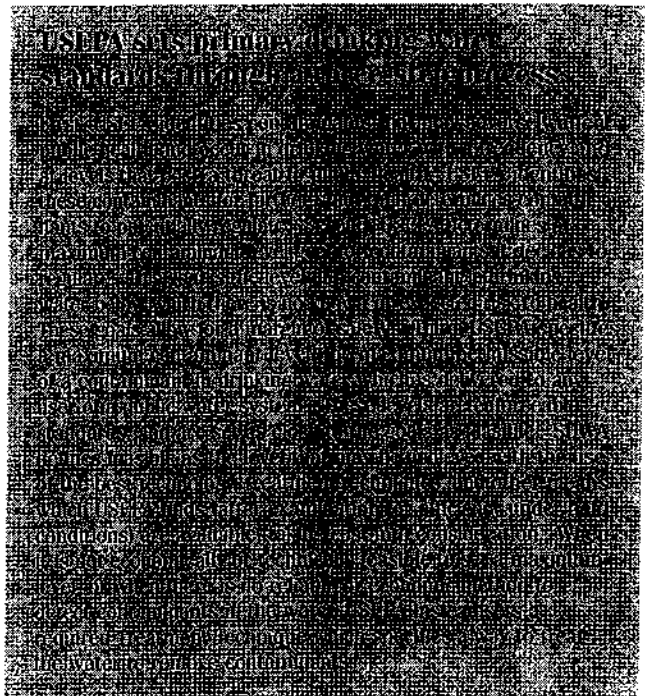
quirements for water systems to test for contaminants in the water to make sure standards are achieved. In addition to setting these standards, USEPA provides guidance, assistance, and public information about drinking water, collects drinking water data, and oversees state drinking water programs.

The most direct oversight of water systems is conducted by state drinking water programs. States can apply to USEPA for "primacy," the authority to implement SDWA within their jurisdictions, if they can show that they will adopt standards at least as stringent as USEPA's and make sure water systems meet these standards. All states and territories, except Wyoming and the District of Columbia, have received primacy. While no Indian tribe has yet applied for and received primacy, four tribes currently receive "treatment as a state" status, and are eligible for primacy. States, or USEPA acting as a primacy agent, make sure water systems test for contaminants, review plans for water system improvements, conduct on-site inspections and sanitary surveys, provide training and technical assistance, and take action against water systems not meeting standards.

To ensure that drinking water is safe, SDWA sets up multiple barriers against pollution. These barriers include: source water protection, treatment, distribution system integrity, and public information. Public water systems are responsible for ensuring that contaminants in tap water do not exceed the standards. Water systems treat the water, and must test their water frequently for specified contaminants and report the results to states. If a water system is not meeting these standards, it is the water supplier's responsibility to notify its customers. Many water suppliers now are also required to prepare annual reports for their customers. The public is responsible for helping local water suppliers to set priorities, make decisions on funding and system improvements, and establish programs to protect drinking water sources. Water systems across the nation rely on citizen advisory committees, rate boards, volunteers, and civic leaders to actively protect this resource in every community in America.

Protection and Prevention:

Essential components of safe drinking water include protection and prevention. States and water suppliers must conduct assessments of water sources to see where they may be vulnerable to contamination. Water systems may also voluntarily adopt programs to protect their watershed or wellhead and states can use legal authorities from other laws to prevent pollution. SDWA mandates that states have programs to certify



water system operators and make sure that new water systems have the technical, financial, and managerial capacity to provide safe drinking water.

SDWA also sets a framework for the Underground Injection Control (UIC) program to control the injection of wastes into ground water. USEPA and states implement the UIC program, which sets standards for safe waste injection practices and bans certain types of injection altogether. All of these programs help prevent the contamination of drinking water.

Setting National Drinking Water Standards:

USEPA sets national standards for tap water which help ensure consistent quality in our nation's water supply. USEPA prioritizes contaminants for potential regulation based on risk and how often they occur in water supplies. (To aid in this effort, certain water systems monitor for the presence of contaminants for which no national standards currently exist and collect information on their occurrence). USEPA sets a health goal based on risk (including risks to the most sensitive people, e.g., infants, children, pregnant women, the elderly, and the immuno-compromised). USEPA then sets a legal limit for the contaminant in drinking water or a required treatment technique – this limit or treatment technique is set to be as close to the health goal as feasible. USEPA also performs a cost-benefit analysis and obtains input from interested parties when setting standards. USEPA is currently evaluating the risks from several specific health concerns, including:

microbial contaminants (e.g., *Cryptosporidium*); the byproducts of drinking water disinfection; radon; arsenic; and water systems that don't currently disinfect their water but get it from a potentially vulnerable ground water source.

Funding and Assistance:

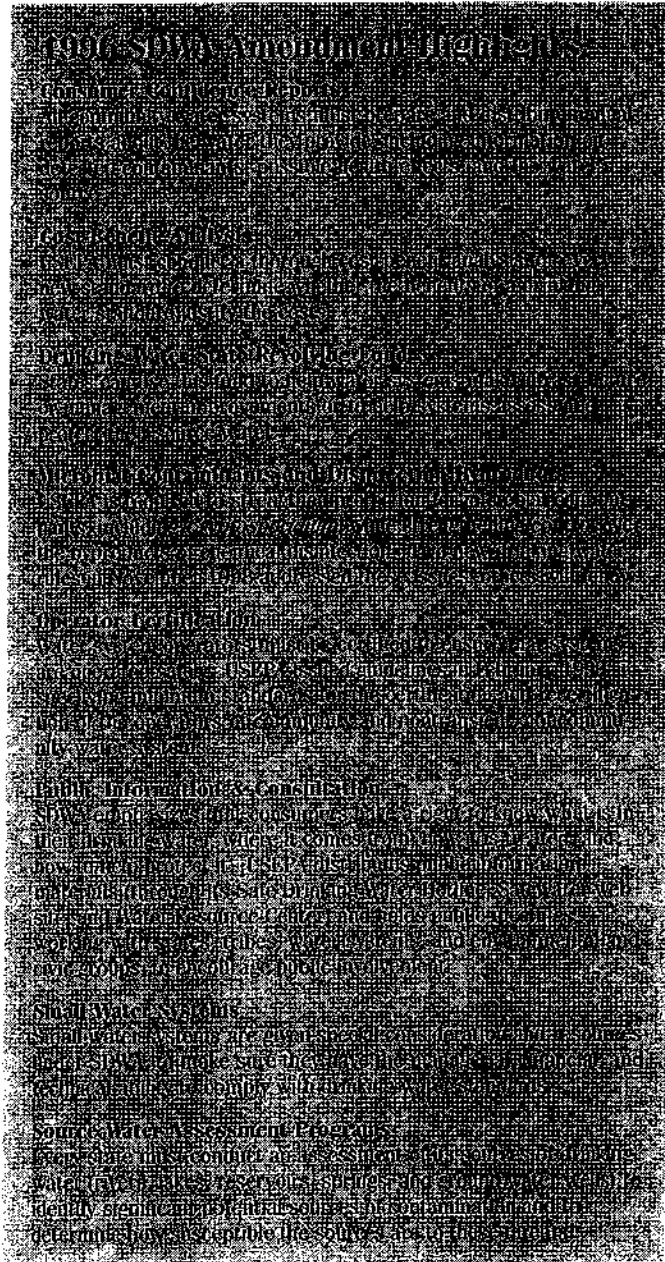
USEPA provides grants to implement state drinking water programs, and to help each state set up a special fund to assist public water systems in financing the costs of improvements (called the drinking water state revolving fund). Small water systems are given special consideration, since small systems may have a more difficult time paying for system improvements due to their smaller customer base. Accordingly, USEPA and states provide them with extra assistance (including training and funding) as well as allowing, on a case-by-case basis, alternate water treatments that are less expensive, but still protective of public health.

Compliance and Enforcement:

National drinking water standards are legally enforceable, which means that both USEPA and states can take enforcement actions against water systems not meeting safety standards. USEPA and states may issue administrative orders, take legal actions, or fine utilities. USEPA and states also work to increase water systems' understanding of, and compliance with, standards.

Public Information:

SDWA recognizes that since everyone drinks water, everyone has the right to know what's in it and where it comes from. All water suppliers must notify consumers quickly when there is a serious problem with water quality. Water systems serving the same people year-round must provide annual consumer confidence reports on the source and quality of their tap water. States and USEPA must prepare annual summary reports of water system compliance with drinking water safety standards and make these reports available to the public. The public must have a chance to be involved in developing source water assessment programs, state plans to use drinking water state revolving loan funds, state capacity development plans, and state operator certification programs.



For More Information:

To learn more about the Safe Drinking Water Act or drinking water in general, call the Safe Drinking Water Hotline at **1-800-426-4791**, or visit USEPA's Office of Ground Water and Drinking Water web site: <http://www.epa.gov/safewater/>.



Radionuclides Rule: A Quick Reference Guide

Overview of the Rule

Title	Radionuclides Rule 66 FR 76708 December 7, 2000 Vol. 65, No. 236
Purpose	Reducing the exposure to radionuclides in drinking water will reduce the risk of cancer. This rule will also improve public health protection by reducing exposure to all radionuclides.
General Description	The rule retains the existing MCLs for combined radium-226 and radium-228, gross alpha particle radioactivity, and beta particle and photon activity. The rule regulates uranium for the first time.
Utilities Covered	Community water systems, all size categories.

Public Health Benefits

Implementation of the Radionuclides Rule will result in . . .	Reduced uranium exposure for 620,000 persons, protection from toxic kidney effects of uranium, and a reduced risk of cancer.
Estimated impacts of the Radionuclides Rule include . . .	Annual compliance costs of \$81 million. Only 795 systems will have to install treatment.

Regulated Contaminants

Regulated Radionuclide	MCL	MCLG
Beta/photon emitters*	4 mrem/yr	0
Gross alpha particle	15 pCi/L	0
Combined radium-226/228	5 pCi/L	0
Uranium	30 µg/L	0

*A total of 168 individual beta particle and photon emitters may be used to calculate compliance with the MCL.

Critical Deadlines & Requirements

For Drinking Water Systems

June 2000 - December 8, 2003	When allowed by the State, data collected between these dates may be eligible for use as grandfathered data (excluding beta particle and photon emitters).
December 8, 2003	Systems begin initial monitoring under State-specified monitoring plan unless the State permits use of grandfathered data.
December 31, 2007	All systems must complete initial monitoring.

For States

December 2000 - December 2003	States work with systems to establish monitoring schedules.
December 8, 2000	States should begin to update vulnerability assessments for beta photon and particle emitters and notify systems of monitoring requirements.
Spring 2001	EPA meets and works with States to explain new rules and requirements and to initiate adoption and implementation activities.
December 8, 2002	State submits primacy revision application to EPA. (EPA approves within 90 days.)



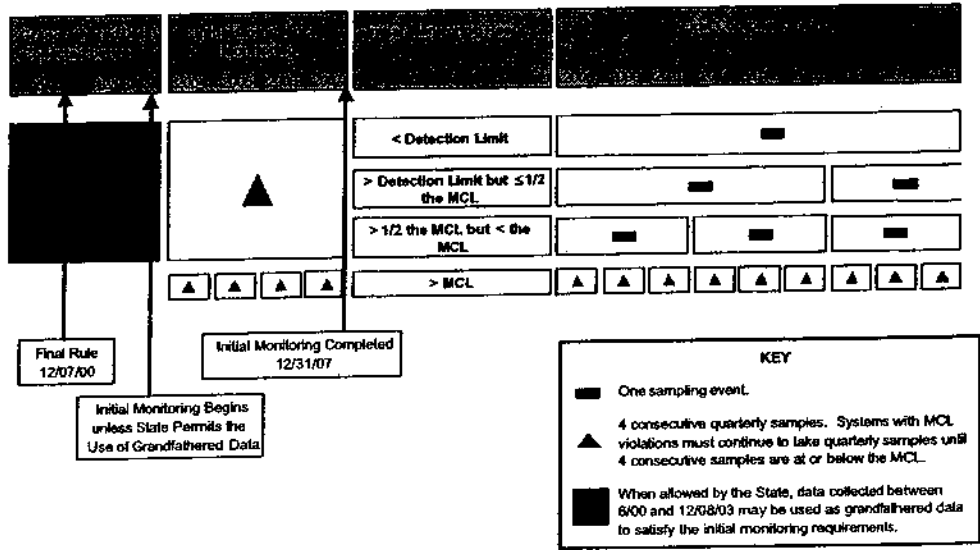
Monitoring Requirements

<p>5/15/03: Alpha, Gamma, and Radon in Groundwater</p> <p>5/15/03: Beta Particle and Photon (Rad) in Drinking Water</p>	<p>For collecting quarterly samples of radionuclides in groundwater, the following are required:</p> <p>1. A minimum of 4 consecutive quarterly samples.</p> <p>2. A minimum of 4 consecutive quarterly samples.</p> <p>3. A minimum of 4 consecutive quarterly samples.</p>
<p>Required Monitoring</p> <p>Initial monitoring of radionuclides in groundwater shall be conducted in accordance with the following requirements:</p> <p>1. A minimum of 4 consecutive quarterly samples.</p> <p>2. A minimum of 4 consecutive quarterly samples.</p> <p>3. A minimum of 4 consecutive quarterly samples.</p>	<p>Initial monitoring of radionuclides in groundwater shall be conducted in accordance with the following requirements:</p> <p>1. A minimum of 4 consecutive quarterly samples.</p> <p>2. A minimum of 4 consecutive quarterly samples.</p> <p>3. A minimum of 4 consecutive quarterly samples.</p>
<p>Improved Monitoring</p> <p>A system with an entry point of radionuclides into the distribution system shall be required to install and maintain a continuous monitoring system (CMS) in accordance with the following requirements:</p> <p>1. A minimum of 4 consecutive quarterly samples.</p> <p>2. A minimum of 4 consecutive quarterly samples.</p> <p>3. A minimum of 4 consecutive quarterly samples.</p>	<p>For systems with an entry point of radionuclides into the distribution system, the following are required:</p> <p>1. A minimum of 4 consecutive quarterly samples.</p> <p>2. A minimum of 4 consecutive quarterly samples.</p> <p>3. A minimum of 4 consecutive quarterly samples.</p>

Grandfathering of Data

When allowed by the State, data collected between June 2000 and December 2003 may be used to satisfy the initial monitoring requirements if samples have been collected from each entry point to the distribution system (EDTS). The data from a system provided by a state may be used to satisfy the initial monitoring requirements if the data from a system provided by a state may be used to satisfy the initial monitoring requirements.

Applicability of the Standardized Monitoring Framework to Radionuclides (Excluding the Beta Particle and Photon Emitters)



For additional information on the Radionuclide Rule, call the Safe Drinking Water Hotline at 1-800-625-6919 or visit the website at www.epa.gov/sdwf. Your state drinking water regulatory agency will provide radionuclide training over the next year.



Arsenic and Clarifications to Compliance and New Source Monitoring Rule: A Quick Reference Guide

Overview of the Rule

Title	Arsenic and Clarifications to Compliance and New Source Monitoring Rule 66 FR 6976 (January 22, 2001)
Purpose	To improve public health by reducing exposure to arsenic in drinking water.
General Description	Changes the arsenic MCL from 50 µg/L to 10 µg/L; Sets arsenic MCLG at 0; Requires monitoring for new systems and new drinking water sources; Clarifies the procedures for determining compliance with the MCLs for IOCs, SOCs, and VOCs.
Utilities Covered	All community water systems (CWSs) and nontransient, noncommunity water systems (NTNCWSs) must comply with the arsenic requirements. EPA estimates that 3,024 CWSs and 1,080 NTNCWSs will have to install treatment to comply with the revised MCL.

Public Health Benefits

Implementation of the Arsenic Rule will result in . . .	<ul style="list-style-type: none"> • Avoidance of 16 to 26 non-fatal bladder and lung cancers per year. • Avoidance of 21 to 30 fatal bladder and lung cancers per year. • Reduction in the frequency of non-carcinogenic diseases.
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Critical Deadlines & Requirements

Consumer Confidence Report Requirements

Report Due	Report Requirements
July 1, 2001	For the report covering calendar year 2000, systems that detect arsenic between 25 µg/L and 50 µg/L must include an educational statement in the consumer confidence reports (CCRs).
July 1, 2002 and beyond	For reports covering calendar years 2001 and beyond, systems that detect arsenic between 5 µg/L and 10 µg/L must include an educational statement in the CCRs.
July 1, 2002 - July 1, 2006	For reports covering calendar years 2001 to 2005, systems that detect arsenic between 10 µg/L and 50 µg/L must include a health effects statement in their CCRs.
July 1, 2007 and beyond	For reports covering calendar year 2006 and beyond, systems that are in violation of the arsenic MLC (10 µg/L) must include a health effects statement in their CCRs.

For Drinking Water Systems

Jan. 22, 2004	All <i>NEW</i> systems/sources must collect initial monitoring samples for all IOCs, SOCs, and VOCs within a period and frequency determined by the State.
Jan. 1, 2005	When allowed by the State, systems may grandfather data collected after this date.
Jan. 23, 2006	The new arsenic MCL of 10 µg/L becomes effective. All systems must begin monitoring or when allowed by the State, submit data that meets grandfathering requirements.
Dec. 31, 2006	Surface water systems must complete initial monitoring or have a State approved waiver.
Dec. 31, 2007	Ground water systems must complete initial monitoring or have a State approved waiver.

For States

Spring 2001	EPA meets and works with States to explain new rules and requirements and to initiate adoption and implementation activities.
Jan. 22, 2003	State primacy revision applications due.
Jan. 22, 2005	State primacy revision applications due from States that received 2-year extensions.

* For required educational and health effects statements, please see 40 CFR 141.154.

Compliance Determination (IOCs, VOCs, and SOCs)

1. Calculate compliance based on a running annual average at each sampling point.
2. Systems will not be in violation until 1 year of quarterly samples have been collected (unless fewer samples would cause the running annual average to be exceeded.)
3. If a system does not collect all required samples, compliance will be based on the running annual average of the samples collected.

Monitoring Requirements for Total Arsenic ⁽¹⁾

Initial Monitoring

One sample per quarter for the MCL. (MCL: 0.05 mg/L) Surface water systems must collect annual samples. Ground water systems must have the samples collected 2005 and 2007.

Reduced Monitoring

In the reduced monitoring status, arsenic levels are below the MCL.

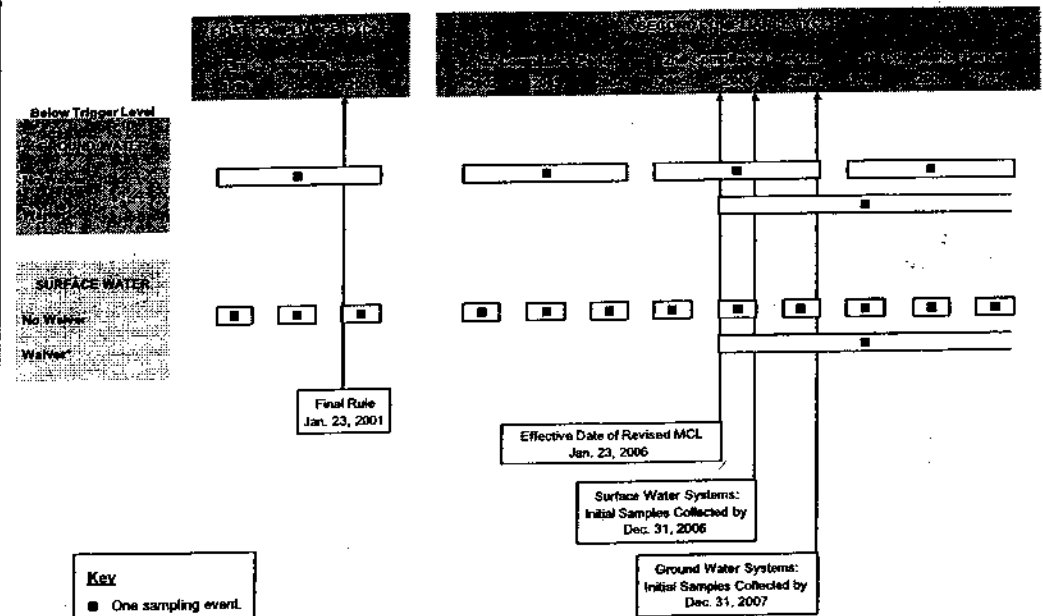
Surface water systems must collect one sample every 9 months. Surface water systems must collect annual samples.

Increased Monitoring

A system with a sampling point that is above the MCL must collect quarterly samples at that sampling point until the system is able to demonstrate compliance.

All monitoring must be collected at a sampling point to meet the monitoring requirements specified by the State.

Applicability of the Standardized Monitoring Framework to Arsenic



⁽¹⁾Waivers are not permitted under the current arsenic requirements. States may issue 9 year monitoring waivers under the revised final arsenic rule. To be eligible for a waiver, surface water systems must have monitored annually for at least 3 years. Ground water systems must conduct a minimum of 3 rounds of monitoring with detection limits below 10 µg/L.

TESTIMONY – RADIONUCLIDE RULES – CITY OF EDEN, EDEN, TEXAS
TEXAS WATER ADVISORY COUNCIL HEARING
AUSTIN, TEXAS
June 7, 2004

SUMMARY

The City of Eden, Eden, Texas, is located in Concho County, Texas, at the intersection of US Highway 83 and 87. It is 44 miles southeast of San Angelo, Texas, and 165 miles northwest of Austin.

The population of the City is 2561 of which 1370 are federal inmates at the Eden Detention Center. The City serves 620 metered customers. Current water cost is \$25.40 per 5000 gallons, 226% more than water in Austin. The water contains 11 pico Curies per liter – 11 trillionths of a gram of active radium per liter. A gram equals 0.03527 of an ounce. The citizens of Eden have been drinking radioactive water since 1945.

The economy of Concho County and Eden is primarily agriculture, farming and ranching, with some oil and gas production and recreation, principally hunting. The median household income (2000) for Eden is \$28,636. The Eden and Concho County area are categorized as “economically disadvantaged”.

The City of Eden believes it is important for this Council to understand the following relative to the Radionuclide Rules:

1. The rules are based on a linear non-threshold model which takes high radioactivity exposure and mathematically extrapolates this data to determine a numerical value as close to “zero” that can be established for naturally occurring, low radioactive radium. The results from this mathematical exercise have not been validated through evaluation or comparison with published epidemiological data.
2. The Texas Radiation Advisory Board, the state’s established entity with responsibility for radiation related issues, has stated that the radionuclide rules are unwarranted and unsupported by public health information and the alleged health hazards have not been scientifically demonstrated.
3. The Hickory Underground Water Conservation District No. 1 commissioned a study of cancer incidences from the Texas Cancer Registry, Texas Department of Health. In counties – McCulloch, Mason, Menard, Concho, and San Saba – where naturally-occurring radionuclide containing water from the Hickory aquifer is the drinking water, the incidences of cancer were less than the incident rate for the entire state, as well as being lower than the incident rate in two adjacent counties (Coleman and Brown) that do not use Hickory water. Other studies such as those made in Wisconsin and other western states with similar naturally-occurring radionuclides report similar results.
4. Water short, West Texas communities, like the City of Eden, cannot afford the costly treatment required to comply with the Radionuclide Rules. Trying to do so would leave little or no financial resources, both public and private, for other and, frankly, much more important public needs such as sewer, streets, public safety, and community health care.
5. There are no other economically feasible alternate public drinking water sources available to Eden.

Costly, unnecessary, water treatment processes are not affordable in small communities. These federal unfunded mandates that are being imposed upon state-owned waters leave small communities facing a “Hopson’s choice” – (1) a perpetual noncompliance status with a regulation that the state’s primary health authority has said is unwarranted or (2) abandon public water supply systems that have a demonstrated ability to protect citizens’ health. Either of these alternatives would be devastating to Rural Texas. Legislators should make sure that scarce public dollars are used to produce potable water, not “distilled” or “de-mineralized” water in order to satisfy some federal agency whims.

THE CITY OF EDEN WATER SUPPLY

The taxable assets of the City of Eden are \$42 million. The tax rate is \$0.557 per \$100 evaluation. The City's annual operating budget is \$2,073,500. The water and sewer budget is 45% of the annual budget. The current water and sewer indebtedness is \$1.4 million.

The City has been a public drinking water supplier since 1927. From 1927 to 1945, the Edwards-Trinity aquifer supplied water through shallow wells, 25 feet in depth. In 1945, Eden drilled a 4410 foot well into the Hickory Sandstone formation. In 1955, a second well was drilled into the Wilberns/Riley formation to a depth of 4040 feet. The 1945 well was then abandoned. In 1986, a third well was drilled into the Wilberns/Riley formation to a depth of 4060 feet. Water from the 1955 and 1986 wells rise to a level some 600 feet from the land surface. The radionuclide content of the Wilberns/Riley is 11 pico Curies per liter (pCi/l).

The typical practice has been to use as much water as possible from the Edwards-Trinity and blend these waters with those from the Wilberns/Riley formations. This action minimizes pumping cost. However, during drought periods, the Edwards-Trinity water becomes limited. For example, starting in 1999 to present, the Edwards-Trinity wells have been dry, resulting in total reliance on water from the Wilberns/Riley formations. As a result, the City is under a Compliance Agreement with the Texas Commission on Environmental Quality requiring it to do the impractical, i.e. *"find a way to reduce the radionuclides in its drinking water."*

The City of Eden serves 620 metered customers. The current water rate for residential customers is \$25.40 for 5,000 gallons. According to the 2003 Water and Wastewater Survey Results in Texas Towns and City, May 2003, the average cost of water in Austin is \$11.25 for 5,000 gallons. Cost of water in Eden is 226% higher than that in Austin. It is also an average cost that is 204% higher than water costs in cities with populations greater than 500,000.

The cost of removing the radionuclides from the Wilberns/Riley formations water is estimated to be in the range of \$50 per 5,000 gallons, double the current rate. However, this cost does not account for the unknown costs of disposing of the solid residual waste once these are removed from the water. Neither the U.S. Environmental Protection Agency nor the Texas Commission on Environmental Quality have either identified sites for disposal or issued rules for handling or disposal of such wastes. So what is the real cost?

The City of Eden explored the possibility of purchasing Lake O.H. Ivie water (located in the northeast part of the county). During 2001, negotiations were held with Millersview-Doole Water Supply Corporation to address possibly obtaining such waters. Obtaining financial assistance from the Texas Water Development Board with subsidies of 0% interest and 35% principal forgiveness, the City's indebtedness would have increased to \$4.4 million. At the time, the estimated cost of drinking water had this alternative been pursued would have more than doubled what Eden customers are currently paying. Negotiations failed because of the City's increased financial burden and Millersview-Doole's inability to supply radionuclide free water for blending with Eden's Wilberns/Riley water.

The above efforts to obtain Lake Ivie water and estimates for treating the Wilberns/Riley water illustrate that small communities like Eden needs grants, not loans, for the construction and operation and maintenance of water supply facilities mandated to meet the Radionuclide Rules.

THE NEED FOR AND UNCERTAINTIES CAUSED BY WATER QUALITY POLICIES

The following references describe the position Eden finds itself in as it struggles to solve its water quantity problems and, at the same time, meeting federal and state water quality rules.

Reference: Binnie, Martin, & Smethurst, Basic Water Treatment, 3rd Edition, 2002, page 3 – (The authors are commenting on the cost of supplying water to people in Undeveloped Countries using Developed Countries high quality water standards).

“In countries with limited resources and short life expectancies it may be preferable to invest in water distribution or in additional water resources. There may be more benefits in supplying a larger number of people with a lower quality of water than in supplying a smaller quantity of high-quality water to a limited population.”

Eden is not located in an undeveloped country, but there are similarities when comparing the available resources of communities like Eden with those available to cities like Houston, Dallas, and Austin. The quality of water in West Texas is not the best, but under reasonable standards, it has for many years protected the consumer and met the citizen’s needs.

Reference: AWWA – ASCE, Water Treatment Plant Design, 3rd Edition, 1998, page 2, warns of Regulatory Uncertainties.

“The definition of “safe” drinking water, which remained relatively fixed in the 1950’s 1960’s and 1970’s, now seems to be constantly changing or under review as the water utility industry grapples to understand the potential health effects of trace amounts of an increasing variety of chemical compounds and infectious organisms. Today’s treatment system engineer, in addition to addressing current drinking water standards, must anticipate potential future requirements. A water system designed today must be designed with sufficient flexibility to be modified to meet these potential requirements.”

Eden does not have the resources, from either its tax base or customer base, to react to these ever-changing regulatory uncertainties. The Texas Water Development Board population projections point out that small, West Texas town will have little or no growth potential in the foreseeable future. Therefore, no local increase in revenues to support the cost of future mandates is foreseen.

CONCLUSION

Within the United States and, perhaps, throughout the world, there seems to be a segment of the “scientific community” who finds a bugaboo in every drop of water. If they find some trace element, even naturally-occurring, that “might” or “may” cause a health risk under some unique circumstance, this is reason enough to spend whatever it takes to eliminate “potential” hazard regardless of what devastation it causes to public and private economies. What has been most troubling to our community is the fact that both federal and state agency personnel in the drinking water arena have the viewpoint that meeting the drinking water quality standards, even when the same are unreasonable, seems to be the overriding, paramount concern, leaving little or no room for Eden and communities like it to provide overall public health, safety, and welfare to its citizens. This attitude leaves Eden and other rural Texans faced with being labeled as “violators” or with the decision to abandon public drinking water systems, i.e. choices that negatively affect the economy and overall welfare of the State.

RECOMMENDATION

The Texas Water Advisory Council should recommend to the Texas State Legislature that: (1) no rule relating to naturally occurring constituents in drinking water supplies can be adopted without the state agency having identified and insured that there are reasonable and cost-effective strategies for compliance with the rule mandates, i.e. a compliance strategy as part of the rule package; (2) no rule can be enacted that fails to identify both the means and costs associated with the handling and disposal of waste materials that arise as a result of the rule’s implementation; (3) no rule can be enacted unless the Texas Water Development Board secures funding for the small community water systems that entirely covers the increase in costs associated with compliance with the trace constituent rules, e.g. federal arsenic and/or radionuclide rules.

Prepared and Respectively Submitted By: City Staff, City of Eden, Eden, Texas

Approved By: Charlie Rodgers, Jr., Mayor, City of Eden

Date: June 4, 2004



CITY OF SEMINOLE

302 South Main
Seminole, Texas 79360
(432) 758-3676

Mayor
Bill Prince

Mayor Pro Tem
Rey Saldaña
Councilmembers
Blanche McWhorta
Mike Carter
Julian Gomez
Mike Lord
Ray Keener

City Administrator
Tommy Phillips

SAFE DRINKING WATER ACT ARSENIC REQUIREMENTS JUNE 7, 2004

Good Morning, I am Tommy Phillips, City Administrator of the City of Seminole. We are the county seat of Gaines County and located 65 miles north of Odessa. Our water supply is from the Ogallala Aquifer. In our water is naturally occurring low levels of arsenic.

On the day before President Bush was to take office in 2001, and despite a letter from the incoming Chief of Staff to all agency heads asking them to hold off on publishing new rules until the new administration could see them, the amendments to the safe drinking water act were published, thereby establishing a new threshold for arsenic. The previous level was 50 ppb and the new level was set at 10 ppb. It is interesting to note that the labs that we have worked with have told us that they cannot accurately measure below 10 ppb.

One of my concerns is that these rules were promulgated for political reasons rather than health and safety concerns. The EPA's own Science Advisory Board indicated that 50 ppb was not a problem to human health. The Congressional Budget Office reported to Congress that local governments have been providing safe and potable water since the early 1800s and Congress should leave things alone.

The study which was used to assess the dangers of arsenic was based on a Taiwanese village with a population of 42 people who were exposed to levels of arsenic in excess of 400 ppb. With 400 ppb posing a very real and dangerous risk and 50 ppb posing no risk at all, it makes no sense to lower the standard below 50 ppb. A report by the National Research Council, states that "...no human studies of sufficient statistical power or scope have examined whether consumption of arsenic in drinking water at the current maximum containment level (50 ppb) results in the incidence of cancer or non-cancer effects."

The City of Seminole has an arsenic level of 16 ppb in our groundwater. We are well below the level of 50 ppb recommended by the EPA's Science Advisory Board, yet well above the new level of 10 ppb that is being forced upon us.

For the city to remove the 6 ppb of arsenic will result in our water rates going up by almost 45%. The equivalent of a ppb is 1/16 of an inch in 16,000 miles. This means we would increase our water rates by almost 45% to remove a level of arsenic equal to 6/16 or less than 1/2 inch in 16,000 miles.

In a letter dated May 5, 2003 from Margaret Hoffman to Representative Harvey Hilderbran, Ms. Hoffman states that, "Where a cost effective option is not available, the agency has the authority to enter into bilateral compliance agreements with the water systems. Under such an agreement, the water system would alert its customers of the problems with radionuclides and/or arsenic, but continue to provide water service. Enforcement discretion would be exercised until a reasonable and cost effective option becomes available to bring the water system into compliance.

Earlier this week, my water superintendent had a discussion with a staffer in the TCEQ Austin office regarding another subject. During this conversation, the staffer asked what we were doing to take care of our arsenic problem and indicated that if we were not fully compliant with the new arsenic regulations as of January 23, 2006, we would come under enforcement.

We know that we are getting faulty science leading to the arsenic requirements placed on cities. We also know that in 2003, the Executive Director of TCEQ indicated that the agency was going to work with us rather than saddle us with expensive water treatment facilities. And sadly, we also know that unless this city of 6000 residents spends millions for new, unneeded water treatment, it appears we will be targeted by the TCEQ for enforcement action in 2006 despite previous assurances to the contrary from Margaret Hoffman.

Thank you for your time.

Tommy Phillips
City Administrator

CITY OF SEMINOLE ARSENIC REMOVAL COSTS

Equipment Cost	\$1,500,000	
Annual Operating Cost	\$200,000	
Cost of Equipment Amortized over 20 years @ 4% ((\$9100 x 12)		\$109,200
Annual Operating Cost		\$200,000
TOTAL COST		\$309,200
Current Water Budget	\$710,000	
Arsenic Removal	\$309,200	
Total Annual Cost	\$1,019,200	

Water rates would have to increase by 43.5% to decrease arsenic rates from 16 ppb to less than 10 ppb.

1 PART PER BILLION

5280 feet per mile
x 12
63,360 inches per mile

63,360
x 16
1,013,760 1/16 inch increments per mile

1,013,760
x 1000
1,013,760,000 1/16 inch increments per 1000 miles

1,013,760,000
x .000 000 001 (1 ppb)
1.01376

1ppb is slightly more than 1/16 of an inch in 1000 miles or 1 inch in 16,000 miles

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
REPORT ON REGULATION OF RADIONUCLIDES AND ARSENIC IN DRINKING WATER
Prepared for the
Texas Water Advisory Council
June 7, 2004 Meeting

Radionuclide Regulations

Texas has had standards for radionuclides in drinking water since 1978. These standards were limited to a standard for combined radium at 5 pCi/L, gross alpha at 15 pCi/L and beta emitters. The beta standard applied only to manmade contaminants in very large water systems and has never been exceeded in Texas.

In 1991, EPA published proposed standards for radium, gross alpha, beta emitters, uranium and radon. This publication proposed a drastic change to the existing standards as well as new radionuclides to be regulated. The effect of these proposed standards, based on the health effects information available at that time, was that adequate health protection could be achieved by enforcing standards which were much higher than the existing Maximum Contaminant Levels (MCLs). This would have had eliminated all but a few violations of the radium and gross alpha standards. Under the proposed standards for radon and uranium, Texas could expect an additional 30 violations for uranium and approximately 850 violations of the radon standard. The radon proposal was subsequently withdrawn. No action was taken on finalizing the other radionuclide standards until December 2000. In the final Rule, published on December 7, 2000, EPA basically reverted to maintaining the existing standards and established a new standard for Uranium at 30 ug/L. The new rule also required more thorough sampling of public water systems. EPA has also issued guidance for calculating radionuclide levels for compliance with the MCLs. The combination of the new standards and sampling requirements as well as the new calculation procedures will result in approximately 100 new violations of radionuclide standards in addition to approximately 35 public water systems that are or have been in violation of the existing standards. Under existing TCEQ policy, calculation of the violation accounts for the reporting error of each radionuclide analysis. Maintaining this calculation procedure will eliminate approximately 35 violations.

Radionuclides in drinking water are a health concern because they produce ionizing radiation which can lead to the promotion of cancer cells. In addition, uranium produces toxic effects to the kidneys. Drinking water is not the only source of ionizing radiation that the general population is exposed to, but at the MCLs, these contaminants produce an unacceptable increase in cancer risk. EPA's methodology for radionuclide health risk conforms with Federal Guidance Report 13, a joint of the EPA, the Department of Defense and the Department of Energy. Although, FGR13 is a consensus document, there has been criticism of the risk assessment methodology. The Texas Radiation Advisory Board in a letter to TCEQ raised concerns over the impact of adoption of the revised radionuclide regulations. One of the main points in their letter was the their dissatisfaction with the risk assessment models in FGR 13.

TCEQ staff engaged a group of stakeholders to advise the agency in adoption of the drinking water rules and to assist in the collection of data related compliance alternatives available to water systems. This group has been appraised of the compliance options which include the acquisition of an alternate water supply or treatment options. Treatment technologies for radionuclides are commercially available. However, all treatments which remove radionuclides from drinking water result in a treatment residual which must be managed in a safe and environmentally acceptable manner.

To gather as much information as feasible, TCEQ staff developed a questionnaire pertaining to radionuclide compliance. The questionnaire was distributed to water systems which have at least one source of water which exceeds existing standards or will exceed the standards when adopted by TCEQ. Information from these responses has been used to project the most likely compliance options and to assess costs of compliance. From this data, TCEQ has determined that approximately 100 public water systems will have to address radionuclide compliance issues. From the questionnaire, TCEQ determined that public water systems that exceed the current TCEQ radionuclide regulations will need to spend approximately \$35 million for capital improvements to bring those systems into compliance. There will be an additional \$12 million capital costs to water systems in violation of the new standards based on the new sampling requirements and the new uranium MCL.

Over the last 6 months, a new technology for the treatment of radium has been piloted in Texas. This technology is much less capital intensive, but produces a solid media which must be disposed of. The Operations and maintenance costs of the media replacement and disposal of the media are the controlling cost factors for this technology. Even at that, The company which markets this process indicates that the total cost would range from \$0.60 to \$3.00 per thousand gallons treated, depending on system size and radium concentration. This would push average water bills up from \$8.00 to \$40.00 in those water systems electing this process.

Arsenic Regulations

Texas has had standards for arsenic in drinking water since 1977. The standard of 0.05 mg/L was adopted in the initial state primacy package. It was adopted in response to the National Interim Primary Drinking Water Regulations adopted by the USEPA. The interim standards were carried over from earlier US Public Health Service Standards and adopted without further health study by the EPA.

This standard for arsenic was not modified nationally until January 21, 2001, when EPA published a revised standard for arsenic at 0.01 mg/L (later modified to 0.010 mg/L). The incoming Bush Administration asked that EPA put a "hold" on any implementation of the arsenic regulations to allow for a review of the standard. Ultimately, EPA released a statement retaining the arsenic standard as adopted. This revised standard becomes effective in January, 2006.

Arsenic is a health concern because at high levels there is documented human health data linking exposure to arsenic to an increase in cancer. Arsenic has been linked to cancer of the bladder and skin cancer. The use of high level arsenic exposure data has been questioned by many scientists. The uncertainty in the extrapolation of high dose risk to low dose risk has been questioned in studies of US populations which were exposed to lower levels of arsenic than the studies that EPA used in its evaluation. In at least one study of a US population, there was no significant increase in cancer risk even at levels much greater than 0.010 mg/L.

Arsenic is a widely naturally occurring contaminant of drinking water systems at levels at or near the Maximum Contaminant Level. TCEQ staff has determined that approximately 220 public water systems in Texas will have to address an arsenic exceedance in at least one source of water. Nationally the cost of complying with the arsenic standard has been studied to a much greater extent than compliance with radionuclide rules. TCEQ has used data from these national studies as well as cost estimates from internal data to project the capital cost of complying with the new arsenic standard at approximately \$425 million.

EPA Relationship

TCEQ is the state primacy agency for enforcement of the federal Safe Drinking Water Act. This primacy relationship is defined in the Safe Drinking Water Act and is granted through agreements with the USEPA. As such, TCEQ is compelled to adopt and enforce standards which are no less stringent than the federal standards. Failure to do so by the agency would result in the EPA enforcing the standards in Texas and the probable loss of more than \$6 million in federal drinking water program funding and \$60 million in Drinking Water State Revolving Funds which are granted to the state by the EPA. Although primacy withdrawal is authorized under the Safe Drinking Water Act and the National Primary Drinking Water Regulations, no state to date has had primacy withdrawn for failure to adopt or enforce a national primary drinking water standard. However, EPA has a history of taking enforcement actions against violators in states which fail enforce the standards.

At the time of this document development, the rule adoption by the 49 primacy states are as follows:

Rule	Adopted	Approved by EPA	Extensions granted
Radionuclides	31	10	18
Arsenic	26	5	19

Compliance Options

Water systems that have sources that violate any kind of chemical contaminant, including radionuclides and arsenic, may address that violation through a number of different mechanisms. Some public water systems have the means already available to manage existing sources to achieve compliance without additional costs. Others will have to obtain additional sources by developing new groundwater or surface water options or purchasing water from another public water system. Others will find that treatment is the only compliance option. In some cases, the cost of any of these options may be so great as make the cost of the project and the associated operation and maintenance costs unaffordable to the customers of the public water system.

In such cases, TCEQ would entertain proposals from water systems to achieve compliance through the use of point of entry (POE) or point of use (POU) devices. Such devices distribute the treatment process to the point where water enters the home (POE) or at a single outlet within the home (POE). Since a smaller fraction of the water is treated, this technology may be more affordable. However, under EPA guidance on the acceptability of these devices, compliance with all the requirements for their use may be unattainable by many water systems.

TCEQ staff has pursued a further acceptance by EPA of the use of bottled water as a long term compliance strategy which could be used by water systems. Though not excluded as a compliance strategy in the Safe Drinking Water Act, EPA regulations do not allow for bottled water to be used in such a manner. TCEQ has asked the Association of State Drinking Water Administrators to develop a new policy statement on the use of bottled water and that this issue be further discussed with EPA.

Enforcement

TCEQ enforcement against water systems with violations of naturally occurring contaminants such as arsenic and radionuclides is initiated through the mechanism of compliance agreements. This document, which is signed by TCEQ and the public water system sets in motion a series of activities that the water system must pursue. The two major requirements of the water system is that they notify the customers of the violation and that they conduct an economic feasibility analysis of compliance strategies. The

feasibility study must evaluate the projected cost of developing new sources, purchasing new water, treatment, and blending with existing sources. The goal of the compliance agreement is to come to an affordable option for compliance without the need for more formal enforcement action.

For further information on the radionuclide and arsenic regulations, please contact:

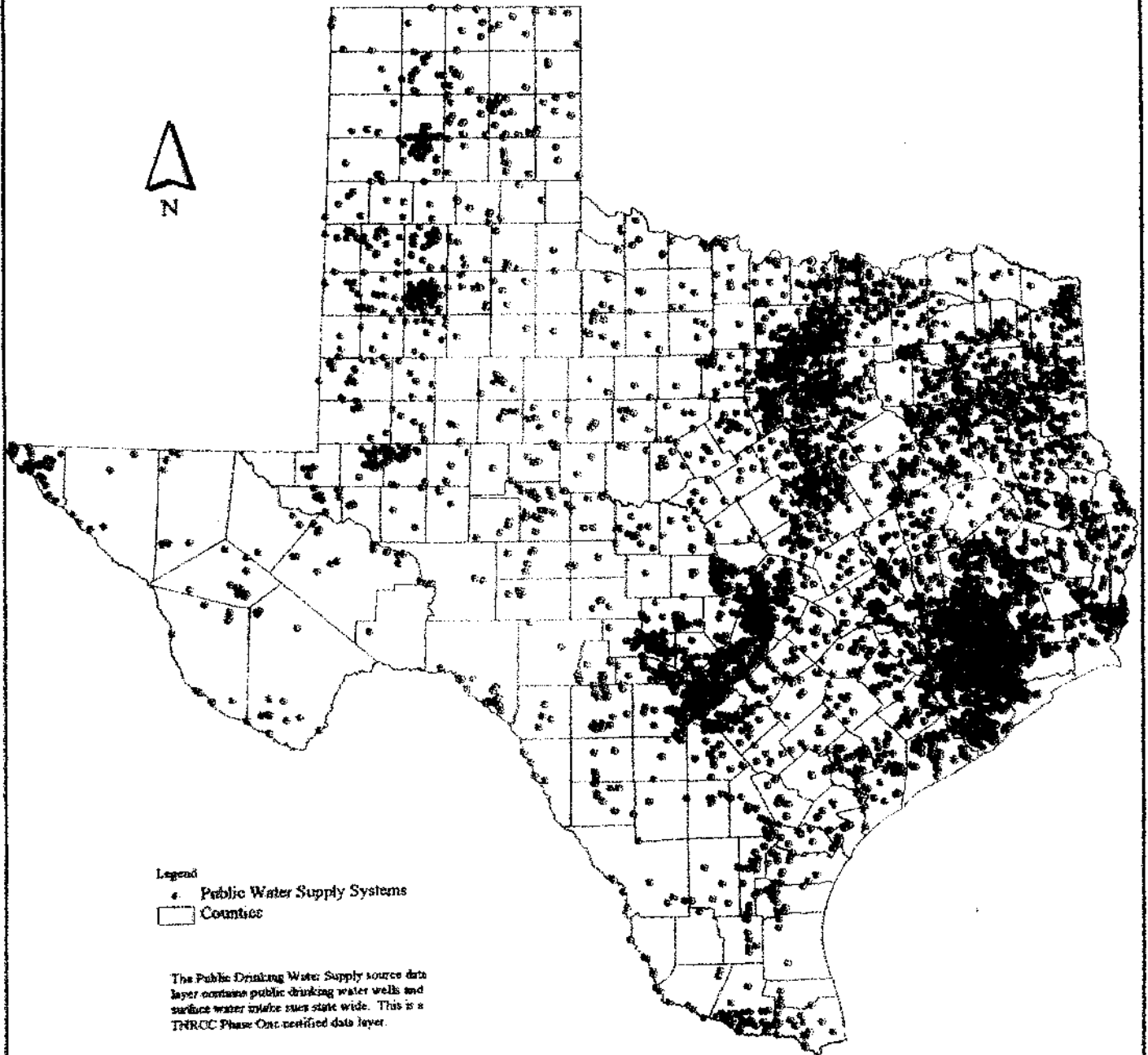
Anthony E. Bennett, R.S.
Water Supply Division
Texas Commission on Environmental Quality
512-239-6029

**Invited Testimony by Texas Rural Water Association
To Texas Water Advisory Council**

**Re: Council Charge Relating to Federal Drinking
Water Standards**

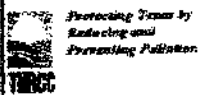
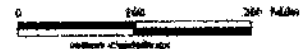
**Austin, Texas
June 7, 2004**

Public Drinking Water Supply Systems in Texas

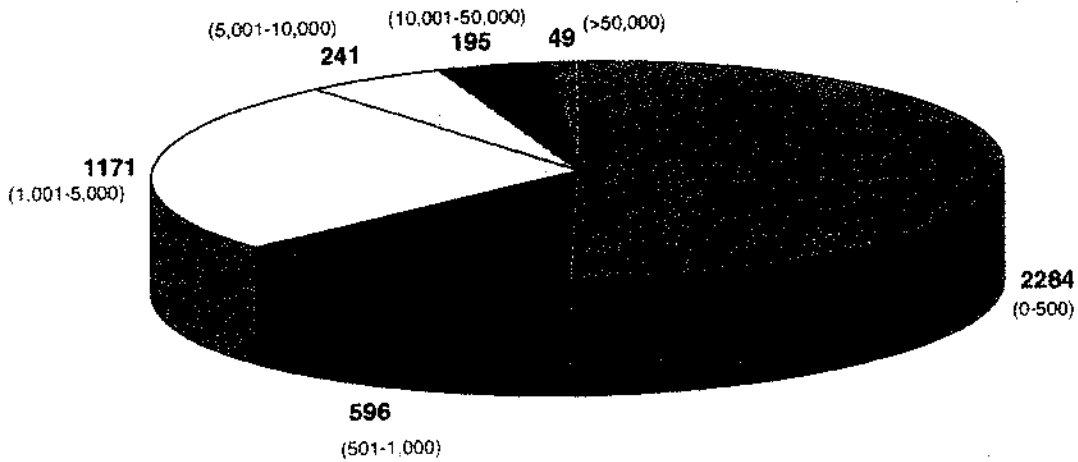


- Legend
- Public Water Supply Systems
 - Counties

The Public Drinking Water Supply source data layer contains public drinking water wells and surface water intake uses state wide. This is a TNRCC Phase One certified data layer.

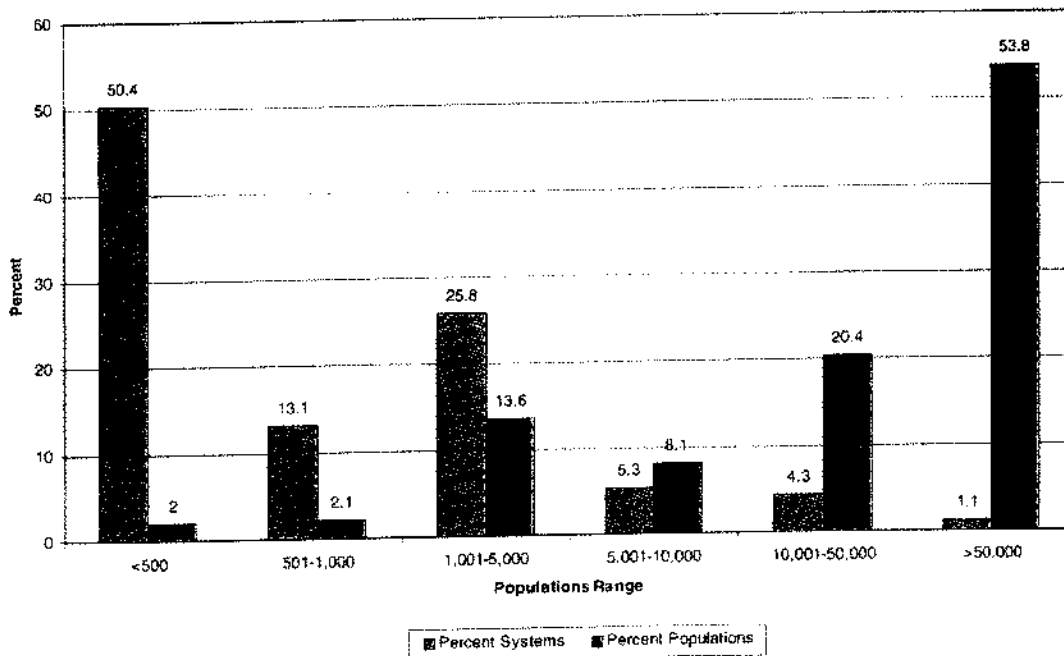


The Small System Dilemma



Number of Community Systems per Population Category

Number of Texans Served by Small Systems vs. Large Systems





PWS # 2230003
FMT

**Texas Natural Resource Conservation Commission
Regional Financial, Managerial and Technical Assistance Program – Report on FMT Assistance**

June, 2002
(month, year)

Name of Community or Utility: Wellman Water Supply Corporation

Log Number: R-0502032 PWS ID No./Discharge Permit No. 2230003 CCN No. 10591

TNRCC Region: 2 Utility Classification: WSC

Staff: Dwyane Boren Date of Referral: 5/14/02 Priority of Referral: Routine

Interim Report: _____ Final Report: X

Person Contacted: Regena Isbell Title: City Secretary

Address: P.O. Box 124, Wellman, Texas 79378 County: Terry

Phone: 806-637-4063

Type of Assistance Provided:

To determine if entity is interested in applying to be considered for the EPA Arsenic Rule Implementation Research Program aka Arsenic Research Demonstration Site.

To update the last FMT Assessment and report any significant changes (changes in strengths & weaknesses).

Review the systems water quality data with the system and help them fill out the application form.

Summary of Assistance Needed, Provided and Outcomes: On May 30, 2002 Dwyane Boren with the Texas Rural Water Association contacted Regena Isbell, City Secretary for the City of Wellman to schedule and explain the nature of the visit. The visit was scheduled for June 20, 2002.

On June 20, 2002 I met with the City Council for the City of Wellman, present at the meeting were Mayor, Marty Lindsey and City Councilmen, Dale Cole, Kent Davis, Eric Horton, Manual Banda, Marvin Crutcher and System Operator and ex-councilman Jessie Hartman and City Secretary, Regena Isbell. During the visit the EPA Arsenic Rule Implementation Research Program was discussed to determine if the Wellman WSC would be interested in applying to be considered to participate in the Arsenic Research Project. After discussing the project the City Council voted to

**Prepared In Cooperation With The
Texas Natural Resource Conservation Commission And The
U.S. Environmental Protection Agency**

The preparation of this report was financed through grants from the U.S. Environmental Protection Agency through the Texas Natural Resource Conservation Commission.



Wellman Water Supply Corporation
(Name of utility)

PWS # 2230003
FMT

June, 2002
(month, year)

apply to be considered to participate in the Project. After completing as much of the application information that was available during the meeting the City Council indicated that they would need to complete the application with the remaining information that was needed and would mail the application to the TNRCC the next day. Also during the meeting an exit interview prepared from an FMT Assessment conducted by Jay Judge on November 17, 1998 was provided and reviewed and discussed. After reviewing and discussing the exit interview Mr. Hartman indicated that nothing had changed since the Assessment was conducted. The City Council was provided with a copy of the exit interview.

On June 26, FMT Contract Project Manager delivered the completed form and FMT update to TNRCC staff Tony Bennett.

On July 1, 2002 Dwyane Boren with the T.R.W.A. completed the report on the on-site assistance.

Follow-Up Needed? No If Yes: By Field Assistance Technician _____ By TNRCC _____

Notes and Comments:

Report filed by: Dwyane Boren Date: July 1, 2002

Contractor Authorized Signature Approval/Review Date

Prepared In Cooperation With The
Texas Natural Resource Conservation Commission And The
U.S. Environmental Protection Agency

The preparation of this report was financed through grants from the U.S. Environmental Protection Agency through the Texas Natural Resource Conservation Commission.

Demo Site Information - USEPA Arsenic Demonstration Project

State: Texas State contact person: Tony Bennett Telephone No. 512-239-6029

Mailing address: TNRCC
Tony Bennett MC-155
Austin, Texas
78711-3087

e-mail address: tbennett@tnrcc.state.tx.us

Utility Information

Location <u>Terry</u>	City/Town: <u>Wellman</u>	Address: <u>Box 124</u>	
Contact person	Name: <u>Jessie Hartman</u>	Tel No. <u>806-637-4728</u>	E-mail

Utility Water Supply System Information

Population served: <u>247</u>	Source water: <input checked="" type="radio"/> GW	<input type="radio"/> SW	<input type="radio"/> Mixed
Total System Capacity: <u>122,700 gpd</u>	No. of system entry points: <u>1</u>		
Avg Daily Production: <u>90569 gpd</u>	No. of entry points that exceed the As MCL: <u>1</u>		

Demo Site Information (Specific site)

Name of site: <u>Wellman Water System</u>	Source Water: <input checked="" type="radio"/> GW	<input type="radio"/> SW	<input type="radio"/> Other
Address: <u>Box 124</u> <u>Wellman, TX 75378</u>	Max daily production: <u>102,500 (one day)</u> gpm		
Enclosed space available for new treatment system? <input checked="" type="radio"/> Yes <input type="radio"/> No	If yes, amount of available space: <u>60</u> sq ft		
List all existing treatment steps in order: (Cl ₂ , IX softening, etc.):	Identify available residual disposal options at site: (Sewer, lagoon, storage tank, etc.)		
Source Water: <u>Sed. NYPASML 10% Bleach</u>	<u>Lagoon</u>		
	System operators: Number: <u>464741400</u>		
	Full time <input checked="" type="checkbox"/>		
	Part time <input type="checkbox"/>		

Water Quality Information (Demo site source water)

Analysis	Source water (Raw)			Distributed Water			Analyses	
	Max	Min	Avg	Max	Min	Avg	Number	Last Date
Analysis - mg/L								
Total As	.04	.0393	.0395				1005	1-31-01
As III								
As V								
Fe	.024	.023	.0236				1028	1-31-01
Mn	.008	.002	.006				1032	1-31-01
Ca	66	62	64				1016	1-31-01
Mg	65	54	59.5				1031	1-31-01
Hardness as CaCO3	432	379	405.5				1915	1-31-01
Na	109	105	107				1052	1-31-01
Si								
PO4								
SO4	243	190	216.5				1055	1-31-01
Chloride	107	96	101.5				1017	1-31-01
pH	8.0	7.5	7.75				1925	1-31-01
Total alkalinity	247	245	246				1927	1-31-01
TOC								

Please attach available analytical data and any literature regarding existing treatment system.

FMT ASSESSMENT EXIT INTERVIEW

Review of this preliminary Financial, Managerial and Technical (FMT) Capacity assessment helped identify the following strengths of your water system which you should continue to build upon and opportunities for improvement which, if addressed, should allow your system to attain a higher level of capability. A final FMT assessment of your water system will involve more detailed review of this field assessment, and your compliance and operating records. If you have any questions or need more detailed information or assistance, please contact the Texas Rural Water Association (TRWA) at 512-472-8591 or the Texas Natural Resource Conservation Commission (TNRCC) at 512-239-6960.

MANAGERIAL ASSESSMENT

Strengths	Opportunities	Criteria	Strengths	Opportunities	Criteria
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Knowledge of legal authority	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Adequate elections
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Operating reports to Board / Council	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Drought Contingency Plan
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Written operating policies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Correction of audit material weaknesses
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Phone accessibility for customers (24 hours)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Capital Improvement Plan
<input type="checkbox"/>	<input type="checkbox"/>	Application/formal process for service	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Staff/Board training (not operator cert.)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Service for all applicants in CCN area	<input type="checkbox"/>	<input type="checkbox"/>	Approved CCN (WSC's or IOU's only)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Record Keeping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Long-range Planning
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Budget (periodic review & adjustment)	<input type="checkbox"/>	<input type="checkbox"/>	Water Conservation Plan
<input checked="" type="checkbox"/>	<input type="checkbox"/>	TNRCC notification for 85% rule violation	<input type="checkbox"/>	<input type="checkbox"/>	Customer Service
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Emergency Planning	<input type="checkbox"/>	<input type="checkbox"/>	TNRCC Annual Reports (IOU's only)

Additional comments:

FINANCIAL ASSESSMENT

Strengths	Opportunities	Criteria	Strengths	Opportunities	Criteria
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rates based on cost of service	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Insurance coverage
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Customer termination policy / enforcement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Access to financing
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Metered rates	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Audited financial statement
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Revenues cover expenses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rate study / review frequency
<input checked="" type="checkbox"/>	<input type="checkbox"/>	No delinquent debt payment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ready access to cash for emergencies
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Adequate reserve accounts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Current on regulatory fees
			<input type="checkbox"/>	<input type="checkbox"/>	Current on lab fees

Additional comments:

TECHNICAL ASSESSMENT

Strengths	Opportunities	Criteria	Strengths	Opportunities	Criteria
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Correction of Sanitary Survey deficiencies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	No Primary Chemical Violations
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Source water protection Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No Secondary Chemical Violations
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cross-connection control program	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TNRCC approved CT study (surface water)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Adequate storage / pressure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Monitored unaccounted water loss
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Preventive Maintenance Program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Disinfection throughout distribution system
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Written Operation & Maintenance Manual (updated)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tank maintenance program
<input type="checkbox"/>	<input type="checkbox"/>	Turbidity treatment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency interconnections
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Adequate water treatment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Drawings/plans of water treatment facilities
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Metered connections	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Operator training
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Adequate source water or contracts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Certified operator/proper level & number

Additional comments:

The above has been discussed during an exit interview with a TRWA contractor.

2230003 PWS ID# Wellman Public Water System Water System Name Telfer County 2 Region
Mary Ann Water System Official Name Mayor Title 6-20-02 Date
Dwayne Boren TRWA Contractor 6-20-02 Date

Information on Cost Options/Feasibility Study Checklist

SYSTEM INFORMATION	
Name of system	The Live Oaks Mobile Home Park
PWS ID of system	0860090
Responsible official at system (and phone number)	Brad Knott
Contact person at system (and phone number)	Same, 830-997-0061
System's engineer (if applicable) (and phone number)	None, Tyler Virdell dug well for Mr. Knott
Ok to Contact?	No, does not have any info except well logs.
Mailing address of system	14877 SH 16 South, FBG. TX. 78624-9718
Number of connections	119
Do you provide wholesale service or anticipate providing service?	No
Population	238
Do you have access to a sanitary sewer collection system?	No
Design Capacity to Meet Maximum Daily Demand (0.6 gpm/conn x # connections if system does not know)	.6 X 119 = 71.4 x 1440 = .102 MGD.
Standard(s) violated	Gross Alpha, Radium

POTENTIAL BLENDING OPPORTUNITIES

Is it possible to meet standards by blending water from sources you own or control?
 (add lines if necessary) (List all sources you currently have access to)

SOURCES THAT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source, Average Daily Production	Quantity of Water Available from Source, Capacity to Meet Maximum Demand
<i>BOTH / ALL AVAILABLE</i>			
POE 001	(GA..44.6), (Comb R 13.1)	.047 combined	216 MGD.
POE 002	(GA..20.1), (Comb R 7.0)		
SOURCES THAT DO NOT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source	
<i>NONE</i>			
Total Capacity From Sources That Do Not Violate			

BLENDING SUMMARY

Sources:	Concentration Blended Source*:	Total Flow:

Is blending existing sources feasible? (Y/N)	
Total Capital Cost to make blending possible (pipes, pumps, storage?)	\$
Total Additional Annual O & M	\$
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]	\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$

* NOTES for potential blending opportunities: None available will have to look at treatment or new source.
 pc = pico curies
 MCL for Gross Alpha = 15 pc/l
 MCL for combined radium 226 and radium 228 = 5 pc/l
 Proposed MCL for Uranium = 30 pc/l

Weighted average (Blending) calculation:
 S1 = capacity source 1 (gpm)
 C1 = concentration source 1 (pc/l)
 S2 = capacity source 2 (gpm)
 C2 = concentration source 2 (pc/l)
 SB = capacity blended source = S1 + S2 (gpm)
 CB = concentration blended source (pc/l)

$$CB = (S1 \times C1 + S2 \times C2) / (S1 + S2)$$

POTENTIAL PURCHASED WATER SOURCES

Nearest possible PWS to connect to (with water that meets all standards)

Name of nearest system	City of FBG. TX.
PWS ID of nearest system	0860001
Contact person at nearest system (and phone number)	Tim Crinwelge, Said they would not run a line to hook him up and that they had none existing there for him. (7 miles out).
Distance to nearest system (shortest pipe length)	7 miles, Not feasible for 119 connections. Water bill is part of rent bill.
Any drinking water standards violations?	Not aware of any, none with RADS
Will this system agree to provide water? (Y/N)	No formal request or proposal at this time.
QUANTITY of water available from this system	6.8 MGD
Total Capital Cost to connect to nearest system	\$
Total Additional Annual O & M	\$
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]	\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$

Other possible PWS to connect to (with water that meets radiochemical standards) within 5 miles

Name of system	None other than FBG TX. With no other source.
PWS ID of system	
Contact person at system (and phone number)	
Distance to system (shortest pipe length)	
Any drinking water standards violations?	
QUANTITY of water available from the system	
Total Capital Cost to connect to nearest system	\$
Total Additional Annual O & M	\$
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]	\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$

Add additional pages for other systems within five miles.

POTENTIAL CONSOLIDATION (complete transfer of retail connections) OPPORTUNITIES	
Describe any opportunities that may exist to consolidate with nearby partner systems:	
Name of partner system	Has not been researched
PWS ID of partner system	
Contact person at partner system (and phone number)	
Distance to partner system (shortest pipe length)	
Any drinking water standards violations?	
Describe consolidation opportunity or state "n/a":	

PURCHASE WATER BLENDING OPPORTUNITIES			
Is it possible to meet standards by blending water from purchased water sources?			
(add lines if necessary) (List all sources you currently have access to) * No study, investigation, or research has been performed or considered by owner to date. *			
SOURCES THAT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source, Average Daily Production	Quantity of Water Available from Source, Capacity to Meet Maximum Demand
SOURCES THAT DO NOT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source	
N /Ae			
Total Capacity From Sources That Do Not Violate			
BLENDING SUMMARY			
Sources:	Concentration Blended Source*:	Total Flow:	
Is blending purchased water sources feasible? (Y/N)			
Total Capital Cost to connect to nearest system and blend		\$	
Total Additional Annual O & M		\$	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]		\$	
O & M cost per connection per month (annual o & m/(# of connec. X 12)		\$	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)		\$	

POTENTIAL ADDITIONAL GROUNDWATER SOURCES	
Is it possible to obtain a groundwater source that does not violate the constituent of interest (Y/N)?	*Unknown* however, no study, investigation, or research has been performed by owner or owner's representative to date. It is possible there may be a water table at lesser depth that may be lower in radio active contaminants.
Any other drinking water standards violations in this formation?	Unknown
Is the location within the service area (Y/N); if no, distance from service area to the location?	Owner does not own any additional land to drill a well he said he could probably fit one more well at the site.
QUANTITY of water available from this source?	Well has not been drilled, however last well cost \$8,000
Total Capital Cost to Obtain and Construct Additional Groundwater Source	\$ 8,000.00 there could be as much as \$3500 to set up tie in total estimate = \$11,500 without land purchase
Total Additional Annual O & M	\$ 2,648
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]	\$66.70 divided by 119 connections = .56¢ per connection
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$2,648 / 1428 = 1.85
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$ 2.41

POTENTIAL SURFACE WATER SOURCES	
Is it possible to obtain a surface water source? <u>No</u>	
Distance to nearest surface water source?	25 miles
Existing water rights (Y/N)?	No
Entity with jurisdiction over surface water source	City of Kerrville
Contact person at entity with surface water jurisdiction (and phone number)	Ron Patterson 830-257-8000
Will the entity agree to provide water rights? (Y/N)	No
Any drinking water standards violations?	Yes, RAD constituent levels
QUANTITY of water available from this system	N / A
Total Capital Cost to Obtain and Construct Surface Water Treatment	\$
Total Additional Annual O & M	\$
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]	\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$

The following two sections are only to be completed if the system has cost estimates, bids, quotes etc on cost to treat for specific constituent removal

TREATMENT OPTIONS	
Describe treatment options and cost	
Type of treatment	
Name of engineer or vendor (and affiliation and phone number)	
Total Capital Cost to Construct & Install Treatment System	\$
Total Additional Annual O & M	\$
CAPITAL cost per connection per month (value obtained on amortization spreadsheet/# of connections)	\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$
Type of treatment	
Name of engineer or vendor (and affiliation and phone number)	
Total Capital Cost to Construct & Install Treatment System	
Total Additional Annual O & M	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	
Add additional pages to show other treatment options.	

POTENTIAL HYBRID BLENDING OPPORTUNITIES

Is it possible to meet standards by blending water from sources you own or control PLUS additional new sources or by treating a portion of the water? (possible)

Existing SOURCE(S):	Constituent Concentration in Listed Source	Quantity of Water Available from Existing Source, Average Daily Production	Quantity of Water Available from Existing Source, Maximum Capacity
See notes on last page*			
New or Treated SOURCES:	Constituent Concentration in Listed Source	Quantity of Water Available from New or Treated Source	

BLENDING SUMMARY

Sources:	Concentration Blended Source*:	Total Flow:

Is blending existing new and existing sources feasible? (Y/N)

Total Capital Cost to Construct & Install Treatment & Blending System	
Total Additional Annual O & M	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	

SUMMARY TABLE	
Comparison of all of the options considered	
Current operation	COST per connection per month \$ 7.75
Option 1: possibility of digging an other well or resetting pumps at different aquifer level.	COST per connection per month \$2.41 if possible
Option 2: (describe)	COST per connection per month \$
Option 3: (describe)	COST per connection per month \$
Option 4: (describe)	COST per connection per month \$

Additional Notes or Comments:

While meeting with Mr. Knott and review of the MCL violations, we discussed blended water options and alternate water source options. **The systems entire source consisting of two wells is contaminated with NORM. Both wells are above the MCL limit for RAD analysis and he has no alternate source. During the conversation Mr. Knott explained that the nearest PWS is Fredericksburg, 7 miles. The nearest SWTP is Kerrville / GBRA at 25 miles. The Guadalupe River is 12 miles in distance and Wilderness Park is 8 miles away from his system.** He indicated he had no engineer available and that he would begin looking into alternate sources. I advised Mr. Knott to look at the hydrology studies that the state well regulatory department or local underground water district may have and to investigate other water sources neighbors and owners of PWS. I advised Mr. Knott to contact neighbors and find out what they are doing to meet RAD MCL. I explained to him that there may be some organizations that may have already dealt with this problem near him and have solutions. I advised him to call Mr. Harper at Northwest Hills and find out what he did. In addition, I advised Mr. Knott to search for chemical water data along with the drilling logs. I advised Mr. Knott to contact Paul Tyber at the local underground water Distr. We also discussed the possibility of electro dialysis treatment for the system since it only averages 47,000 gallons a day.

Survey Completed by: Gilbert M. Ybarbo

System Visit Date: 5-2-03

Information on Cost Options/Feasibility Study Checklist

SYSTEM INFORMATION	
Name of system	Sarita Sewer Service and Water Supply
PWS ID of system	1310001
Responsible official at system (and phone number)	Edward F. Jordback (361) 826-5231
Contact person at system (and phone number)	Orville Schonefeld (361) 297-5216
System's engineer (if applicable) (and phone number)	Naismith Engineering
Ok to Contact?	yes
Mailing address of system	Communities Foundation of TX. Inc. 4605 Live Oak, Dallas, TX. 75204
Number of connections	68
Do you provide wholesale service or anticipate providing service?	No Water is free to ranch hands with ranch housing
Population	250/ during the day
Do you have access to a sanitary sewer collection system?	Yes, their own
Design Capacity to Meet Maximum Daily Demand (0.6 gpm/conn x # connections if system does not know)	.059 MGD, 40.8 gpm
Standard(s) violated	Uranium 38.9 ug/l, TDS 1028 mg/l, Gross Alpha 29.8 pc/l

POTENTIAL BLENDING OPPORTUNITIES

Is it possible to meet standards by blending water from sources you own or control? Probably not, raw water analysis unavailable
(add lines if necessary) (List all sources you currently have access to)

SOURCES THAT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source, Average Daily Production	Quantity of Water Available from Source, Capacity to Meet Maximum Demand
001	Uranium 38.9 ug/l, Gross Alpha 29.8 pc/l	.055 MGD, 38.19 gpm	Well 1 - 150 gpm Well 2 - 140 gpm
SOURCES THAT DO NOT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source	
Total Capacity From Sources That Do Not Violate			

BLENDING SUMMARY

Sources:	Concentration Blended Source*:	Total Flow:
Is blending existing sources feasible? (Y/N)		
Total Capital Cost to make blending possible (pipes, pumps, storage?)		\$
Total Additional Annual O & M		\$
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]		\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)		\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)		\$

* NOTES for potential blending opportunities:
 pc = pico curies
 MCL for Gross Alpha = 15 pc/l
 MCL for combined radium 226 and radium 228 = 5 pc/l
 Proposed MCL for Uranium = 30 pc/l

Weighted average (Blending) calculation:
 S1 = capacity source 1 (gpm)
 C1 = concentration source 1 (pc/l)
 S2 = capacity source 2 (gpm)
 C2 = concentration source 2 (pc/l)
 SB = capacity blended source = S1 + S2 (gpm)
 CB = concentration blended source (pc/l)

POTENTIAL PURCHASED WATER SOURCES		None
Nearest possible PWS to connect to (with water that meets all standards)		
Name of nearest system		
PWS ID of nearest system		
Contact person at nearest system (and phone number)		
Distance to nearest system (shortest pipe length)		
Any drinking water standards violations?		
Will this system agree to provide water? (Y/N)		
QUANTITY of water available from this system		
Total Capital Cost to connect to nearest system	\$	
Total Additional Annual O & M	\$	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]	\$	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$	
Other possible PWS to connect to (with water that meets radiochemical standards) within 5 miles		
Name of system		
PWS ID of system		
Contact person at system (and phone number)		
Distance to system (shortest pipe length)		
Any drinking water standards violations?		
QUANTITY of water available from the system		
Total Capital Cost to connect to nearest system	\$	
Total Additional Annual O & M	\$	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]	\$	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$	
Add additional pages for other systems within five miles.		

POTENTIAL CONSOLIDATION (complete transfer of retail connections) OPPORTUNITIES

Describe any opportunities that may exist to consolidate with nearby partner systems: **None**

Name of partner system	
PWS ID of partner system	
Contact person at partner system (and phone number)	
Distance to partner system (shortest pipe length)	
Any drinking water standards violations?	
Describe consolidation opportunity or state "n/a":	

PURCHASE WATER BLENDING OPPORTUNITIES

Is it possible to meet standards by blending water from purchased water sources? **None**
 (add lines if necessary) (List all sources you currently have access to)

SOURCES THAT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source, Average Daily Production	Quantity of Water Available from Source, Capacity to Meet Maximum Demand
SOURCES THAT DO NOT VIOLATE:	Constituent Concentration in Listed Source	Quantity of Water Available from Source	
Total Capacity From Sources That Do Not Violate			

BLENDING SUMMARY

Sources:	Concentration Blended Source*:	Total Flow:
Is blending purchased water sources feasible? (Y/N)		
Total Capital Cost to connect to nearest system and blend		\$
Total Additional Annual O & M		\$
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]		\$
O & M cost per connection per month (annual o & m/(# of connec. X 12)		\$
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)		\$

POTENTIAL ADDITIONAL GROUNDWATER SOURCES		None
Is it possible to obtain a groundwater source that does not violate the constituent of interest (Y/N)?		
Any other drinking water standards violations in this formation?		
Is the location within the service area (Y/N); if no, distance from service area to the location?		
QUANTITY of water available from this source?		
Total Capital Cost to Obtain and Construct Additional Groundwater Source	\$	
Total Additional Annual O & M	\$	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]	\$	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$	

POTENTIAL SURFACE WATER SOURCES		None
Is it possible to obtain a surface water source?		
Distance to nearest surface water source?		
Existing water rights (Y/N)?		
Entity with jurisdiction over surface water source		
Contact person at entity with surface water jurisdiction (and phone number)		
Will the entity agree to provide water rights? (Y/N)		
Any drinking water standards violations?		
QUANTITY of water available from this system		
Total Capital Cost to Obtain and Construct Surface Water Treatment	\$	
Total Additional Annual O & M	\$	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]	\$	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$	

The following two sections are only to be completed if the system has cost estimates, bids, quotes etc on cost to treat for specific constituent removal

TREATMENT OPTIONS		None
Describe treatment options and cost		
Type of treatment		
Name of engineer or vendor (and affiliation and phone number)		
Total Capital Cost to Construct & Install Treatment System	\$	
Total Additional Annual O & M	\$	
CAPITAL cost per connection per month (value obtained on amortization spreadsheet/# of connections)	\$	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	\$	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	\$	
Type of treatment		
Name of engineer or vendor (and affiliation and phone number)		
Total Capital Cost to Construct & Install Treatment System		
Total Additional Annual O & M		
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect x 12 mnths)]		
O & M cost per connection per month (annual o & m/(# of connec. X 12)		
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)		
Add additional pages to show other treatment options.		

POTENTIAL HYBRID BLENDING OPPORTUNITIES

Is it possible to meet standards by blending water from sources you own or control PLUS additional new sources or by treating a portion of the water?

Existing SOURCE(S):	Constituent Concentration in Listed Source	Quantity of Water Available from Existing Source, Average Daily Production	Quantity of Water Available from Existing Source, Maximum Capacity
New or Treated SOURCES:	Constituent Concentration in Listed Source	Quantity of Water Available from New or Treated Source	

BLENDING SUMMARY

Sources:	Concentration Blended Source*:	Total Flow:

Is blending existing new and existing sources feasible? (Y/N)

Total Capital Cost to Construct & Install Treatment & Blending System	
Total Additional Annual O & M	
CAPITAL cost per connection per month [value obtained on amortization spreadsheet/(# of connect)]	
O & M cost per connection per month (annual o & m/(# of connec. X 12)	
TOTAL ADDITIONAL COST PER CONN. PER MONTH (O & M + CAPITAL)	

SUMMARY TABLE	
Comparison of all of the options considered	
Current operation O&M is approximately \$6,000.00 Annually	
	COST per connection per month \$ 7.35
Option 1: (describe)	COST per connection per month \$
Option 2: (describe)	COST per connection per month \$
Option 3: (describe)	COST per connection per month \$
Option 4: (describe)	COST per connection per month \$

Additional Notes or Comments:

Met with Mr. Schonefeld on 6-4-03, we reviewed the current and new proposed TCEQ rules on radionuclide. I explained to him what will soon be expected of all water supply systems as of December, 2003. We reviewed the Information on Cost option Feasibility Study Checklist and Mr. Schonefeld ruled out all other available options to consider on the checklist. He commented there is no other place to draw water from except Riviera that is 6.2 miles away. He commented that there are no water meters. Water is for ranch hands living in ranch houses and there is no charge for water. He commented that the money used to pay for water O&M expenses is drawn from the interest of an account set up by Communities Foundation of Texas passed on by a Mrs. Kennedy. His fee is \$500.00 a month to maintain the system. I advised Mr. Schonefeld to take this information to Mr. Ed F. Jordbak, responsible official, and to begin serious investigation into alternate methods of reducing radionuclide. Mr. Jordbak was originally contacted to schedule the visit; however, he indicated that he did not have any information about the water system and that we should contact Mr. Schonefeld.

System has two wells, one is 750' and the other is 800'. The operator did not have individual well raw water analysis. He was advised to sample each well to determine if the quality was the same.

Survey Completed by: Gilbert M. Ybarbo

System Visit Date: 6-4-03

Remarks of Roger K. Noack, P.E.

Good morning Mr. Chairman and members of the Committee. My name is Roger Noack and I am a Project Manager for the engineering consulting firm of HDR Engineering. I am a registered professional engineer in civil engineering and I reside in Austin, Texas area. HDR Engineering has 70 offices around the Country and my group of 450 engineers and scientists work almost exclusively with the cities, towns and public agencies that provide drinking water to their customers. We assist those utilities in finding new water supplies, treating those supplies and complying with the rules and regulations affecting those supplies.

I am pleased to present to you some of the cost issues and impacts of the new US EPA Drinking Water Rules for arsenic and radionuclides.

I know you have many things that you want to discuss this morning so I will be very brief with my statement. I'd then welcome the opportunity to answer any questions you might have.

I would like to start my comments with the Arsenic Rule. Mr. Bennett presented the regulatory guidelines for the Rule to you previously. Please note that for the last 15 years, researchers have actively studied this compound for its health impacts and have concluded that... at very high levels (200 to 2000 ppb), arsenic does indeed cause an increased incidence of skin and internal cancers such as bladder, lung, kidney and liver. Epidemiologists have reached these conclusions based on human exposure data to several hundred parts per billion in countries including Taiwan, Chile, Argentina and India. About this, there is NO debate.

However, because we cannot see these same increases in cancers at the low levels of arsenic that occurs here in the US (50 ppb and less), many uncertainties exist around the toxicity of low-level exposure. In fact, arsenic is a classic example of being an essential nutrient that the human body needs –of course only in only trace amounts. The human body appears to be very capable of eliminating any excess arsenic not required. Additionally, unlike some other inorganic contaminants, arsenic is not stored nor accumulated in any human tissue reservoir.

Nonetheless, in an overly conservative effort to be protective of public health, EPA has reduced the maximum contaminant level (MCL) from 50 down to 10 ppb by a Federal Register Rulemaking in January 2001. The Agency estimates that dropping the MCL to 10 ppb will cause over 3000 Public Water Systems to exceed the new standard. While naturally occurring and found virtually everywhere, the greatest impacts are in the 10 Westernmost States. And Texas is not immune – with over 200 systems exceeding the revised MCL. Based on the estimates given in Mr. Bennett's testimony, the average construction cost per system to comply with the Arsenic Rule is almost \$2,000,000.

Granted that average value is across all system sizes, but one cruel aspect of this rule (though not intentional) is that it targets mostly groundwater systems, which are predominantly the smallest systems. Or, said differently, those systems that can least afford to install treatment. However, when one examines the economic analysis prepared by EPA for the Arsenic Rule, there are a couple of facts that should be pointed out. The economic analysis assumes that the small system average water bill is approximately \$200 per year (or almost \$17 per month) for a median household income of approximately \$30,000. As a comparison, the median household income in Texas in 1999 from the 2000 Census was almost \$40,000. To determine the "affordable compliance technology" for these small systems, EPA estimates that the available expenditure margin is \$500 per year per household. Based on these figures alone, EPA is saying that the cost of water could be 2.5 times greater for these small systems.

At a cost of \$250,000 to \$500,000 per well - what happens if a public water system (PWS) cannot (or will not) comply with one of these regulations? All States (except Wyoming) have Primacy and are therefore charged with enforcement of all SDWA regulations. Historically, the Texas Commission on Environmental Quality (TCEQ) has been resistant to challenge the EPA or SDWA regulations for fear of losing primacy in an effort to prevent EPA from enforcing the SDWA directly in Texas. However, there has never been an instance in the United States where EPA has taken away a state's primacy status because a PWS within the state failed to comply with SDWA regulations. To that end, the TCEQ's focus should be more attuned to ensuring that economical and sensible SDWA regulations are enforced in Texas rather than strictly adhering to EPA's mandates.

Most states, with limited financial assistance, will try to assist the PWS by rendering assistance (technical, low interest loans and/or grants) or perhaps granting additional time extensions (perhaps many, extensions) before they have to come into compliance. Ultimately, however, the PWS must come into compliance or the State has the obligation to shut the system down. As an example of what could happen, there is a community in Arizona: Black Canyon Water System – 78 homes north of Phoenix with 5 wells exceeding the 50 ppb standard. Since the system served more than 25 people, (by definition – a Public Water Supplier), the system was obligated to meet all federal and state drinking water regulations. They decided they couldn't afford the cost of centralized treatment so they shut down the public wells. The neighbors then got together and drilled smaller wells (in the same aquifer) but made sure each well served less than 15 connections (or less than 25 people) and thus, avoided being regulated by the state.

Now I would like to talk about the Radionuclide Rule. Once again, Mr. Bennett outlined the regulatory status and the maximum contaminant levels promulgated in the Radionuclide Rule. So I will try to address my comments more towards the cost of compliance.

Once again, this Rule will target groundwater systems primarily. So once again, the small systems will take the brunt of the burden in complying with the Radionuclide Rule.

Typically, groundwater in Texas requires little or no treatment other than disinfection before it reaches the public. However, the small system compliance technologies for removing radionuclides from water include some very sophisticated systems, such as ion exchange, reverse osmosis, lime softening, and activated alumina. Granted there are also other compliance options that may be available to some PWS systems, such as obtaining a new or different source. However, the treatment options that are available will require a higher operator competency level that will necessitate an increase in annual operating costs that have not been captured in any compliance cost estimate developed to date.

Based on the projected costs presented by Mr. Bennett in his testimony, the average construction cost for complying with the Radionuclide Rule is \$1,000,000 per system. When one looks at the cost of meeting the combined radium, gross alpha and uranium MCLs from EPA's supporting documents

for this rule, the cost per connection could be well over \$400 or \$500 per year.

The next problem with these rules is the disposal of the waste stream. With no federal guidelines to fall back on, each state will have to establish the rules for disposal of the treatment wastes. Fortunately, here in Texas, the liquid waste stream can be discharged to a receiving stream or to a sewage collection system assuming it meets the required discharge standards. The present discharge standards may limit the treatment technology used or require some blending with another raw water source. All solid residuals associated with treatment, however, will have to be disposed in an out of state licensed naturally occurring radioactive material facility, since there is none in state. To my knowledge the cost for such residual disposal has not been identified but it will be very expensive.

Lastly and most importantly Mr. Chairman, I'd like to point out that Water Suppliers are – first and foremost – public health officials. They are our front-line defense to safeguard the public from waterborne disease. Our first responsibility is to protect those customers who rely on the water we produce. If science clearly shows that ANY contaminant (manmade or natural) presents a risk to public health, then the drinking water industry will be the first to step forward and remove it. However, if -as in the case of arsenic and the radionuclides- the health benefits are unproven (and minimal at best), AND if the costs to the consumer is extraordinarily high, then Water Suppliers must question whether this is a wise use of scarce public health dollars.

With that, Mr. Chairman, I'd be delighted to answer any questions by you or the Committee members.

APPENDIX E

WATER CODE

CHAPTER 9. TEXAS WATER ADVISORY COUNCIL

Sec. 9.001. DEFINITIONS.

Text of section effective until December 31, 2005

In this chapter:

(1) "Authority" means an entity listed in Section 9.010(b).

(2) "Board" means the governing body of an authority.

(3) "Commission" means the Texas Natural Resource Conservation Commission.

(4) "Conjunctive use" means the combined use of groundwater and surface water sources that optimizes the beneficial characteristics of each source.

(5) "Council" means the Texas Water Advisory Council.
Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001.

Sec. 9.002. CREATION AND MEMBERSHIP.

Text of section effective until December 31, 2005.

(a) The council is created to provide the governor, lieutenant governor, speaker of the house of representatives, and legislature with the resource of a select council with expertise on state water issues and consists of 15 members as follows:

(1) the chairman, or a board member designated by the chairman, of the Texas Water Development Board;

(2) the chairman, or a commissioner designated by the chairman, of the commission;

(3) the chairman, or a commissioner designated by the chairman, of the Parks and Wildlife Commission;

(4) the commissioner of agriculture;

(5) the commissioner of the General Land Office;

(6) three members of the house of representatives appointed by the speaker of the house of representatives;

(7) three members of the senate appointed by the lieutenant governor; and

(8) four members of the general public appointed by the governor, one representing groundwater management, one representing surface water management, one representing the

environmental community, and one representing the coastal region.

(b) Except as provided by Subsection (c), council members may not delegate participation or council duties to staff.

(c) A council member who is a member of the governing body of a state agency may delegate participation and council duties to the agency's executive administrator, executive director, or deputy commissioner, as appropriate.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.003. TERMS.

Text of section effective until December 31, 2005.

(a) Public members serve staggered three-year terms.

(b) Public members may be reappointed to serve additional terms.

(c) Legislative members serve at the discretion of the original appointing authority.

(d) A vacancy on the council shall be filled by appointment by the original appointing authority for the unexpired term.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.004. OFFICERS OF THE COUNCIL.

Text of section effective until December 31, 2005.

(a) The council shall elect a chair from among the legislative members of the council. The chair of the council shall serve a two-year term.

(b) The council shall alternate the selection of the chair every two years between a house and senate council member.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.005. COUNCIL STAFF.

Text of section effective until December 31, 2005.

On request by the council, the senate and house standing committees with primary responsibility over water resource management, the commission, the Parks and Wildlife Department, the

Department of Agriculture, and the Texas Water Development Board shall provide any staff necessary to assist the council in the performance of its duties.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.006. MEETINGS.

Text of section effective until December 31, 2005.

(a) The council shall conduct public meetings at the discretion of the chair at least twice a year. Eight members constitute a quorum.

(b) The council is subject to Chapters 551 and 2001, Government Code.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.007. COMPENSATION OF MEMBERS.

Text of section effective until December 31, 2005.

(a) Members of the council serve without compensation but public members may be reimbursed by legislative appropriation for actual and necessary expenses related to the performance of council duties.

(b) Reimbursement under Subsection (a) is subject to the approval of the council.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.008. POWERS AND DUTIES OF COUNCIL.

Text of section effective until December 31, 2005.

(a) The governor, lieutenant governor, and speaker of the house of representatives may issue charges to the council on state water issues. The council shall provide recommendations to the governor, lieutenant governor, or speaker of the house of representatives, as appropriate, based on the charges.

(b) If the governor, lieutenant governor, or speaker of the house of representatives does not issue charges to the council, the council may create a list of state water issues and present the list

to the governor, lieutenant governor, and speaker of the house of representatives. The governor, lieutenant governor, and speaker of the house of representatives may select a total of not more than four issues from the list. The council shall provide recommendations based on that list.

(c) The council may draft and review proposed legislation, for purposes of recommendation only, to communicate specific policy changes that may be needed.

(d) The council may request reports from river authorities, surface water authorities, and water districts.

(e) The council shall coordinate its efforts with the senate and house standing committees with primary responsibility over water resource management.

(f) The council may appoint subcommittees of council members to analyze specific issues within charges to the council or issues selected from the council's list by the governor, lieutenant governor, and speaker of the house of representatives.

(g) The council may appoint a technical committee to analyze specific issues within charges to the council or issues selected from the council's list by the governor, lieutenant governor, and speaker of the house of representatives. The technical committee may contain noncouncil members.

(h) The council may not:

(1) adopt rules;

(2) regulate water use, water quality, or any other aspect of water resource management;

(3) plan or construct water resource projects or have such projects planned or constructed;

(4) grant or lend money for the construction of water resource projects;

(5) establish water resource management standards or otherwise usurp the authority of or infringe upon the duties, responsibilities, or powers of local, regional, or state water management entities, including groundwater districts, river authorities and compacts, regional water planning groups, or member agencies of the council; or

(6) consider or discuss a specific permit or project

or recommendation for a project until the water permit has been issued by the state and all motions for rehearing have been overruled.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.009. REPORT.

Text of section effective until December 31, 2005.

(a) The council shall submit a report on its recommendations to the governor, lieutenant governor, and speaker of the house of representatives and to the senate and house standing committees with primary responsibility over water resource management not later than December 31 each year.

(b) The report must include recommendations the council made on charges issued by or issues selected from the council's list by the governor, lieutenant governor, and speaker of the house of representatives during the year.

(c) The governor, lieutenant governor, and speaker of the house of representatives may request additional reports on specific charges at any time.

(d) The council may request reports from committees established under Sections 9.008(f) and (g).

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.013. GIFTS AND GRANTS.

Text of section effective until December 1, 2005

The council may accept gifts and grants from any source to carry out the purposes of this chapter. The use of gifts and grants other than legislative appropriations is subject only to limitations contained in the gift or grant.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001.

Sec. 9.014. FUNDING.

Text of section effective until December 31, 2005.

(a) The interagency water advisory account is a special account in the general revenue fund.

(b) The interagency water advisory account consists of legislative appropriations, gifts and grants received under Section 9.013, and other money required by law to be deposited in the account.

(c) Money in the interagency water advisory account may be used only as provided by this chapter.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001.

Sec. 9.015. CONTINUING RIGHT OF SUPERVISION.

Text of section effective until December 31, 2005.

Nothing in this chapter affects the continuing right of supervision over authorities by the commission as provided by Section 12.081.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001.

Sec. 9.016. PUBLIC PARTICIPATION.

Text of section effective until December 31, 2005.

The council shall encourage public participation at council meetings and public input regarding the council's purpose, the exercise of its powers and duties under Section 9.008, and its preparation of the report described in Section 9.009.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

Sec. 9.017. DISSOLUTION OF COUNCIL AND ACCOUNT.

Text of section effective until December 31, 2005.

Unless extended by the 79th Texas Legislature, this chapter and the interagency water advisory account expire on December 31, 2005.

Added by Acts 2001, 77th Leg., ch. 966, Sec. 1.01, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1057, Sec. 1, eff. June 20, 2003.

APPENDIX F

Something

Drinking water systems across the country have until January 2006 to comply with new federal standards for the amount of arsenic and radionuclides (RN) in drinking water. While the Environmental Protection Agency (EPA) says the standards will help save lives, some Texas communities are confounded by the costs of compliance.

The Texas Commission on Environmental Quality (TCEQ) has until December 2004 to adopt the EPA standard on RN and January 2005 on arsenic. If TCEQ fails to act, the state could lose the ability to enforce water standards in Texas.

But level reduction won't come cheap—the technology necessary is expensive. Some officials in Texas communities feel their water is just fine and want more proof of health risks before implementing changes. Preliminary studies show changes to water systems could cost hundreds of millions of dollars.

"I'm pretty comfortable saying \$400 million is what it's going to cost to get all Texas water systems to come into compliance [for arsenic]," said Tony Bennett of TCEQ's Water Supply Division. "We're looking at \$50 million for radionuclides."

Colorless, tasteless

In January 2001, the EPA reduced the maximum contaminant level (MCL) for arsenic from 50 parts per billion (PPB) to 10 PPB in more than 74,000

water systems across the country. Reducing arsenic levels in drinking water could help prevent as many as 31 cases of bladder cancer each year, 25 cases of lung cancer and as many as 30 deaths per year, according to the EPA.

About 4,000 U.S. water systems will have to install treatment facilities or take some other measure—like finding an alternate water source—to meet the standard. The compliance deadline is January 23, 2006.

In Texas, more than 200 water systems would fail to meet the EPA standards for arsenic if the deadline for compliance was September 2004, Bennett said.

"We are estimating that about 220 water systems have at least one source that would exceed the arsenic MCL," he said.

Arsenic is colorless, tasteless and occurs naturally. It is used

in many insecticides, herbicides and paints. It is present in many rocks in the Texas soil and, through years of erosion, managed to seep into water supplies.

But arsenic's effect on drinking water is a major point of contention for affected water systems that want more proof, according to Larry Fleming, director of public works for the city of Andrews.

"This is all naturally occurring, and we've been drinking it for years," Fleming said. "We're talking about parts per billion, which is so minute that science has only gotten down to that point recently. If it is proven harmful, then yes, we're all for it. But until then, we'd like to see more studying done."

Early studies have revealed that the cost for getting Andrews' current water supply

in compliance would be enormous, Fleming said.

"We're looking at \$1.3 to \$1.7 million, with operating expenses of \$200,000 to \$500,000 just to run it," he said. "The fiscal impact would be astronomical on our small community."

City officials have asked for proposals on different types of water treatment, including reverse osmosis (RO) and chemical treatment, but are currently in a holding pattern.

"Right now we're waiting to see what TCEQ tells us," Fleming said. "What we'd like to see is TCEQ sit down at the table and hear our proposal and then tell us what we're expected to do."

Fleming represented Andrews in Austin at a June meeting of the Texas Water Advisory Council (TWAC) and said he came away feeling like the EPA and

Pure but pricey

Meeting water standards for arsenic will not come cheap for Texas water systems. It could cost as much as \$112 million for El Paso's Water Utilities Public Service and \$1.6 million for Tahoka's.

System	Customers	Projected cost in millions
City of Houston Public Works Department	2.7 million	\$339.0
El Paso Water Utilities Public Service	620,000	112.0
City of Midland	98,045	24.6
City of Lamesa	9,042	6.1
City of Dalhart	9,052	4.1
Malcomson Road Utility District	5,823	2.7
Tahoka Public Water System	2,910	1.6
City of Dalhart	2,235	1.6



worry Texas communities

n the Water

TCEQ would be willing to work with them.

"A favorable thing we heard that day was that [the EPA and TCEQ] would deal with each individual entity," he said. "We were very encouraged by that."

Paradise lost

The city of Eden is also preparing to find solutions to its own water problem—radionuclides.

Radionuclides, like arsenic, are naturally occurring elements that get into water supplies. Considered heavy metals, uranium and radium are the two radionuclides TCEQ is most concerned with.

"Radionuclides are a group of different chemical contaminants that have ionizing radiation," said TCEQ's Bennett. "They're naturally occurring in different aquifers at different depths.

Because they're heavy metals, there are concerns over contact with them."

Like Andrews, Eden is looking for ways to bring water quality into compliance with the RN standards. As is the case in Andrews, city officials want more proof.

"We're not concerned about the quality of our water," said Genora Young, Eden's community development director. "We're concerned about staying alive as a city long enough to drink it."

The RN standard for drinking water is five picocuries per liter for radium and 30 micrograms per liter for uranium. Eden's water tested at 5.8 picocuries per liter, slightly more than the allowable level. That was enough to tie up a significant portion of the city's \$2 million annual budget for studying potential solutions, said Mayor Charlie Rodgers Jr.

"Thirty-five percent of our budget already goes to water and waste," he said. "We've spent \$50,000 to study this [problem] and gone nowhere. We want to be in compliance; we just can't afford to be in compliance."

RO is one solution Eden officials have looked into, but, in the end, the price of an RO facility is too high, said City Manager Ed Medders.

"An RO system at best would cost \$1 million and that's for the system itself," he said. "Then you have to think about maintenance and hiring at least two more employees."

Young said the EPA has not provided proof that drinking water with Eden's content level is harmful.

"Show us the data that [shows] that," she said. "We live here because we want to. The

quality of life is wonderful here and no one glows in the dark [from the water]."

Squeaky wheels

Texas communities are looking for answers, and their questions are getting louder.

"The squeaky wheel gets the grease," Medders said. "And we need to do a whole lot of squeaking."

State Sen. Robert Duncan, chair of TWAC, heard the noise at the June meeting and said the representatives in attendance from Eden, Andrews, Midland and Seminole definitely were heard.

"I think the affected communities did a good job of raising the issue and identifying their particular problems, which I'm sure are problems being felt all over the state," Duncan said. "These standards are so stringent, you worry about people having confidence in their drinking water."

The Texas Radiation Advisory Board also concluded that the standards are too stringent and that Texas' water supply is in good shape.

"If you look at our current water system, 97 percent of the population gets water from public drinking water systems that meet federal and state standards," Bennett said.

TWAC monitors the status of the EPA standard and the progress of water systems, and tries to help smaller systems find solutions, Duncan said.

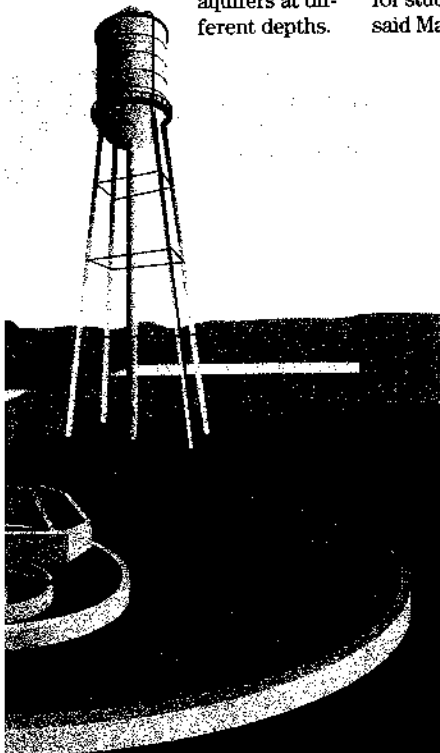
"Right now we're kind of between a rock and a hard place," he said. "You would hope financial help will be available both at the federal and state level, but also that help will also be available in the form of time [to comply]." ♣

A costly kind of clean

Getting radionuclide levels down to federal standards will be costly for Texas communities. A few have estimated the costs of cleaner water.

	Customers	Projected cost in millions
City of Kerrville	26,442	\$7.6
Fort Bend County WCD #2	23,718	6.8
City of Humble	14,579	4.1
Harris County MUD 102	10,260	2.9
City of Eden	2,561	0.7
Council Creek Village	327	1.5
Hudson Heights	168	1.5

NOTE: MUD (Municipal Utility District)
WCD (Water Control and Improvement District)



Clint Shields

APPENDIX G

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 13, 2004

The Honorable Robert Duncan
Chairman
Texas Water Advisory Council
Texas Senate
P.O. Box 12068
Austin, TX 78711

Dear Senator Duncan:

Thank you for the opportunity to offer input on issues the Texas Water Advisory Council could review.

In addition, the following materials are attached in response to questions raised at the June 7, 2004 hearing:

- February 28, 2003 Letter to EPA Administrator Christine Todd Whitman from the Texas Delegation on the EPA's Radionuclide Rule;
- May 2, 2002 Letter to TCEQ from the Texas Radiation Advisory Board on the TCEQ's Radionuclide Rule (30 TAC Sec. 290.108);
- Potential and Existing Radionuclide Violators and Capital Cost Ranges to Achieve Compliance;
- Potential Arsenic Violators and Ranges of Capital Cost to Achieve Compliance;
- Annual Dose to the United States General Population From Natural and Man-made Radiation Sources; and
- Estimates of Daily Total Dietary Intake from Different Foodstuffs.

The Texas Commission on Environmental Quality is committed to working with you and the Council on issues you deem appropriate for consideration. Please let me know of any specific assistance we can provide.

Sincerely,

A handwritten signature in black ink that reads "Kathleen Hartnett White".

Kathleen Hartnett White
Chairman

HON. STENHOLM
Congress of the United States

Washington, DC 20515

February 28, 2003

The Honorable Christine Todd Whitman
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Mail Code 3213A
Washington, D.C. 20460

Dear Governor Whitman:

On behalf of the citizens of the State of Texas, we are writing in opposition to the U.S. Environmental Protection Agency's (EPA's) Radionuclide Rule, promulgated on December 7, 2000 under the federal Safe Drinking Water Act, 42 U.S.C. §§ 300f-j, which mandates that the States revise their approved primacy programs in accordance with the revised national drinking water standards as they relate to uranium, radium, and beta/photon maximum contaminant levels (MCLs).

As you know, on a national level, the scientific and legal validity of the Radionuclide Rule is currently being challenged in the D.C. Circuit Court of Appeals (No. 01-1028 and consolidated cases, City of Waukesha et al v. EPA). Furthermore, the Rule was recently referred back to EPA for evaluation and possible reformation by the White House Office of Management and Budget (OMB) in OMB's 2002 Report to Congress on the Costs and Benefits of Regulations and Unfunded Mandates on State, Local, and Tribal Entities. On the state level in Texas, the Texas Commission on Environmental Quality (TCEQ), the state agency responsible for implementation of the Radionuclide Rule, was initially told by EPA that it must adopt essentially equivalent radionuclide standards by December 7, 2002 in order for Texas to maintain its primacy status. However, after determining that implementation of the Radionuclide Rule would drastically impact more than 130 community water systems in the State of Texas that contain radionuclides above the expected MCLs and discovering the controversy surrounding the Radionuclide Rule on a national level, the TCEQ requested from EPA, and was granted, a two-year extension on rulemaking on the Radionuclide Rule.

In accordance with the findings of the Texas Radiation Advisory Board (TRAB), a governor-appointed board whose duties include evaluating radiation issues and providing technical advice to the State of Texas, we oppose the Radionuclide Rule because of the insufficient science employed in the Rule's development, the inadequate cost-benefit analysis, and the burden its implementation imposes on the entire State of Texas, particularly on small businesses, agricultural producers and other residents of the state where there exists only one water supply, which would ultimately violate the Rule's standards. The final standards proposed by the Radionuclide Rule stipulate the MCLs for radium-226 and radium-228 (combined) at 5 pCi/L and gross alpha particle radioactivity at 15 pCi/L, levels of which were determined by

EPA's use of linear, non-threshold models not supported by any published epidemiological data. However, if EPA would use appropriate, validated science and enforce the MCLs for radium-226, radium-228 and gross alpha particle radioactivity at 20 pCi/L respectively, the vast majority of the Texas community water systems potentially impacted by the unreasonable rule would remain in compliance with federal regulations.

Furthermore, EPA claims that the standards outlined in the Radionuclide Rule will have a material positive health and safety effect on *some* people who drink water containing radium-226, radium-228 and alpha emitters in excess of the MCLs *over many years* who *may* have an increased risk of getting cancer. In accordance with TRAH, we believe the public health hazard the Radionuclide Rule presumes to address has never been scientifically demonstrated, particularly in the State of Texas. Community water system funds are very limited, and we believe that issues of water supply, infrastructure, and basic hygiene should take precedence over radon mitigation, unless extensive and thorough oral ingestion studies are conducted to ensure that the Rule's implementation on a particular Texas community water system is absolutely necessary and will have a significant positive health benefit on the communities that depend on the particular groundwater in question. Critical community water system funds should not be exhausted on the mitigation of a hypothetical risk of radon in water, but instead on the mitigation of water-borne pathogens that are causing real death and disease throughout the state. Furthermore, we believe that the State of Texas should not be forced to adopt a prohibitively expensive rule that proposes to combat a potential minuscule or non-existent health or safety risk.

Finally, we support the position that no federal regulations relating to radionuclides in drinking water should be mandated anywhere in the United States until the referenced pending litigation is resolved or until EPA can justify the Radionuclide Rule on the basis of thorough, sound science and an appropriate cost-benefit analysis. On behalf of the citizens of the State of Texas, we urge you to closely examine the science employed in the Radionuclide Rule's development and the actual necessity and validity of the standards. We respectfully request that EPA only promulgate rules grounded in scientific validity, health and safety necessity, and cost efficiency.

Sincerely,



Congressman Charles W. Stenholm

Congressman Lamar Smith

Kay Stanger

Muel C. Berger

Pete Sessions

Joe Barton

Max L. Baucus

Hy Hovell

John Dingell

Jim Culberson

Ron Paul

Larry Combest

Sam Johnson

Tom DeLay

Jim Jensen

Chad Davis

Mark Jundt

Mike Smith

John Lee

Chad Edwards

Lawrence R. Outley

Rubin Hingosa

Ralph M. Hall

Neil Hansen

Charles A. Jones

Chris Bell

Sheila Jackson Lee

John R. Carter

Frank Perry

Steve Perry

cc: Tracy Mchar, Assistant Administrator, Office of Water, EPA
Benjamin Crumbles, Deputy Assistant Administrator, Office of Water, EPA
Cynthia Dougherty, Director, Office of Groundwater and Drinking Water, Office of Water, EPA
Governor Rick Perry
Agriculture Commissioner Susan Combs



Texas Radiation Advisory Board

Michael Ford, C.H.P.
Vice Chair

1100 West 49th Street
Austin, Texas 78756
(512) 834-6688 ofc
(512) 834-6708 fax

Executive Committee
Michael Ford, C.H.P.
Elaine Wells, M.S.
Jimmy Barker, P.E.
W. Kim Howard, M.D.

May 6, 2002

Robert J. Huston
Chairman
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, TX 78711-3087

Dear Chairman Huston:

I am writing you today to explain why the Texas Radiation Advisory Board (TRAB) in its 6 April 2002 meeting recommended that 30 TAC Sec. 290.108 not be proposed for rulemaking.

In short, we believe that: (1) the revised EPA rules are unwarranted and unsupported by public health information (specifically epidemiological data); (2) the results of unvalidated mathematical models are used to support the diversion of public and private monies toward compliance with the rules; and (3) the rules unnecessarily create a category of radioactive waste for which there is currently no approved method of disposal.

As we discussed with your staff in our meeting on 5 April 2002, the most significant change to the existing rule is the addition of uranium as a regulated substance in drinking water. The fact that the existing regulations have been unchanged in Texas since 1971 is now well understood by the TRAB; however, the Environmental Protection Agency's (EPA) proposed rule in 1991 raised the question of appropriate limits supported by epidemiological data.

EPA's apparent reversal in April of 2000 with the issuance of the Notice of Data Availability (NODA) document was supported only by the recently-developed models described in Federal Guidance Report (FGR) 13. This Report was roundly criticized in the Health Physics community because the levels to which the FGR 13 models seek to analyze are not supported by any published epidemiological data. A documented TRAB review also commented on the inadequacy of the FGR 13 document.

May 6, 2002

Page two

This position is further supported by EPA's own statements in the NODA document:

"EPA recognizes the inherent uncertainties that exist in estimating health impacts at the low levels of exposure and exposure rates expected to be present in the environment. EPA also recognizes that, at these levels, the actual health impact from ingested radionuclides will be difficult, if not impossible, to distinguish from natural disease incidences, even using very large epidemiological studies employing sophisticated statistical analyses." [FR21600, Vol. 65, No. 78, 21 APR 2000]

The federal agency concedes that it is practically impossible to distinguish natural disease rates from disease rates enhanced by the minuscule levels of radioactive materials represented by the MCLs for drinking water. However, the EPA essentially ignores its own admonitions in the NODA and concludes that it plans to proceed with the revised levels in the NODA, maintaining the unsupported and unvalidated assumption that the linear, non-threshold model holds at the levels represented by the MCLs. When confronted with such unyielding adherence to the results of mathematical models, the TRAB has little choice. We cannot and will not support the diversion of public and private monies to fund EPA's mathematical exercises that have no basis in fact.

Similarly, the TRAB cannot support the TNRCC's position that "[T]he proposed rulemaking would materially protect public health and safety by preventing the exposure to unacceptable levels of radium-226, radium-228, and gross alpha particle radioactivity naturally occurring in groundwater which may be used as a public drinking water source in various geographical areas in Texas." [Emphasis added. Ref. 22 FEB 02 draft of 30 TAC Sec. 290.108, pg 10]. There are no data to support the assertions made in that statement.

The view held by the TRAB of this rulemaking activity is essentially identical to that expressed in a 19 September 2000 letter to Governor Bush on the subject of the EPA's proposed radon in drinking water rule:

"... The TRAB's concerns are that the burdens placed on Texans by the changes in the EPA rules are unwarranted and unsupported by public health information. The public health hazard this rule presumes to address has never been scientifically demonstrated.

The TRAB understands that community water system (CWS) funds are very limited; the TRAB believes that issues of water supply, infrastructure, and basic hygiene should take precedence over radon mitigation. These critical CWS funds should not be exhausted on the mitigation of a hypothetical risk of radon in water, but instead on the mitigation of water-borne pathogens that are causing real death and disease throughout the nation today. In the end, it is not a question of what is the most cost-effective alternative for Texans, but ultimately it is a question of 'who pays' for the mitigation of a minuscule or non-existent risk. ..."

May 6, 2002

Page three

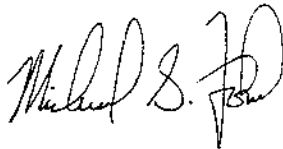
To further complicate matters, the radioactive waste unnecessarily generated by this rule creates additional hazards for Texans for which there is currently no approved method of disposal. The small rural CWSs most affected by these proposed rules could be financially devastated by the liability and cost of safely handling and disposing of the radioactive materials created by these rules. In fact, as stated in the attached comments to the proposed rule, the proposed rulemaking has the potential to materially endanger the public health and safety by creating radioactive wastes without providing for their safe handling and disposal and by limiting access of some Texans to safe, pathogen-free water. In many cases, these small rural CWSs are the sole source of suitable pathogen-free water for rural Texans.

Mr. Chairman, the TRAB understands the difficult position this puts the TNRCC in especially in regard to primacy status. However, the Board must take this position when the mitigation of an unsubstantiated hazard is involved in removing monies from limited public health coffers.

We will continue to work closely with the TNRCC staff in resolving this matter for the benefit of all Texans. Additional comments on the proposed rule are attached.

If you have any questions regarding the position of the TRAB on this matter, please feel free to contact me at your earliest convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael S. Ford". The signature is written in a cursive style with a large, stylized "F" at the end.

Michael Ford, C.H.P.
Vice Chair

cc: Governor Rick Perry
Representative Warren Chisum, Chair, Committee on Environmental Regulation
Senator J.E. "Buster" Brown, Chair, Senate Natural Resources Committee
Environmental Protection Agency

**TRAB Comments on Proposed 30 TAC §290.108,
Radiological Sampling and Analytical Requirements**
(M. S. Ford)

Page 10, ¶1, 1st and 2nd sentences: The fact that this rule may divert limited monies from the Community Water Systems that might otherwise be used for infrastructure improvements, security, and/or treatment of water-borne pathogens impacts on the “public health and safety” criterion of the “major environmental rule” test.

Page 10, ¶1, 4th and 5th sentences: The statements that the proposed rulemaking could not have a material effect on the “major environmental rule” criteria, but would “materially protect public health and safety” are both incorrect. The negative material effect on the economies of CWSs is demonstrable as is the potential negative impact on public health and safety for the very same reason.

Page 10, ¶2, 1st sentence: § 341.031 seems to provide the option of adopting TNRCC standards or EPA standards. Is this at odds with primacy requirements?

Page 18, §290.108(c)(1)(A)(i): For clarity, it would be beneficial to add the following statement to the end of the sentence, “... and hereafter referred to as ‘initial monitoring.’”

Page 19, §290.108(c)(1)(B)(i): What is the “Detection Limit”? It is not defined, nor is there a reference to a common definition. Is it Decision Level, Minimum Detectable Activity, or something else?

Page 21, §290.108(c)(1)(E): The reference to “executive director” and “its” are not consistent. The latter

Page 22, §290.108(c)(1)(G)(iv): Please state the basis by which one half of the gross alpha detection limit is “used to determine compliance and the future monitoring frequency for radium 226 [sic] or uranium.” This does not appear to be intuitively obvious.

Page 24, §290.108(d): Reference the process by which the executive director certifies laboratories for analyzing radiological samples.

Page 25, §290.108(f)(1)(A): The precision of the activity limit should be stated numerically (i.e., not “five”); “theta” should be replaced with “sigma” which is the common symbol for standard deviation.

Page 25, §290.108(f)(1)(B): The precision of the activity limit should be stated numerically (i.e., not “five” and not “three”).

Page 25, §290.108(f)(1)(D): Substitution of artificial value in lieu of actual data constitutes data censoring and is highly improper. There is no reason to substitute artificial values in place of valid data, especially when the artificial values would tend to drive the averages higher.

Page 27, §290.108(g)(2): The limits for “man-made” radioactivity do not appear to be specified.

**Annual Dose to the United States General Population
From Natural and Man-made Radiation Sources***

Source of Radiation	Annual Average Effective Dose Equivalent (millirem/year)	Percentage of Total Dose
<i>Natural Sources</i>		
Cosmic	27	8%
Cosmogenic	1	<1%
Terrestrial	28	8%
Inhaled (due to radon)	200	55%
In the Body	39	11%
<i>Subtotal</i>	295	82%
<i>Man-made Sources</i>		
Medical X-rays	39	11%
Nuclear Medicine	14	4%
Consumer Products	10	3%
Others	<1	<1%
<i>Subtotal</i>	64	18%
<i>Rounded Total</i>	360	100%

* - Information taken from the National Council on Radiation Protection and Measurements (NCRP) Report Number 93 entitled "Ionizing Radiation Exposure of the Population of the United States"

**Estimates of Daily Total Dietary Intake
from Different Foodstuffs***

Dietary Product	New York City Studies (picocuries/day)
<i><u>Total Uranium Content</u></i>	
Cereals and Grain	0.216
Meat, Fish, and Eggs	0.162
Milk and Other Dairy	0.027
Green Vegetables and Fruits	0.189
Root Vegetables	0.216
<i>Daily Subtotal</i>	0.81
<i><u>Radium-226 Content</u></i>	
Cereals and Grain	0.567
Meat, Fish, and Eggs	0.459
Milk and Other Dairy	0.135
Green Vegetables and Fruits	0.540
Root Vegetables	0.054
<i>Daily Subtotal</i>	1.76
<i><u>Radium-228 Content</u></i>	
Cereals and Grain	0.432
Meat, Fish, and Eggs	0.135
Milk and Other Dairy	0.054
Green Vegetables and Fruits	0.432
Root Vegetables	0.108
<i>Daily Subtotal</i>	1.16
<i><u>Lead-210 Content</u></i>	
Cereals and Grain	0.432
Meat, Fish, and Eggs	0.162
Milk and Other Dairy	0.189
Green Vegetables and Fruits	0.324
Root Vegetables	0.162
<i>Daily Subtotal</i>	1.27
<i>Daily Total</i>	5

* - Information taken from the National Council on Radiation Protection and Measurements (NCRP) Report Number 94 entitled "Exposure of the Population in the United States and Canada from Natural Background Radiation"

COUNTY	SYSTEM NAME	POPULATION	ARSENIC	Low Range	High Range	Ownership Type
ANDREWS	CITY OF ANDREWS	9652	0.0356	\$835,786	\$4,125,327	M
ANDREWS	EXXONMOBIL PRODUCTION COMPANY MEAN	30	0.0385	\$264	\$10,567	P
ARANSAS	ARANSAS COUNTY MUD 1	234	0.0121	\$21,120	\$112,541	D
ATASCOSA	CAMPBELLTON WATER WORKS INC	147	0.0149	\$12,936	\$68,931	P
AUSTIN	WEST END WSC	1896	0.0144	\$112,210	\$889,073	W
BEE	BLUEBERRY HILL MOBILE HOME ESTATES	250	0.017	\$18,480	\$98,473	P
BEE	COUNTRY VILLA MOBILE HOME PARK	96	0.0259	\$12,672	\$71,655	P
BEE	SKIDMORE TYNAN ISD	697	0.0138	\$17,424	\$92,846	D
BEXAR	LACKLAND AIR FORCE BASE ANNEX	4760	0.033	\$61,248	\$379,636	F
BORDEN	BORDEN COUNTY WATER SYSTEM	150	0.0225	\$25,872	\$137,863	C
BRAZORIA	BRAZORIA COUNTY DETENTION CENTER 2	1160	0.0417	\$6,600	\$43,640	S
BRAZORIA	CITY OF BRAZORIA	3864	0.0192	\$283,041	\$1,811,908	M
BRAZORIA	CITY OF DANBURY	1608	0.014	\$93,627	\$754,024	M
BRAZORIA	GRASSLANDS	462	0.0123	\$34,184	\$216,641	P
BRAZORIA	MARK V ESTATES	249	0.022	\$21,912	\$116,761	P
BRAZORIA	OAK MANOR MUD	456	0.0307	\$40,128	\$242,764	D
BRAZORIA	ROSHARON ROAD ESTATES SUBDIVISION	168	0.0247	\$14,784	\$81,783	P
BRAZORIA	SANDY MEADOW ESTATES SUBDIVISION	144	0.0186	\$12,672	\$67,525	P
BRAZORIA	SCHLUMBERGER RESERVOIR COMPLETION	420	0.0224	\$7,920	\$42,203	P
BRAZORIA	TOWN OF QUINTANA	108	0.0114	\$9,504	\$50,643	M
BRAZORIA	VILLAGE OF SURFSIDE BEACH	713	0.0147	\$144,604	\$1,142,290	M
BRISCOE	SILVERTON MUNICIPAL WATER SYSTEM	780	0.0145	\$73,697	\$548,637	M
CASTRO	HART MUNICIPAL WATER SYSTEM	1198	0.0153	\$82,114	\$583,806	M
CHAMBERS	CEDAR BAYOU MOBILE HOME PARK	264	0.0253	\$23,232	\$129,976	P
CHAMBERS	COTTON BAYOU MANOR MOBILE HOME PAR	96	0.0285	\$8,448	\$49,718	P
CHAMBERS	GRAYS TRAILER COURT	39	0.0134	\$3,432	\$18,288	P
CHAMBERS	HACKBERRY CREEK SUBDIVISION	165	0.0372	\$14,520	\$93,252	P
CHAMBERS	OLSEN ESTATES WATER SYSTEM	114	0.0302	\$10,032	\$60,337	P
COCHRAN	MORTON PUBLIC WATER SUPPLY	2245	0.0139	\$159,721	\$1,364,558	M
COLORADO	COPANO PROCESSING HOUSTON CENTRAL	30	0.0343	\$1,584	\$12,262	P
CRANE	CITY OF CRANE	3191	0.0134	\$232,056	\$2,132,650	M
DAWSON	ACKERLY WSC	230	0.0233	\$33,264	\$178,715	W
DAWSON	CITY OF LAMESA	9942	0.012	\$541,709	\$6,177,089	M
DAWSON	KLONDIKE HIGH SCHOOL	250	0.0154	\$4,224	\$22,508	D
DAWSON	WELCH WSC	354	0.0269	\$31,680	\$182,114	W
DUVAL	DUVAL COUNTY CONSERVATION & RECLAM	1978	0.0328	\$214,104	\$1,324,501	D

DUVAL	DUVAL COUNTY CONSERVATION & RECLAM	150	0.0108	\$13,200	\$70,338 D
DUVAL	FREER WCID	2859	0.059	\$309,144	\$2,186,396 D
DUVAL	SAN DIEGO MUD 1	5600	0.0106	\$171,427	\$2,546,238 D
EL PASO	CITY OF ANTHONY	3800	0.0108	\$78,937	\$1,026,936 M
EL PASO	EL PASO COUNTY TORNILLO WATER IMPR	3176	0.0118	\$106,921	\$1,163,392 D
EL PASO	EL PASO COUNTY WATER AUTHORITY	13788	0.0168	\$447,313	\$3,232,737 D
EL PASO	EL PASO WATER UTILITIES PUBLIC SER	620000	0.0166	\$14,987,965	\$112,000,000 M
EL PASO	FARMERS DAIRIES	120	0.0131	\$2,112	\$11,601 P
EL PASO	GREEN ACRES MOBILE HOME PARK	132	0.015	\$11,616	\$61,897 P
EL PASO	HILLSIDE WATER WORKS	156	0.0125	\$13,728	\$73,152 P
EL PASO	HOMESTEAD MUD	4068	0.014	\$221,241	\$1,907,568 D
EL PASO	KESSLER ENTERPRISES INC	41	0.0226	\$1,584	\$11,940 P
EL PASO	LEE LIMAS MOBILE HOME PARK	40	0.0225	\$3,432	\$18,288 P
EL PASO	MAYFAIR 5 WATER COMPANY	480	0.0136	\$39,547	\$225,082 P
EL PASO	PHELPS DODGE REFINING CORP	512	0.0108	\$2,376	\$12,661 P
EL PASO	RIVER VIEW ESTATES	168	0.0119	\$14,784	\$78,779 P
EL PASO	VALLEY ACRES MHP WATER SYSTEM	45	0.0249	\$3,960	\$21,990 P
EL PASO	VINTON MOBILE HOME PARK	108	0.0115	\$9,504	\$50,643 P
FALLS	PERRY WSC	495	0.0111	\$30,731	\$232,116 W
FALLS	TRI COUNTY SUD	4350	0.0249	\$367,579	\$2,125,735 D
FAYETTE	CITY OF FLATONIA	2200	0.024	\$184,997	\$1,039,680 M
FAYETTE	FAYETTE WSC WEST	2390	0.0154	\$207,036	\$1,586,827 W
FORT BEND	SCHMIDT MANUFACTURING	75	0.0114	\$264	\$10,347 P
GAINES	CITY OF SEAGRAVES	2334	0.0436	\$244,728	\$1,634,922 M
GAINES	CITY OF SEMINOLE	6456	0.025	\$683,827	\$3,837,645 M
GAINES	LOOP WSC	350	0.0324	\$30,624	\$188,693 W
GAINES	SEMINOLE GAS PROCESSING PLANT	65	0.0168	\$264	\$10,447 P
GILLESPIE	DOSS CONSOLIDATED SCHOOL DISTRICT	40	0.0108	\$264	\$10,329 D
GRIMES	G & W WSC	978	0.0182	\$74,114	\$441,723 W
GRIMES	TDCJ ID WALLACE PACK UNIT I	1664	0.0171	\$39,600	\$211,014 S
HARDIN	COUNTRYWOOD WATER SYSTEM	408	0.0107	\$25,493	\$191,320 P
HARRIS	ALBURY MANOR UTILITY COMPANY	114	0.0176	\$10,032	\$53,457 P
HARRIS	BAMMEL FOREST UTILITY CO	990	0.0333	\$87,120	\$541,557 P
HARRIS	CHAPMANS MOBILE HOME PARK	204	0.0125	\$17,952	\$95,660 P
HARRIS	CITY OF BUNKER HILL	3391	0.0135	\$218,808	\$1,983,533 M
HARRIS	CITY OF HOUSTON PUBLIC WORKS DEPT	2700000	0.0125	\$8,411,473	\$339,326,064 M
HARRIS	FOUNTAINHEAD MUD	5223	0.0148	\$300,684	\$2,449,171 D

HARRIS	HARRIS COUNTY FACILITY & PROPERTY	3000	0.0165	\$66,332	\$422,028 C
HARRIS	HARRIS COUNTY MUD 11	2109	0.0714	\$185,592	\$1,348,342 D
HARRIS	HARRIS COUNTY MUD 119	6672	0.0132	\$328,355	\$3,128,637 D
HARRIS	HARRIS COUNTY MUD 150	8364	0.0131	\$404,352	\$3,922,050 D
HARRIS	HARRIS COUNTY MUD 16	4341	0.0188	\$312,063	\$2,035,584 D
HARRIS	HARRIS COUNTY MUD 200	1503	0.0133	\$82,709	\$704,787 D
HARRIS	HARRIS COUNTY MUD 217	2328	0.0215	\$187,148	\$1,091,647 D
HARRIS	HARRIS COUNTY MUD 233	18	0.0326	\$1,584	\$12,230 D
HARRIS	HARRIS COUNTY MUD 33	4821	0.0108	\$161,502	\$2,260,665 D
HARRIS	HARRIS COUNTY MUD 44	2280	0.0113	\$90,807	\$1,069,139 D
HARRIS	HARRIS COUNTY MUD 58	1542	0.0218	\$128,365	\$723,075 D
HARRIS	HARRIS COUNTY MUD 70	2430	0.0149	\$146,421	\$1,139,477 D
HARRIS	HARRIS COUNTY WCID 119	5937	0.0122	\$257,609	\$2,783,981 D
HARRIS	KLEIN SPRING MONTESSORI SCHOOL	80	0.068	\$792	\$11,393 P
HARRIS	LOUETTA ROAD UTILITY DISTRICT	1335	0.0143	\$81,403	\$626,009 D
HARRIS	MALCOMSON ROAD UTILITY DISTRICT	5823	0.0382	\$512,424	\$2,730,524 D
HARRIS	NORTHWEST HARRIS COUNTY MUD 21	3975	0.0144	\$224,054	\$1,863,959 D
HARRIS	NORTHWEST HARRIS COUNTY MUD 23	3276	0.0142	\$183,347	\$1,536,183 D
HARRIS	PINE VILLAGE PUD	1476	0.012	\$69,765	\$692,127 D
HARRIS	QUAILWOOD WATER SYSTEM	45	0.0393	\$3,960	\$25,805 P
HARRIS	SHELL CHEMICAL LP WESTHOLLOW TECHN	1200	0.04	\$264	\$10,570 P
HARRIS	SPELL WELL MONTESSORI SCHOOL	50	0.0299	\$264	\$10,540 P
HARRIS	TERRANOVA WEST MUD	2109	0.0197	\$161,824	\$988,953 D
HARRIS	TRAILWOOD SUBDIVISION	111	0.0192	\$9,768	\$52,050 D
HASKELL	LAKESHORE SITES WATER CO	148	0.0117	\$26,687	\$164,591 P
HIDALGO	MILITARY HWY WSC LAS RUSIAS WTP	8505	0.0124	\$375,506	\$3,988,168 W
HILL	BIROME WSC	1356	0.012	\$66,255	\$651,330 W
HOCKLEY	CITY OF ANTON	1200	0.018	\$106,037	\$668,212 M
HOCKLEY	CITY OF SMYER	480	0.0117	\$35,558	\$253,217 M
HOCKLEY	OCCIDENTAL PERMAIN LTD E SLAUGHTER	60	0.0312	\$1,584	\$12,200 P
HOCKLEY	OPDYKE WEST WATER SUPPLY	180	0.0119	\$20,328	\$108,321 P
HOWARD	SID RICHARDSON CARBON CO	75	0.0109	\$264	\$10,332 P
HUDSPETH	FORT HANCOCK WCID	1700	0.0273	\$66,264	\$383,285 D
JIM HOGG	JIM HOGG COUNTY WCID 2	5010	0.101	\$454,080	\$2,736,741 D
JONES	CITY OF HAMLIN	2235	0.0131	\$177,029	\$1,659,978 M
KARNES	CITY OF KENEDY	7472	0.0355	\$523,512	\$2,789,608 M
KARNES	CITY OF RUNGE	1563	0.0122	\$75,343	\$732,923 M

KARNES	EL OSO WSC	3855	0.0266	\$336,494	\$1,940,833 W
KARNES	RESTFUL ACRES CARE CENTER	100	0.0132	\$2,640	\$14,068 P
KLEBERG	KING RANCH GAS PLANT	83	0.015	\$3,168	\$16,881 P
LAVACA	CITY OF MOULTON	1050	0.016	\$114,066	\$804,667 M
LIBERTY	RIVERWOOD ESTATES	510	0.0117	\$34,150	\$239,149 P
LIMESTONE	PRAIRIE HILL WSC	1680	0.0245	\$147,163	\$814,629 W
LIVE OAK	SMITHS TRAILER VILLAGE	30	0.0163	\$18,744	\$98,880 P
LUBBOCK	114TH STREET MOBILE HOME PARK	80	0.0131	\$11,352	\$60,491 P
LUBBOCK	ALL AMERICAN CHEVROLET	25	0.0154	\$264	\$10,428 P
LUBBOCK	BIG Q MOBILE HOME ESTATES	100	0.0191	\$13,200	\$70,338 P
LUBBOCK	CASEY HOMES ESTATES WATER	300	0.0114	\$24,422	\$150,523 P
LUBBOCK	CENTRAL FREIGHT LINES	40	0.022	\$264	\$10,497 P
LUBBOCK	CITY OF IDALOU	2178	0.0118	\$108,441	\$1,181,679 M
LUBBOCK	CITY OF WOLFFORTH	2554	0.0193	\$233,451	\$1,477,099 M
LUBBOCK	COUNTRY SQUIRE MHP 1	60	0.0121	\$5,016	\$26,728 P
LUBBOCK	COUNTRY SQUIRE MHP 2	75	0.0123	\$4,224	\$22,508 P
LUBBOCK	COUNTRY VIEW MHP	74	0.0114	\$7,128	\$37,983 P
LUBBOCK	COX ADDITION WATER SYSTEM	120	0.0125	\$10,560	\$56,270 P
LUBBOCK	ELM GROVE MOBILE HOME PARK	29	0.0423	\$4,488	\$29,775 P
LUBBOCK	GOULDS PUMPS INC	175	0.0105	\$528	\$10,426 P
LUBBOCK	GREER MOBILE HOME PARK	65	0.0167	\$7,392	\$39,389 P
LUBBOCK	LUBBOCK-COOPER ISD	2150	0.0133	\$3,696	\$19,695 D
LUBBOCK	MANAGED CARE CENTER	85	0.0105	\$1,320	\$10,744 P
LUBBOCK	MILLER MOBILE HOME PARK	60	0.0113	\$8,712	\$46,423 P
LUBBOCK	PAUL COBB WATER SYSTEM	40	0.0388	\$5,280	\$34,293 P
LUBBOCK	PECAN GROVE MOBILE HOME PARK	115	0.0261	\$14,256	\$80,888 P
LUBBOCK	PLOTT ACRES	200	0.0107	\$17,854	\$95,660 P
LUBBOCK	SOUTHWEST GARDEN WATER	240	0.0119	\$27,724	\$168,811 P
LUBBOCK	TERRELLS MOBILE HOME PARK	50	0.0148	\$6,072	\$32,356 P
LUBBOCK	TEXIN ENTERPRISES WATER SYSTEM	30	0.0126	\$2,376	\$12,661 P
LUBBOCK	TOWN NORTH ESTATES	200	0.0168	\$17,160	\$91,439 P
LUBBOCK	TOWN NORTH VILLAGE WATER SYSTEM	330	0.0145	\$28,248	\$150,523 P
LUBBOCK	VALLEY ESTATES	70	0.0138	\$9,504	\$50,643 P
LUBBOCK	WAGON WHEEL MOBILE VILLAGE	40	0.0148	\$4,752	\$25,322 P
LUBBOCK	WESTGATE VILLAGE MHP	60	0.0164	\$11,880	\$63,304 P
LUBBOCK	WHORTON MOBILE HOME PARK	45	0.0195	\$6,864	\$36,576 P
LUBBOCK	WILDWOOD MOBILE HOME VILLAGE	326	0.0117	\$26,969	\$167,405 P

LUBBOCK	WOLFFORTH PLACE	460	0.0185	\$36,544	\$205,387 P
LYNN	CITY OF NEW HOME	440	0.032	\$34,320	\$210,600 M
LYNN	GRASSLAND WSC	75	0.0203	\$7,392	\$39,389 W
LYNN	POKA LAMBRO TELEPHONE HEADQUARTERS	73	0.0109	\$528	\$10,451 P
LYNN	TAHOKA PUBLIC WATER SYSTEM	2910	0.0122	\$153,600	\$1,613,555 M
MARTIN	CITY OF STANTON	2556	0.0195	\$223,936	\$1,403,948 M
MARTIN	GRADY ISD	300	0.0174	\$2,904	\$15,474 D
MCLENNAN	AXTELL WSC	1611	0.0169	\$112,904	\$755,431 W
MCLENNAN	CITY OF MART	2073	0.0196	\$264,023	\$1,661,385 M
MCLENNAN	EOL WSC	1632	0.0166	\$112,553	\$765,278 W
MCLENNAN	M S WSC	642	0.0116	\$39,783	\$301,047 W
MCLENNAN	MOORES WATER SYSTEM	252	0.0177	\$20,592	\$109,727 P
MCLENNAN	R M S WSC	26	0.0116	\$528	\$10,490 W
MIDLAND	CITY OF MIDLAND	98045	0.0356	\$5,006,445	\$24,965,792 M
MIDLAND	COUNTRY VILLAGE MOBILE HOME ESTATE	108	0.0125	\$9,504	\$50,643 P
MIDLAND	GREENWOOD ISD	1696	0.0281	\$528	\$10,851 D
MIDLAND	GREENWOOD VENTURES INC	66	0.0257	\$5,808	\$32,728 P
MIDLAND	GREENWOOD WATER CORPORATION	618	0.0288	\$54,384	\$321,360 P
MIDLAND	JOHNS MOBILE HOME PARK	34	0.0116	\$4,488	\$23,915 P
MIDLAND	PECAN ACRES WATER SUPPLY CORPORATI	150	0.0291	\$11,616	\$68,912 W
MIDLAND	SHERWOOD ESTATES MANUFACTURED TOWN	81	0.0142	\$7,128	\$37,983 P
MIDLAND	SOUTH MIDLAND COUNTY WATER SYSTEMS	256	0.017	\$19,800	\$105,507 P
MIDLAND	SPRING MEADOW MOBILE HOME PARK	162	0.0126	\$14,256	\$75,965 P
MIDLAND	TWIN OAKS MOBILE HOME PARK	234	0.0159	\$20,592	\$108,727 P
MIDLAND	VALLEY VIEW MOBILE HOME PARK	51	0.0117	\$8,976	\$47,830 P
MIDLAND	WARREN ROAD SUBDIVISION WATER SUPP	255	0.012	\$22,440	\$119,575 P
NUECES	CYNDIE PARK II WSC	75	0.0114	\$6,336	\$33,762 W
NUECES	TICONA POLYMERS	500	0.0119	\$18,480	\$98,473 P
ORANGE	IWANDA MOBILE HOME PARK	87	0.0116	\$7,656	\$40,796 P
ORANGE	SAWMILL ADDITION	66	0.0126	\$5,808	\$30,949 P
ORANGE	SUGAR PINES MHP	234	0.0119	\$21,120	\$112,541 P
ORANGE	VIDOR ISD PINE FOREST ELEMENTARY	750	0.0136	\$1,056	\$10,947 D
POLK	BASS BAY INDIAN HILL NO 1	111	0.0124	\$9,768	\$52,050 P
POLK	FOREST HILLS WATER SYSTEM LL	369	0.0184	\$32,472	\$173,032 W
POLK	GREEN ACRES	96	0.0153	\$8,448	\$45,016 W
POLK	HOLIDAY LAKE ESTATES	945	0.017	\$77,497	\$492,366 P
POLK	NATASHA HEIGHTS WATER SYSTEM LL	174	0.0332	\$15,312	\$95,092 W

POLK	SPRING CREEK WATER SYSTEM MILLER W	112	0.0329	\$10,032	\$62,121 P
POLK	TEMPE WSC	1540	0.0113	\$66,416	\$745,583 W
POLK	TEXAS LANDING UTILITIES	270	0.0123	\$23,760	\$126,609 P
PRESIDIO	CANDELARIA WSC	84	0.0161	\$7,392	\$39,389 W
PRESIDIO	REDFORD WATER SUPPLY	135	0.0134	\$13,200	\$70,338 P
RANDALL	LAKE TANGLEWOOD WATER SYSTEM	1206	0.0138	\$78,127	\$626,009 P
RANDALL	SIESTA MOBILE ESTATES	425	0.0138	\$48,762	\$289,793 P
REFUGIO	CITY OF WOODSBORO	1750	0.0152	\$139,734	\$1,059,291 M
REFUGIO	REFUGIO COUNTY WCID 1	490	0.0107	\$34,930	\$309,487 D
SAN JACINTO	POINT BLANK & STEPHENS CREEK WSC	1779	0.0139	\$101,613	\$834,209 W
SCURRY	COLORADO RIVER MWD SNYDER WELL FIE	2500	0.0107	\$264	\$10,326 D
SWISHER	HAPPY MUNICIPAL WATER SYSTEM	647	0.0118	\$52,511	\$414,995 M
TARRANT	CITY OF HURST	37000	0.013	\$416,356	\$4,090,862 M
TERRY	CITY OF MEADOW	750	0.0272	\$60,720	\$350,682 M
TERRY	WELLMAN WATER SUPPLY CORPORATION	225	0.0393	\$25,608	\$166,870 W
VICTORIA	CITY OF VICTORIA	63435	0.0231	\$2,443,242	\$14,419,303 M
VICTORIA	QUAIL CREEK MUD	1305	0.0112	\$55,344	\$611,941 D
VICTORIA	RIVER RANCH ESTATES	30	0.0165	\$3,696	\$19,695 P
VICTORIA	VICTORIA COUNTY WCID 1	2223	0.0145	\$132,298	\$1,055,071 D
VICTORIA	VICTORIA COUNTY WCID 2	600	0.0124	\$45,444	\$313,708 D
WALKER	TRA HUNTSVILLE REGIONAL WATER SUPP	25	0.0156	\$264	\$10,431 D
WEBB	BRUNI RURAL WSC	438	0.1134	\$40,920	\$311,181 W
YOAKUM	CITY OF DENVER CITY	3985	0.0107	\$171,939	\$2,482,934 M
YOAKUM	CITY OF PLAINS	1500	0.0164	\$121,807	\$844,057 M

\$47,900,058 \$619,177,891

PWS ID	County	Project Name	5568	\$600.00	\$1,603,584.00	W
0070023	ATASCOSA	MCCOY WSC	5568	\$600.00	\$1,603,584.00	W
0180014	BOSQUE	CITY OF IREDELL	339	\$0.00	\$97,632.00	M
0220018	BREWSTER	LAJITAS ON THE RIO GRANDE	500	\$0.00	\$144,000.00	P
0220035	BREWSTER	STUDY BUTTE TERLINGUA WATER SYSTEM	312	\$0.00	\$89,856.00	P
0270014	BURNET	COUNCIL CREEK VILLAGE	327	\$94,176.00	\$1,571,187.00	P
0270018	BURNET	LCRA BONANZA BEACH	60	\$17,280.00	\$1,769,516.00	D
0270041	BURNET	SOUTH SILVER CREEK II & III	303	\$87,264.00	\$3,260,233.00	P
0270080	BURNET	SOUTH COUNCIL CREEK 2	117	\$33,696.00	\$665,702.00	P
0480001	CONCHO	CITY OF EDEN	2561	\$0.00	\$737,568.00	M
0480015	CONCHO	MILLERSVIEW DOOLE WSC	3775	\$1,087,200.00	\$11,700,000.00	W
0560002	DALLAM	TEXLINE MUNICIPAL WATER SYSTEM	400	\$115,200.00	\$290,000.00	M
0580025	DAWSON	KLONDIKE HIGH SCHOOL	213	\$61,344.00	\$106,518.00	D
0710009	EL PASO	GASLIGHT SQUARE MOBILE HOME PARK	669	\$0.00	\$192,672.00	P
0720027	ERATH	PIGEON ROAD ESTATES	70	\$20,160.00	\$50,000.00	P
0790004	FORT BEND	FORT BEND COUNTY WCID 2	23718	\$2,000,000.00	\$6,830,784.00	D
0790137	FORT BEND	FORT BEND COUNTY MUD 26	3780	\$750,000.00	\$1,088,640.00	D
0820014	FRIO	BIGFOOT WSC	363	\$104,544.00	\$500,000.00	W
0860086	GILLESPIE	NORTHWEST HILLS WATER SUPPLY	246	\$8,000.00	\$70,848.00	P
0860090	GILLESPIE	LIVEOAKS MOBILE HOME PARK THE	238	\$68,544.00	\$303,871.00	P
0910035	GRAYSON	RIDGECREST	1434	\$0.00	\$412,992.00	P
0910038	GRAYSON	ROCKY POINT A	188	\$0.00	\$48,384.00	P
0910039	GRAYSON	ROCKY POINT B	117	\$0.00	\$33,696.00	P
1010014	HARRIS	CITY OF HUMBLE	14579	\$0.00	\$4,198,752.00	M
1010016	HARRIS	CITY OF JERSEY VILLAGE	5430	\$0.00	\$1,563,840.00	M
1010100	HARRIS	MARY FRANCIS SUBDIVISION	1506	\$50,000.00	\$433,728.00	P
1010422	HARRIS	HARRIS COUNTY MUD 25	975	\$0.00	\$280,800.00	D
1010503	HARRIS	HARRIS COUNTY MUD 102	10260	\$0.00	\$2,954,880.00	D
1010538	HARRIS	JACKRABBIT ROAD PUD	8361	\$0.00	\$2,407,968.00	D
1010583	HARRIS	WEST HOUSTON MOBILE HOME COMM	525	\$0.00	\$151,200.00	P
1010617	HARRIS	TRAIL OF THE LAKES MUD	4575	\$0.00	\$1,317,600.00	D
1010760	HARRIS	SUBURBAN MOBILE HOME PARK 2	120	\$34,560.00	\$50,000.00	P
1010924	HARRIS	WINDFERN FOREST UTILITY DISTRICT	4713	\$0.00	\$1,357,344.00	D
1011249	HARRIS	LANGHAM CREEK UTILITY DISTRICT	7398	\$0.00	\$2,130,624.00	D
1011430	HARRIS	HARRIS COUNTY MUD 157	2853	\$0.00	\$821,664.00	D
1011603	HARRIS	NORTHWEST HARRIS COUNTY MUD 16	2820	\$0.00	\$812,160.00	D
1011612	HARRIS	HARRIS COUNTY MUD 162	2637	\$0.00	\$759,456.00	D

1011613	HARRIS	BARKER CYPRESS MUD	4191	\$0.00	\$1,207,008.00	D
1011679	HARRIS	FRY ROAD MUD	2880	\$0.00	\$829,440.00	D
1011785	HARRIS	HORSEPEN BAYOU MUD	6069	\$0.00	\$1,747,872.00	D
1011809	HARRIS	HARRIS COUNTY MUD 189	6012	\$0.00	\$1,731,456.00	D
1011823	HARRIS	HARRIS COUNTY MUD 71	2292	\$0.00	\$660,096.00	D
1012097	HARRIS	HARRIS COUNTY MUD 130	1140	\$0.00	\$328,320.00	D
1012229	HARRIS	HARRIS COUNTY MUD 127	2103	\$0.00	\$605,664.00	D
1012842	HARRIS	HARRIS COUNTY MUD 167	1176	\$0.00	\$338,688.00	D
1012877	HARRIS	ROLLING CREEK UTILITY DISTRICT	525	\$0.00	\$151,200.00	D
1180002	IRION	CITY OF MERTZON	839	\$0.00	\$241,632.00	M
1250033	JIM WELLS	ENGLISH ACRES	120	\$0.00	\$34,560.00	P
1300002	KENDALL	KENDALL COUNTY WCID 1	2370	\$60,000.00	\$682,560.00	D
1300035	KENDALL	PLATTEN CREEK WATER SYSTEM	99	\$8,500.00	\$28,512.00	P
1310001	KENEDY	SARITA SEWER SERVICE & WATER SUPPL	250	\$46,343.00	\$72,000.00	P
1330001	KERR	CITY OF KERRVILLE	26442	\$0.00	\$7,615,296.00	M
1330118	KERR	HORSESHOE OAKS SUBDIVISION WATER S	111	\$31,968.00	\$50,000.00	P
1370007	KLEBERG	UTILITY DEVELOPMENT & RESEARCH	630	\$60,000.00	\$181,440.00	P
1460009	LIBERTY	HARDIN WSC	4224	\$165,000.00	\$1,216,512.00	W
PWS 10	City	System	LCV			
1500011	LLANO	LCRA - TOW VILLAGE	102	\$0.00	\$29,376.00	D
1500106	LLANO	LCRA BRIDGEPOINT WATER SYSTEM	78	\$22,464.00	\$125,000.00	D
1500112	LLANO	FLAG CREEK RANCH	99	\$158,400.00	\$28,512.00	P
1520003	LUBBOCK	CITY OF SHALLOWATER	2300	\$0.00	\$662,400.00	M
1520039	LUBBOCK	PECAN GROVE MOBILE HOME PARK	115	\$33,120.00	\$100,000.00	P
1520064	LUBBOCK	FORT JACKSON MOBILE ESTATES	70	\$20,160.00	\$52,800.00	P
1520156	LUBBOCK	ELM GROVE MOBILE HOME PARK	29	\$8,352.00	\$60,000.00	P
1520198	LUBBOCK	VALLEY ESTATES	70	\$20,160.00	\$125,918.32	P
1520247	LUBBOCK	COUNTRY VIEW MHP	74	\$21,312.00	\$118,450.00	P
1540001	MCCOLLOCH	CITY OF BRADY	5433	\$0.00	\$1,564,704.00	M
1540003	MCCOLLOCH	CITY OF MELVIN	190	\$54,720.00	\$196,000.00	M
1540004	MCCOLLOCH	ROCHELLE WSC	188	\$54,144.00	\$292,301.04	W
1540005	MCCOLLOCH	BRADY LAKE WATER SYSTEM	167	\$0.00	\$48,096.00	P
1540008	MCCOLLOCH	RICHLAND SUD BRADY	847	\$243,936.00	\$1,359,800.00	D
1540012	MCCOLLOCH	LIVE OAK HILLS SUBDIVISION	96	\$27,648.00	\$145,534.16	P
1600001	MASON	CITY OF MASON	2004	\$218,078.00	\$577,152.00	M
1610031	MATAGORDA	OAK HOLLOW SUBDIVISION	66	\$19,008.00	\$30,000.00	P
1630031	MEDINA	GUSVILLE TRAILER PARK	222	\$5,000.00	\$63,936.00	P

1630034	MEDINA	BENTON CITY WSC	10572	\$0.00	\$3,044,736.00	W
1650006	MIDLAND	GREENWOOD VENTURES INC	200	\$57,600.00	\$127,884.00	P
1650007	MIDLAND	VALLEY VIEW MOBILE HOME PARK	51	\$14,688.00	\$132,000.00	P
1700058	MONTOGOMERY	ROLLING HILLS OAKS SUBDIVISION	117	\$33,696.00	\$100,000.00	P
1700075	MONTOGOMERY	WOODRIDGE ESTATES WATER SYSTEM	60	\$17,280.00	\$100,000.00	P
1700096	MONTOGOMERY	CRYSTAL FOREST SUBDIVISION	444	\$127,872.00	\$200,000.00	P
1700154	MONTOGOMERY	LAKE LORRAINE WS	75	\$21,600.00	\$100,000.00	P
1700578	MONTOGOMERY	LAKE BONANZA WSC	1533	\$441,504.00	\$500,000.00	W
1700613	MONTOGOMERY	WHITE OAK HILLS	222	\$0.00	\$63,936.00	P
1780019	NUECES	GOLDEN ACRES WATER CO	180	\$0.00	\$51,840.00	P
1840024	PARKER	CRAZY HORSE RANCH WATER CO	210	\$60,480.00	\$152,076.14	P
1840078	PARKER	HUDSON HEIGHTS	168	\$48,384.00	\$1,500,000.00	M
1870040	POLK	INDIAN SPRINGS LAKE ESTATE LL	1080	\$0.00	\$311,040.00	W
1870044	POLK	CRYSTAL LAKE ESTATES WATER SYSTEM	282	\$81,216.00	\$208,945.00	W
1870105	POLK	TEMPE WSC	1902	\$20,000.00	\$547,776.00	W
1910009	RAINS	SUNDAY CANYON WSC	130	\$0.00	\$37,440.00	W
2040011	SAN JACINTO	HOLIDAY SHORES 4 LL	117	\$2,075.00	\$33,696.00	W
2060001	SAN SABA	CITY OF SAN SABA	2626	\$160,000.00	\$756,288.00	M
2060003	SAN SABA	NORTH SAN SABA WSC	741	\$0.00	\$213,408.00	W
2200291	TARRANT	RANCH OAKS SUBDIVISION	579	\$0.00	\$166,752.00	P
2290002	TYLER	CHESTER WSC	1359	\$150,000.00	\$391,392.00	W
2290012	TYLER	WHITE TAIL RIDGE LAKES ESTATES	243	\$0.00	\$69,984.00	P
2310027	UPTON	UPTON COUNTY WCID 1 RANKIN	800	\$230,400.00	\$1,425,600.00	D
2330011	VAL VERDE	SAN PEDRO CANYON WATER CO	90	\$8,000.00	\$25,920.00	P
2350042	VICTORIA	ARENOSA CREEK ESTATES	81	\$23,328.00	\$134,734.00	P
2360052	WALKER	WALKER COUNTY RURAL WSC SYSTEM C	1185	\$341,280.00	\$2,200,000.00	W
2360080	WALKER	LAKE JACKSON ESTATES III	144	\$11,000.00	\$41,472.00	P
2390049	WASHINGTON	COUNTRY PLACE NORTHWEST	123	\$35,424.00	\$88,000.00	P
2430002	WICHITA	CITY OF ELECTRA	3000	\$0.00	\$864,000.00	M

\$7,696,708.00 \$87,698,854.66

APPENDIX H



*The Senate of
The State of Texas
Austin, Texas 78711*

April 13, 2004

Mr. J. Kevin Ward
Executive Administrator
Texas Water Development Board
1700 N. Congress Avenue
Austin, Texas 78711-3231

Dear Mr. Ward:

As you know, in order to fully implement the State Water Plan for this state, bold decisions, that will impact our state for many years to come, must be made. The Texas Water Development Board, the Regional Water Planning Groups, and the citizens of this state continue to do a remarkable job identifying needs and solutions, and it is time that we advance implementation mechanisms.

In continuing to explore opportunities for providing state financial assistance for the implementation of the State Water Plan, we request that the Texas Water Development Board consider conducting research to develop estimates of the revenue that could be generated through a variety of potential funding sources, including interactions with a formal stakeholders process.

We plan to be aggressive with the results and pragmatic with our approach. We believe that this research and stakeholders process will be of great value to us in the Legislature and to the many others in our state in implementing the State Water Plan.

If you have any questions on this matter, please contact our offices.

Very truly yours,

A handwritten signature in black ink that reads "Robert Duncan".

Robert Duncan
Chairman
Senate State Affairs Committee

A handwritten signature in black ink that reads "Ken Armbrister".

Ken Armbrister
Chairman
Senate Natural Resources Committee

cc: Lieutenant Governor David Dewhurst