



Irion County  
Water Conservation District

Management Plan

1998 - 2008

# First Divider

Copy of Cover Letter

Notice of Hearing

Notice of Board Meeting

Resolution



# IRION COUNTY WATER CONSERVATION DISTRICT

P.O. Box 10 Mertzson, TX 76941 OFFICE (915) 835-2015 FAX (915) 835-2366

Pct#1 - Loye Tankersley PCT#2 - Dan McClung PCT#3 - Lad Linthicum PCT#4 - Dale L. Bates At Large - Bill McManus III

August 19, 1998

Mr. Craig Pedersen  
Executive Administrator  
Texas Water Development Board  
1700 N. Congress  
Austin, TX 78711-3231

Dear Mr. Pedersen:

The Irion County Water Conservation District (ICWCD) unanimously adopted the attached Management Plan as required by §36.1072(a) of the Texas Water Code at the regular Board Meeting on August 19, 1998. The plan and resolution were adopted after notice and public hearing.

The attached Management Plan contains: a copy of this letter, notice of public hearing, notice of board meeting for adoption, an original resolution, a checklist completed by ICWCD, the adopted ten year Management Plan, and a second checklist for use by the TWDB.

The following cross-references are provided as a means of documenting the completeness of the Management Plan as applicable to the statutory requirements of Chapter 36 of the Texas Water Code.

§36.1071(a) since there are no surface water entities located within the District, no surface water entities were notified.

§36.1071(a)(1) is addressed in the Section titled Goals, Management Objectives and Performance Standards, Goal 1.0, page 15.

§36.1071(a)(2) is addressed in the Section titled Goals, Management Objectives and Performance Standards, Goal 2.0, page 16.

§36.1071(a)(3) is addressed in the Section titled Goals Determined Not-Applicable, Goal 4.0, page 19.

§36.1071(a)(4) is addressed in the Section titled Goals Determined Not-Applicable, Goal 4.0, page 19.

§36.1071(a)(5) is addressed in the Section titled Goals, Management Objectives and Performance Standards, Goal 3.0, page 17.

§36.1071(b) is not-applicable since no Regional Water Plan has been adopted.

§36.1071(e)(1) is addressed in the Section titled Goals, Management Objectives and Performance Standards, page 15.

# Irion County Water Conservation District Management Plan

## Content of Dividers

### First Divider

Copy of Cover Letter  
Notice of Hearing  
Notice of Board Meeting  
Resolution

### Second Divider

Checklist Completed by ICWCD

### Third Divider

Adopted Management Plan

### Fourth Divider

Checklist for use by TWDB

# Irion County Water Conservation District Management Plan

Adopted: August 19, 1998

Received By: Bill Miller

Date: 8/26/98

Attest: Janet

Date: 8-26-98

Certified: \_\_\_\_\_

STATE OF TEXAS  
COUNTY OF IRION

Resolution 98-2

WHEREAS, Irion County Water Conservation District is operating under the authority conferred upon it by the Acts of the 69<sup>th</sup> Legislature, Regular Session (1985), S.B. No. 206, and whose boundaries include all of Irion County, Texas; and

WHEREAS, the District is required by Senate Bill 1 through Chapter 36, §36.1071, of the Texas Water Code to develop and adopt a new Management Plan; and

WHEREAS, the District is required by Senate Bill 1 to submit the adopted Management Plan to the Executive Administrator of the Texas Water Development Board for review and certification by September 1, 1998; and

WHEREAS, the District's new Management Plan shall be certified by the Executive Administrator if the plan is administratively complete; and

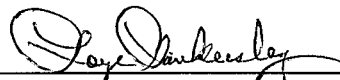
WHEREAS, the District Board of Directors, after reviewing the existing Management Plan, has determined that this plan should be replaced with a new 10 year Management Plan; and

WHEREAS, the District Board of Directors has determined that the new 10 year Management Plan addresses the requirements of Chapter 36, §36.1071.

NOW THEREFORE, Irion County Water Conservation District following notice and hearing, hereby adopts this new 10 year Management Plan to replace the existing Management Plan; and

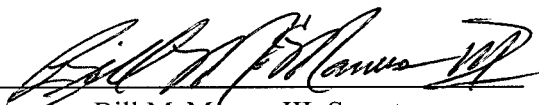
FURTHER, be it resolved, that this new Management Plan shall become effective immediately upon adoption and be reviewed and amended as necessary.

NOW THEREFORE WITNESSED and executed this 19<sup>th</sup> day of August, 1998.



Loye Tankersley, Chairman

ATTEST:



Bill McManus, III, Secretary

§36.1071(e)(2) is addressed in Section titled Actions, Procedures, Performance and Avoidance for Plan Implementation, page 14.

§36.1071(e)(3)(A) is addressed in Section titled Estimated Available Groundwater, page 7.

§36.1071(e)(3)(B) is addressed in Section titled Historic Groundwater Use, page 8.

§36.1071(e)(3)(C) is addressed in Sections titled Estimated Groundwater Recharge, page 9 and Enhancement of Recharge and Availability, page 10.

§36.1071(e)(3)(D) is addressed in Sections titled Projected Groundwater Demands, page 9, Projected Spring Flow Demands, page 9, and Total Projected Groundwater Supply, page 9.

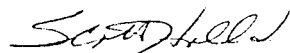
§36.1071(e)(4) is not-applicable since no Regional Water Plan has been adopted.

§36.1071(f) the current District Rules were adopted in 1989 and will be used during the initial implementation of the new Management Plan.

§36.1071(g) is determined as not-applicable at this time.

If the TWDB has any questions or requires additional information, please contact me at the above numbers.

Sincerely,



Scott Holland  
General Manager

TO WHOM IT MAY CONCERN:

The REGULAR term of the Irion County Water Conservation District meeting will convene at 7:00 PM on the 19<sup>th</sup> day of AUGUST, 1998, in the Water District Office, in the Irion County Courthouse Annex in Mertzon, Texas. The purpose of this meeting is to transact any routine business in behalf of Irion County:

1. Any Person or Group wishing to speak to the Board on any item on the Agenda will be allowed 5 minutes.
2. Approve Minutes - Decision Item
3. Pay Bills - Decision Item
4. Manager's Report - Decision Item
5. Approve TNRCC Interlocal Contract Amendment - Decision Item
6. Regional Water Planning (Region F)- Decision Item
7. Health Insurance Provider - Decision Item
8. FY 98-99 Budget Workshop - Discussion Item
9. Propose FY 1998-99 Budget - Decision Item
10. Propose 1998 Tax Rate - Decision Item
11. Adopt Management Plan - Decision Item
12. Executive Session - Personnel - Decision Item
13. Adjourn

*Scott Holland*

Scott Holland, Manager

THE STATE OF TEXAS:

COUNTY OF IRION:

This is to certify that at the time and on the date stamped thereon, this notice of a meeting, a copy of which is attached hereto, has been filed in my office under File No. 1635 and was posted on the bulletin board in the Courthouse, as is required by Chapter 551, Government Code.

FILED

THE 14 DAY OF Aug 19 98

AT O'CLOCK 4:15 P. M.

Reba Criner  
COUNTY CLERK, IRION COUNTY, TEXAS

BY \_\_\_\_\_ Deputy



Executed on Aug 14, 1998

Reba Criner  
Reba Criner, County Clerk, Irion County, Texas

By \_\_\_\_\_  
Meridith Honea, Deputy Clerk



TO WHOM IT MAY CONCERN:

The SPECIAL term of the Irion County Water Conservation District meeting will convene at 6:30 PM on the 19<sup>th</sup> day of AUGUST, 1998, in the Water District Office, in the Irion County Courthouse Annex in Mertzon, Texas. The purpose of this meeting is to transact any routine business in behalf of Irion County:

1. Any Person or Group wishing to speak to the Board on any item on the Agenda will be allowed 5 minutes.
2. Hearing on Management Plan
3. Adjourn

Scott Holland

Scott Holland, Manager

THE STATE OF TEXAS:

COUNTY OF IRION:

This is to certify that at the time and on the date stamped thereon, this notice of a meeting, a copy of which is attached hereto, has been filed in my office under File No. 1634 and was posted on the bulletin board in the Courthouse, as is required by Chapter 551, Government Code.

Executed on Aug 14, 19 98

Reba Criner

Reba Criner, County Clerk, Irion County, Texas

By \_\_\_\_\_

Meridith Hone, Deputy Clerk



FILED  
THE 14 DAY OF Aug, 19 98  
AT O'CLOCK 4:54 P. M.  
Reba Criner  
COUNTY CLERK, IRION COUNTY, TEXAS

BY \_\_\_\_\_  
Deputy

# Second Divider

Checklist Completed by ICWCD

**Texas Water Development Board**  
**UWCD Management Plan - Administrative Completeness Checklist**

**District Name:** Irion County Water Conservation District

**Reviewing Staff:**

**Date:**

	Present in plan and administratively complete	Absent from plan and not complete	Citation of estimate source or method
1. Is an estimate of the existing total useable amount of groundwater in the District included? 31TAC §356.5 (a)(4)(A) Page 7			
2. Is an estimate of the amount of groundwater being used within the District on an annual basis, included? 31TAC §356.5 (a)(4)(B) Page 8			
3. Is an estimate of the annual amount of recharge to the groundwater resources within the District included? 31TAC §356.5 (a)(4)(C) Page 9			
4. Is an estimate included, of the annual amount of additional natural or artificial recharge of groundwater within the District, that could result from implementation of feasible methods for increasing the natural or artificial recharge? 31TAC §356.5 (a)(4)(C) Page 10			
5. Is an estimate of the projected water supply within the District included? 31TAC §356.5 (a)(4)(D) Page 9			
6. Is an estimate included of the projected water demand within the District? 31TAC §356.5(a)(4)(D) Page 9			
7. Does the plan include details of how the District will manage groundwater supplies in the District? 31TAC §356.5 (a)(5) Page 13			
8. Are the actions, procedures, performance and avoidance necessary to effectuate the management plan, including specifications and proposed rules, all specified in as much detail as possible. included in the plan? 31TAC §356.5 (a)(3) Page 14			
9. Does the District's management plan use a planning period of at least ten (10) years? 31TAC §356.5 (a) Page 3			
10. Was a certified copy of the District's Resolution adopting the plan included? 31TAC §356.6 (a)(2) First Divider			
11. Was evidence that the plan was adopted after notice and hearing, included? 31TAC §356.6 (a)(3) First Divider			
12. Was evidence that, following notice and hearing, the District coordinated in the development of it's management plan with surface water management entities, included? 31TAC §356.6 (a)(4) Page 14 N/A			
13. Was evidence of consistency with and any conflict between the proposed management plan and the regional water plan (developed by regional water planning groups formed under authority of TWC §16.053 (c)) for each region in which any part of the District is located, if such regional water plan has been approved by the Board. included? 31TAC §356.6 (a)(5)			

Does the District consider that, the Management Goal of providing for the efficient use of groundwater, as specified in 31TAC §356.5 (a)(1), was not specifically applicable to the operations of the District?

No If 'YES', then disregard items 14-17; If 'NO', then please confirm the inclusion of items 14-17.

**14. Are management goal(s), as applicable, providing the most efficient use of groundwater within the District, included?**

31TAC §356.5 (a)(1)(A)

<u>X</u>	<u>          </u>
present	absent

**15. Does the plan include, a methodology by which the District will track its progress on an annual basis, in achieving its management goal(s) providing the most efficient use of groundwater?**

31TAC §356.5 (a)(5)

<u>X</u>	<u>          </u>
present	absent

**16. Are management objectives that the District will use to achieve the management goal(s) of providing the most efficient use of groundwater, included ?**

31TAC §356.5 (a)(2)

Management Objectives - *Specific, quantifiable and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for District strategies*

<u>X</u>	<u>          </u>
present	absent

**17. Are performance standards that the District will use to measure progress in achieving the goal(s) of providing the most efficient use of groundwater, included?**

31TAC §356.5 (a)(2)

Performance Standards - *Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of District activities by quantifying the results of actions and the impacts of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the District. Evaluation of the efficiency of District activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit accomplishment.*

<u>X</u>	<u>          </u>
present	absent

I do hereby affirm and attest, that the Management Goal of providing for the efficient use of groundwater, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the groundwater management entity that I represent.

Attest \_\_\_\_\_

Date \_\_\_\_\_

Representing \_\_\_\_\_,

As \_\_\_\_\_

Does the District consider that, the Management Goal for controlling and preventing waste of groundwater, as specified in 31TAC §356.5 (a)(1), was not specifically applicable to the operations of the District?

No If 'YES', then disregard items 18-21; If 'NO', then please confirm the inclusion of items 18-21.

**18. Are management goal(s), as applicable, for controlling and preventing waste of groundwater within the District, included?**  
31TAC 356.5 (a)(1)(B)

<u>X</u>	<u>          </u>
present	absent

**19. Does the plan include, a methodology by which the District will track its progress on an annual basis, in achieving its management goal(s) for controlling and preventing waste of groundwater?**  
31TAC §356.5 (a)(5)

<u>X</u>	<u>          </u>
present	absent

**20. Are management objectives that the District will use to achieve the goal(s) for controlling and preventing waste of groundwater, included?**  
31TAC §356.5 (a)(2)

<u>X</u>	<u>          </u>
present	absent

*Management Objectives - Specific, quantifiable and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for District strategies*

**21. Are performance standards that the District will use to measure progress in achieving the goal(s) for controlling and preventing waste of groundwater, included?**  
31TAC §356.5 (a)(2)

<u>X</u>	<u>          </u>
present	absent

*Performance Standards - Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of District activities by quantifying the results of actions and the impacts of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the District. Evaluation of the efficiency of District activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit accomplishment.*

I do hereby affirm and attest, that the Management Goal of controlling and preventing waste of groundwater, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the groundwater management entity that I represent.

Attest \_\_\_\_\_

Date \_\_\_\_\_

Representing \_\_\_\_\_,

As \_\_\_\_\_

Does the District consider that, the Management Goal for controlling and preventing subsidence, as specified in 31TAC §356.5 (a)(1), was not specifically applicable to the operations of the District?

Yes If 'YES', then disregard items 22-25; If 'NO', then please confirm the inclusion of items 22-25.

22. Are management goal(s), as applicable, for controlling and preventing subsidence within the District, included?  
31TAC §356.5 (a)(1)(C)

                                           
present                  absent

23. Does the plan include, a methodology by which the District will track its progress on an annual basis, in achieving its management goal(s) for controlling and preventing subsidence?  
31TAC §356.5 (a)(5)

                                           
present                  absent

24. Are management objectives that the District will use to achieve the goal(s) for controlling and preventing subsidence, included?  
31TAC §356.5 (a)(2)

                                           
present                  absent

Management Objectives - *Specific, quantifiable and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for District strategies*

25. Are performance standards that the District will use to measure progress in achieving the goal(s) for controlling and preventing subsidence, included?  
31TAC §356.5 (a)(2)

                                           
present                  absent

Performance Standards - Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of District activities by quantifying the results of actions and the impacts of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the District. Evaluation of the efficiency of District activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit accomplishment.

I do hereby affirm and attest, that the Management Goal of controlling and preventing subsidence, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the groundwater management entity that I represent.

Attest                       
                    Scott Holland

Date 8-19-98

Representing Irion County Water Conservation District,

As General Manager

Does the District consider that, the Management Goal for addressing conjunctive surface water management issues, as specified in 31TAC §356.5 (a)(1), was not specifically applicable to the operations of the District?

Yes If 'YES', then disregard items 26-29; If 'NO', then please confirm the inclusion of items 26-29.

**26. Are management goal(s), as applicable, for addressing conjunctive surface water management issues within the District, included?**  
31TAC §356.5 (a)(1)(D)

present	absent
---------	--------

**27. Does the plan include, a methodology by which the District will track its progress on an annual basis, in achieving its management goal(s) for addressing conjunctive surface water management issues?**  
31TAC §356.5 (a)(5)

present	absent
---------	--------

**28. Are management objectives that the District will use to achieve the goal(s) for addressing conjunctive surface water management issues, included?**  
31TAC §356.5 (a)(2)

Management Objectives - *Specific, quantifiable and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for District strategies*

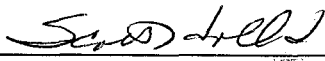
present	absent
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**29. Are performance standards that the District will use to measure progress in achieving the goal(s) for addressing conjunctive surface water management issues, included?**  
31TAC §356.5 (a)(2)

Performance Standards - Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of District activities by quantifying the results of actions and the impacts of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the District. Evaluation of the efficiency of District activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit accomplishment.

present	absent
---------	--------

I do hereby affirm and attest, that the Management Goal of controlling and preventing subsidence, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the groundwater management entity that I represent.

Attest   
Scott Holland

Date 8-19-98

Representing Irion County Water Conservation District,

As General Manager

Does the District consider that, the Management Goal for addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater, as specified in 31TAC §356.5 (a)(1), was not specifically applicable to the operations of the District?

No If 'YES', then disregard items 30-33; If 'NO', then please confirm the inclusion of items 30-33.

**30. Are management goal(s), as applicable, for addressing natural resource issues which impact the use and availability of groundwater and which are impacted by the use of groundwater in the District, included?**  
31TAC §356.5 (a)(1)(E)

<u>X</u>	
present	absent

**31. Does the plan include, a methodology by which the District will track its progress on an annual basis, in achieving its management goal(s) for addressing natural resource issues which impact the use and availability of groundwater and which are impacted by the use of groundwater?**  
31TAC §356.5 (a)(5)

<u>X</u>	
present	absent

**32. Are management objectives that the District will use to achieve the goal(s) for addressing natural resource issues which impact the use and availability of groundwater and which are impacted by the use of groundwater, included?**  
31TAC §356.5 (a)(2)

<u>X</u>	
present	absent

Management Objectives - *Specific, quantifiable and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for District strategies*

**33. Are performance standards that the District will use to measure progress in achieving the goal(s) for addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater, included?**  
31TAC §356.5(a)(2)

<u>X</u>	
present	absent

Performance Standards - *Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of District activities by quantifying the results of actions and the impacts of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the District. Evaluation of the efficiency of District activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit accomplishment.*

I do hereby affirm and attest, that the Management Goal of addressing natural resource issues that impact the use and availability of groundwater and which are impacted by the use of groundwater, as specified in 31TAC §356.5 (a)(1), is not specifically applicable to the operations of the groundwater management entity that I represent.

Attest \_\_\_\_\_

Date \_\_\_\_\_

Representing \_\_\_\_\_,

As \_\_\_\_\_



In witnesseth thereof, the undersigned do also attest, that the groundwater management entity, as represented above, has affirmed that the above stipulated Management Goal(s) as required in 31TAC §356.5 (a)(1), is (are) not specifically applicable to the operations of the entity.

Attest \_\_\_\_\_, Reviewer                          Date \_\_\_\_\_

Attest \_\_\_\_\_, Director, Water Resources Planning

Date \_\_\_\_\_

Has the District included, any additional Management Goal(s) beyond those specified in 31TAC §356.5 (a)(1) and considered specifically applicable to the operations of the District?

No If 'NO', then the review is complete; If 'YES', then please confirm the inclusion of a tracking methodology, management objectives and performance standards for each identified management goal.

31TAC §356.5 (a)(5), §356.5 (b)

**34. Does the plan include, a methodology by which the District will track its progress on an annual basis, in achieving its management goal(s) for addressing \_\_\_\_\_?**

31TAC §356.5 (a)(5)

present	absent
---------	--------

**35. Are management objectives that the District will use to achieve the goal(s) for addressing \_\_\_\_\_?**

31TAC §356.5 (a)(2)

present	absent
---------	--------

Management Objectives - *Specific, quantifiable and time-based statements of desired future accomplishments or outcomes, each linked to a management goal, which set the individual priority for District strategies*

**36. Are performance standards that the District will use to measure progress in achieving the goal(s) for addressing \_\_\_\_\_?**

31TAC §356.5(a)(2)

present	absent
---------	--------

Performance Standards - *Indicators or measures, each of which is linked to a management objective, used to evaluate effectiveness and efficiency of District activities by quantifying the results of actions and the impacts of the results of activities. Evaluation of the effectiveness of district activities measures the accomplishments of the District. Evaluation of the efficiency of District activities measures how well resources are used to produce an output, such as the amount of resources devoted per unit accomplishment.*

**NOTE: Please include additional sections, as necessary, for each additional management goal identified by the District and included in the management plan.**

**AFFIRMATION OF COMPLETION OF THE MANAGEMENT PLAN REVIEW  
PROCESS BY TEXAS WATER DEVELOPMENT BOARD**

The undersigned does affirm and attest that the management plan submitted by : \_\_\_\_\_  
\_\_\_\_\_, has been reviewed and the contents of which have been found  
to fulfill the requirements of 31TAC §356, as defined by the TWDB management plan review checklist.

Attest \_\_\_\_\_, Reviewer                      Date \_\_\_\_\_

**Texas Water Development Board**  
**Groundwater Management Plan Review and Certification Tracking**

**Reviewers**

1) \_\_\_\_\_ Date \_\_\_\_\_

2) \_\_\_\_\_ Date \_\_\_\_\_

3) \_\_\_\_\_ Date \_\_\_\_\_

**Recommended for Certification**

1) \_\_\_\_\_ Date \_\_\_\_\_  
Director of Water Resource Planning

2) \_\_\_\_\_ Date \_\_\_\_\_  
Deputy Executive Administrator  
Office of Planning

**Certification**

The groundwater management plan document submitted by, \_\_\_\_\_

\_\_\_\_\_ for certification, as administratively complete under the requirements of 31TAC §356, has been found by me, to be in full and complete fulfillment of said requirements.

\_\_\_\_\_ Date \_\_\_\_\_  
Executive Administrator – Texas Water Development Board

# Third Divider

## Adopted Management Plan

### Location of Required Content of the Management Plan

Management Plan Time Period .....	3
Estimate of Existing Total Useable Amount of Groundwater .....	7
Estimate of Groundwater Being Used within the District .....	8
Estimate of Annual Amount of Recharge .....	9
Estimate of Projected Groundwater Supply .....	9
Estimate of Projected Groundwater Demand .....	9
Estimate of Annual Amount of Additional Recharge .....	10
Management of Groundwater Supplies .....	13
Actions, Procedures, Performance, and Avoidance .....	14
Coordination with Surface Water Entities .....	14

Irion County  
Water Conservation District  
Management Plan

Adopted: August 19, 1998

## Table of Contents

District Mission .....	3
Time Period for this Plan .....	3
Statement of Guiding Principles .....	3
General Description .....	3
Location and Extent .....	4
Regional Cooperation and Coordination .....	4
Edwards-Trinity (Plateau) Aquifer .....	6
Dockum Aquifer .....	6
Alluvium Aquifer .....	6
Groundwater Resource Estimates .....	7
Estimated Available Groundwater .....	7
Historic Groundwater Use .....	8
Historic Spring Flow .....	8
Estimated Groundwater Recharge .....	9
Projected Groundwater Demands .....	9
Projected Spring Flow Demands .....	9
Total Projected Groundwater Supply .....	9
Enhancement of Recharge and Availability .....	10
Management of Groundwater Supplies .....	13
Actions, Procedures, Performance and Avoidance for Plan Implementation .....	14
Methodology for Tracking Progress .....	14
Coordination With Surface Water Entities .....	14
Goals, Management Objectives and Performance Standards .....	15
Goal 1.0 - To Provide for the Efficient Use of Groundwater .....	15
Goal 2.0 - To Control and Prevent the Waste of Groundwater .....	16
Goal 3.0 - To Address Natural Resource Issues Impacting Groundwater .....	17
Management Goals Determined Not-Applicable .....	19
Goal 4.0 - To Provide for the Control and Prevention of Subsidence .....	19
Goal 5.0 - To Provide for Addressing Conjunctive Surface Water Management Issues .....	19
Definitions and Concepts .....	19

## **District Mission**

The Irion County Water Conservation District strives to provide for the conservation, preservation, protection, recharge, prevention of waste and pollution, and efficient use of groundwater within the district by preserving its integrity through monitoring and water quality analysis. The District also strives to maintain groundwater ownership and rights of the owners of the land and their lessees as provided in the Texas Water Code §36.002.

## **Time Period for this Plan**

This plan becomes effective upon adoption by the Board of Directors and certification by the Texas Water Development Board. The plan remains in effect for ten years after the date of Board approval and TWDB certification, or until a revised or amended plan is approved and certified.

## **Statement of Guiding Principles**

The District recognizes that groundwater resources of the region are of vital importance for the economic benefit of the citizens of Irion County, and the region, for all groundwater users. Integrity and ownership of groundwater are also recognized as important in the management of this precious resource. The primary goal of the District is to preserve the integrity of the groundwater in the county from potential contamination from oil and gas production and related activities. This is accomplished as the District sets objectives to provide for the conservation, preservation, protection, recharge, prevention of waste and pollution, and efficient use of water within the district.

## **General Description**

The citizens of Irion County, recognizing the importance of protecting the integrity of groundwater from potential contamination from the vast amount of oil and gas production and associated activities and the necessity of local control of groundwater resources, introduced legislation in the 69<sup>th</sup> Regular Legislative Session (1985) for creation of the District. A confirmation election was held on August 24, 1985 with a 72% voter turnout and 97% of the voters approving the creation of the District and taxing authority. Government of the District is by a five member locally elected board. The directors serve staggered two year terms therefore each year the voters have an opportunity to voice approval or disapproval of the local management of their groundwater and/or the services provided by the District.



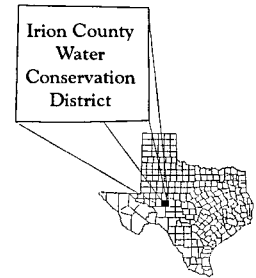
Current Board of Directors:

Loyè Tankersley, Chairman  
Bill McManus III, Secretary  
Dan McClung

Dale L. Bates, Vice-Chairman  
Lad Linthicum

**Location and Extent**

The Irion County W.C.D. has an areal extent the size of Irion County, Texas located in the west-central part of Texas. Irion County covers 680,080 acres (1063 square miles) and ranges in elevation from approximately 2,000 to 2,700 feet above mean sea level. Total population is 1631 including the County Seat, the City of Mertzon (population 778), and the unincorporated city of Barnhart (population 129).



The majority of the District overlies the Edwards-Trinity (Plateau) aquifer with exception of the alluvial areas along the Middle Concho River and its tributaries. Minor aquifers of Dockum and Alluvium are also present. The District is included in the Upper Colorado Region of the Colorado River Basin.

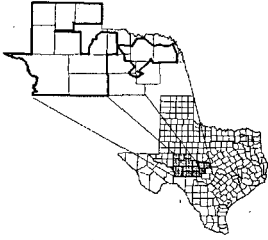
**Regional Cooperation and Coordination**

West Texas Regional Groundwater Alliance

In 1988, four groundwater conservation districts; Coke County UWCD, Glasscock County UWCD, Irion County WCD, and Sterling County UWCD signed an original Cooperative Agreement. As new districts were created, they too signed the Cooperative Agreement. In the fall of 1996, the original Cooperative Agreement was redrafted and the West Texas Regional Groundwater Alliance was created.

The regional alliance consists of ten locally created and locally funded groundwater conservation districts that encompass almost 8.75 million acres or 13 thousand square miles of West Texas. This West Texas region is as diverse as the State of Texas. Due to the diversity of this region, each member district provides it's own unique management programs to best serve its constituents.

The current member districts are:

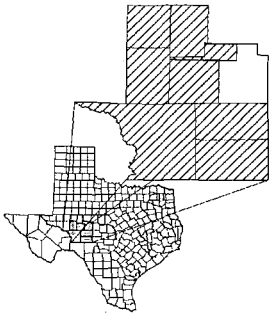


Coke County UWCD	Emerald UWCD
Glasscock County UWCD	Hickory UWCD # 1
Irion County WCD	Lipan-Kickapoo WCD
Plateau UWC & SD	Santa Rita UWCD
Sterling County UWCD	Sutton County UWCD

This Alliance was created because the local districts have a common objective to facilitate the conservation, preservation, and beneficial use of water and related resources. Local districts monitor water-related activities which include but are not limited to the State's largest industries of farming and ranching and oil and gas production. The alliance provides coordination essential to the activities of these member districts as they monitor these activities in order to accomplish their objectives.

#### West Texas Weather Modification Association

In 1996, in response to the landowners of seven groundwater conservation districts, the West Texas Weather Modification Association was formed for the purpose of providing weather modification (cloud seeding) for rainfall enhancement throughout the geographical region of its members. The target area of the Association includes all of seven counties and part of another for a total area of over 6.4 million acres or 10 thousand square miles of West Texas.



The current membership and participants include:

City of San Angelo	Santa Rita UWCD
Emerald UWCD	Sterling County UWCD
Glasscock County UWCD	Sutton County UWCD
Irion County WCD	University of Texas Lands
Plateau UWC & SD	

Realizing the importance of increased amounts of rainfall in the region, this Association was formed to provide benefits from enhanced rainfall which include a reduction of groundwater withdrawals, increase in runoff, increase in agricultural productivity with the resulting economic impact for the region, provide additional recharge, and increase spring flow. These benefits are not only realized within the region but also downwind and down stream of the target area.

## **Edwards-Trinity (Plateau) Aquifer**

The Edwards-Trinity (Plateau) aquifer underlies the Edwards Plateau east of the Pecos River and consists of saturated sediments of lower Cretaceous age Trinity Group formations and overlying limestones and dolomites of the Comanche Peak, Edwards, and the Georgetown formations. The aquifer generally exists under water table conditions, however, where it is fully saturated and a zone of low permeability occurs, artesian conditions may exist. Springs issuing from the aquifer form the headwaters for several eastward and southerly flowing rivers. The water levels have generally remained constant or have fluctuated only with seasonal precipitation.

Natural chemical quality of groundwater ranges from fresh to slightly saline. The water is typically hard and may vary widely in concentrations of dissolved solids made up mostly of calcium and bicarbonate. Water quality of the springs is typically excellent.<sup>1</sup>

## **Dockum Aquifer**

The Docum group underlies the Cretaceous formations in the northwestern Edwards Plateau region. The primary water-bearing zone is commonly called the "Santa Rosa". It consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale. Recharge to the aquifer is negligible except in the outcrop areas. Concentrations of dissolved solids range from 1,000 ml/l in the eastern outcrop to more than 20,000 ml/l in the deeper parts of the western part of the aquifer. High sodium concentrations pose salinity problems in irrigated land and often exceed safe drinking water standards for municipal water supplies.<sup>2</sup>

## **Alluvium Aquifer**

Alluvium occurs along the North and Middle Concho River and its tributaries. These deposits range in thickness from a few feet to as much as 250 feet with saturated thickness varying from less than 30 feet to about 200 feet.<sup>3</sup>

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<sup>1</sup> Water For Texas, Today and Tomorrow, August 1997, Texas Water Development Board.

<sup>2</sup> Ibid

<sup>3</sup> Occurrence, Availability, and Chemical Quality of Ground Water in the Edwards Plateau Region of Texas, July 1979, Texas Department of Water Resources

## Groundwater Resource Estimates

All estimates of groundwater availability, usage, supplies, recharge, storage, and future demands are from data supplied by the Texas Water Development Board, unless otherwise noted. Data sources include "Water for Texas, Today and Tomorrow, August 1997", aquifer parameters derived from pumping tests preformed by the TWDB, and TWDB personnel. These estimates will be used until alternate numbers are generated. Use of these TWDB estimates does not constitute endorsement by the District.

### Estimated Available Groundwater (expressed as acre-feet)

Estimate of available groundwater is obtained by using the formula: SP Yield X Saturated Thickness X Acres = Ac-ft. SP Yield is the quantity of water removed from the aquifer into the well bore by gravity expressed as percentage (0.004%). Saturated thickness refers to the amount of water bearing strata in the aquifer (average 150').<sup>4</sup> Actual withdrawal of the "estimated available groundwater" depends on recoverable storage, or that amount of groundwater capable of being economically and physically withdrawn. Not all "estimated available groundwater" may be recoverable.

River Basin	Aquifer	1990	2000	2010
Colorado	Edwards-Trinity (Plateau)*	408,048	408,048	408,048
Colorado	Dockum	N/A	N/A	N/A
Colorado	Alluvium	N/A	N/A	N/A
	<b>Total</b>	**	**	**

\* Includes all groundwater in Edwards-Trinity Aquifer System, potable and non-potable.

N/A - Not available

\*\* Incomplete data

<sup>4</sup> U.S. Geological Survey Water-Resources Investigations Report 92-4125

### Historic Groundwater Use (expressed as acre-feet)

Use	1991	1992	1993	1994	1995	Average
Municipal	204	212	218	225	212	214
Irrigation	906	906	1161	1310	730	1003
Mining	4	4	4	4	129	29
Livestock	344	325	306	300	328	321
<b>Total</b>	<b>1458</b>	<b>1447</b>	<b>1689</b>	<b>1839</b>	<b>1400</b>	<b>1567</b>

### Historic Spring Flow (expressed as acre-feet)<sup>5</sup>

Historic Spring Flow was determined by utilizing surface flow measurements taken by the U.S.G.S. Measurements were not taken on a monthly basis or a regular set schedule and all gaging stations are located outside of the District. No allowances or adjustments were made for any loss, gain, or rainfall variances which might affect the surface flow from the springs to the gaging stations. Only surface flow measurements taken during the low usage months of October through March were used to determine an average spring flow. Both Dove Creek and Spring Creek have spring flow to sustain surface flow year around. The Middle Concho surface flow has a direct relation to the amount and type of rainfall events and has no established spring flow.

	1991	1992	1993	1994	1995	Average
Dove Creek	10,213	12,318	9,625	6,620	2,903	8,336
Spring Creek	9,944	2,352	9,908	2,831	3,172	5,641
Middle Concho	5,538	*	2,243	3,644	1,190	2,523
<b>Total</b>	<b>25,695</b>	<b>14,670</b>	<b>21,776</b>	<b>13,095</b>	<b>7,265</b>	<b>16,500</b>

\* Non-typical year, data not used in total or average

<sup>5</sup> U. S. Department of Interior - Geological Survey - Water Resources Division, San Angelo, TX.

**Estimated Groundwater Recharge (expressed as acre-feet)**

River Basin	Aquifer	Average 1991-95	2000	2010
Colorado	Edwards-Trinity (Plateau)	19,133	19,133	19,133
Colorado	Dockum	N/A	N/A	N/A
Colorado	Alluvium	N/A	N/A	N/A
	<b>Total</b>	*	*	*

N/A - Not available

\* Incomplete data

**Projected Groundwater Demands (expressed as acre-feet)**

Use	Average 1991-95	2000	2010
Municipal	214	225	211
Irrigation	1003	824	751
Mining	29	4	5
Livestock	321	406	406
<b>Total</b>	<b>1567</b>	<b>1459</b>	<b>1373</b>

**Projected Spring Flow Demands (expressed as acre-feet)**

The projected spring flow demands are assumed to remain the same as the five year average. No variation in rainfall and/or recharge is factored into these projections.

Use	Average 1991-95	2000	2010
Spring Flow	16,500	16,500	16,500

**Total Projected Groundwater Supply (expressed as acre-feet)**

The total projected groundwater supply is the estimated sustainable annual yield, or effective recharge. The District follows the principle that demand should not exceed recharge to maintain

dependable and sufficient groundwater supplies for future generations.

Use	Average 1991-95	2000	2010
Recharge	19,133	19,133	19,133
Less Groundwater Demand	(1,567)	(1,459)	(1,373)
Less Spring Flow Demand	(16,500)	(16,500)	(16,500)
<b>Total</b>	<b>1,066</b>	<b>1,174</b>	<b>1,260</b>

### Enhancement of Recharge and Availability

The District supports both rainfall enhancement and brush control as management practices to maintain and improve groundwater supplies in the District and region. Benefits from both management practices can be summed up in a study done by Texas Tech University: "Private benefits include enhanced crop yields, livestock production due to forage increases and reduced irrigation cost. Social benefits include enhanced runoff and increased reservoir levels, downwind beneficiaries, secondary regional benefits (multiplier impact), improved water quality and reduced aquifer depletion."<sup>6</sup>

### Weather Modification

Recharge of the aquifers is achieved through rainfall infiltration and can be enhanced by increasing the amount of precipitation received annually through weather modification (cloud seeding). Rainfall enhancement has been conducted by the Colorado River Municipal Water District, located in Big Spring, since 1970 with documented average 23% rainfall increase.<sup>7</sup> The City of San Angelo conducted a program from 1985-1989 which resulted in a 26% rainfall increase.<sup>8</sup>

In 1996 the District was instrumental in forming the West Texas Weather Modification Association to preform rainfall enhancement for a target area covered by seven groundwater conservation districts (6,426,757 acres). During the 1996 seeding season the entire target area received 100-

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<sup>6</sup> Weather Modification: Private and Social Benefits and Costs, Texas Tech University, Lubbock, TX, August 1996, by James E. Jonish, Rasheed Al-Hmoud, and David Yoskowitz.

<sup>7</sup> "1995 Weather Modification Program", Colorado River Municipal Water District, Report 95-1.

<sup>8</sup> "Three Rainfall Augmentation Programs in Texas", by Don A. Griffith, The Journal of Weather Modification, April 1987.

150% of normal rainfall (18 in) while surrounding areas only received 61-77%. Data for 1997 season is being analyzed.

Under ideal conditions with 100% grass cover, 16% of rainfall absorbed into the ground surface infiltrates beyond the root zone for potential recharge.<sup>9</sup> Type and amount of ground surface covered by brush, rainfall event type (slow soaking or hard), and amount of rainfall per event will alter the amount of estimated recharge. The average rainfall for the District is 17.85 in/yr and 10.23 in the growing season<sup>10</sup> from May through September when weather modification activities occur. A modest 10% increase (one inch) of rainfall during the growing season would result in a reduction of pumpage for all users, potential increase in runoff, increased productivity of crops and rangeland (thus improving the economy of the district and region), provide additional moisture infiltration below the root zone available for recharge, and increased spring flow. One inch of rainfall distributed over the entire District is equal to 56,673 ac-ft of rainwater. Estimated recharge is calculated using the formula:  $\text{Rainfall(in)} \div 12 \times \text{acres} \times \% \text{ infiltration rate} = \text{recharge}$

Using an infiltration rate of 1.88%<sup>11</sup>, increased rainfall would result in additional potential recharge as follows:

Increase During Growing Season (Average 10.23 in, May-Sept.)	10% Increase (1.0 in)	15% Increase (1.5 in)	23% Increase (2.3 in)
Additional Recharge Potential in ac-ft	1,065	1,598	2,450

### Brush Control

Brush control can be accomplished by mechanical control, prescribed burn, chemical application, or combination of these methods. The control of mesquite and juniper, and other undesirable plants, would allow more rainfall to reach the soil surface. Benefits would include more rainfall absorption into the soil, increased productivity of rangeland (and resulting economic impact), and increased amount of moisture available to infiltrate as recharge.

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<sup>9</sup> "How an Increase or Reduction in Juniper Cover Alters Rangeland Ecology" and Justin W. Hester, 1997 Juniper Symposium, Technical Report 97-1, Texas A&M Research and Extension Service, by Thomas L. Thurow.

<sup>10</sup> U.S. Department of Agriculture, Soil Conservation Service - Soil Survey of Irion County Texas.

<sup>11</sup> Calculated from the estimated recharge amount from the TWDB.



A large mature juniper has an evapotranspiration rate of about 33 gal/day.<sup>12</sup> This same mature juniper only allows approximately 25% of rainfall to reach the soil surface due to canopy and litter interception. Approximately 16% of rainfall infiltrates beyond the root zone for potential recharge with 100% grass coverage.<sup>13</sup>

The following table demonstrates the water balance on rangeland at the Texas Agricultural Experiment Station, Sonora, TX.<sup>14</sup>

	100% Grass	70% Grass 12% Oak 18% Juniper	40% Grass 24% Oak 36% Juniper
Rainfall (inches)	22.6	22.6	22.6
Interception Loss (inches)	3.0	6.3	9.6
Water Reaching the Soil (inches)	19.6	16.3	13.0
Runoff (inches)	0.2	0.2	0.2
Water Going into the Soil (inches)	19.4	16.1	12.8
Evapotranspiration (inches)	15.7	15.8	12.8
<b>Deep Drainage (Recharge) (inches)</b>	<b>3.7</b>	<b>0.3</b>	<b>0.0</b>
Moderate Stocking Rate (animal units/sec)	34	22	11

The District has an estimated 75% brush cover<sup>15</sup> which reduces potential recharge through canopy and litter interception of rainfall thus limiting available moisture for soil absorption. Brush control would allow more rainfall to reach the soil surface increasing available moisture for absorption into the soil and resulting in potential increase of deep infiltration and recharge.

Utilizing the percentage moisture available for deep drainage with 30% brush cover at the Texas Agriculture Experiment Station, Sonora, Texas of 1.3% and not taking into account the difference in brush type and coverage, soil type, amount and type of rainfall, or topography between Sutton and

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<sup>12</sup> "Biology and Ecology of Redberry Juniper", 1997 Juniper Symposium, Technical Report 97-1, Texas A&M Research and Extension Service , by Darrell N. Uehert.

<sup>13</sup> "How an Increase or Reduction in Juniper Cover Alters Rangeland Ecology" and Justin W. Hester, 1997 Juniper Symposium, Technical Report 97-1, Texas A&M Research and Extension Service , by Thomas L. Thurow.

<sup>14</sup> Ibid

<sup>15</sup> Natural Resources Conservation Service

Irion Counties, a corresponding 50% reduction in brush cover over 75% of the District could potentially result in an additional recharge potential of:

	50% Reduction
Recharge Potential in ac-ft	9,946

**Total Estimated Enhanced Recharge**

Continuation of the rainfall enhancement program and implementation of a brush control program would result in the private and social benefits stated above and provide for an estimated additional recharge potential of:

	10% Increase (1.0 in)	15% Increase (1.5 in)	23% Increase (2.3 in)
Rainfall Enhancement	1,065	1,598	2,450
50% Brush Reduction	9,946	9,946	9,946
<b>Total</b>	<b>11,011</b>	<b>11,544</b>	<b>12,396</b>

**Management of Groundwater Supplies**

The District will monitor groundwater resources within the District to promote the conservation, preservation, protection, enhanced recharge, prevention or waste and pollution, and ensuring efficient use of the resource while seeking to maintain its integrity and the economic viability of all resource user groups, public and private. In consideration of the economic and cultural activities occurring within the District, the District will identify and engage in such activities and practices, that if implemented would result in a reduction of groundwater use and/or enhanced recharge. An observation network shall be maintained in order to monitor changing quality and groundwater levels within the District. The District will employ all technical resources at its disposal and within budget constraints to evaluate the resources available within the District and to determine the effectiveness of management or conservation measures.

## **Actions, Procedures, Performance and Avoidance for Plan Implementation**

The District will implement the provisions of this plan and will utilize the provisions of this plan as a guide for determining the direction and/or priority for all District activities. All operations of the District and all agreements entered into by the District will be consistent with the provisions of this plan.

The District has adopted rules for the management of groundwater resources and will amend those rules as necessary pursuant to TWC Chapter 36 and the provisions of this plan. All rules will be adhered to and enforced. The promulgation and enforcement of the rules will be based on the best technical evidence available.

The District shall treat all citizens with equality. Citizens may apply to the District for discretion in enforcement of the rules on grounds of adverse economic effect or unique local character. In granting discretion to any rule, the Board shall consider the potential for adverse effect on adjacent landowners. The exercise of said discretion by the Board, shall not be construed as limiting the power of the Board. The District will seek cooperation in the implementation of this plan and the management of groundwater supplies within the District.

### **Methodology for Tracking Progress**

The methodology that the District will use to trace its progress on an annual basis in achieving its management goals will be as follows. The District holds a regular monthly Board Meeting for the purpose of conducting District business. Each month, the Managers Report will continue to reflect the number of meetings attended, number of water analysis samples collected and analyzed, resulting action regarding potential contamination or remediation of actual contamination, water levels monitored, reports on any school or civic group programs, fluid injection permit applications, and other matters of district importance. The District manager will prepare and present an annual report to the Board of Directors on District performance in regards to achieving management goals and objectives (during last monthly Board of Directors meeting each fiscal year, beginning October 1, 1998). The annual report will be maintained on file at the District Office.

### **Coordination With Surface Water Entities**

Refer to Goal 5.0

## **Goals, Management Objectives and Performance Standards**

The District recognizes the importance of public education to encourage efficient use, implement conservation practices, prevent waste, and preserve the integrity of groundwater.

### **Goal 1.0 - To Provide for the Efficient Use of Groundwater**

#### **1.1. Management Objective**

Each year the District will continue to provide, upon request, all available information on water conservation practices for the efficient use of water. These will include but are not limited to publications from the Texas Water Development Board, Texas Natural Resource Conservation Commission, Texas Agricultural Extension Service, and other sources. Each year the District will publish an article on efficient water use and availability of information materials.

##### **1.1a. Performance Standard**

Number of informational materials requested and distributed each year.

##### **1.1b. Performance Standard**

Number of articles published each year.

#### **1.2. Management Objective**

Each year the District will continue to perform a water quality analysis for residents of the District upon request. Each year the District will publish the availability of water analysis services in an article.

##### **1.2a. Performance Standard**

Number of water analysis requested and performed each year.

##### **1.2b. Performance Standard**

Number of articles published each year.

#### **1.3. Management Objective**

Each year the District will continue to collect a water sample, for partial chemical analysis, from each new well drilled within the District to establish location and a base line of water quality data for future reference.

### 1.3a. Performance Standard

Number of water samples collected and analyzed each year.

### 1.4. Management Objective

Each year the District will continue to monitor all selected wells within the District for possible contamination problems which would jeopardize the integrity of the groundwater by collecting samples for selected chemical and biological parameter analysis.

#### 1.4a. Performance Standard

Number of samples collected and analyzed each year.

#### 1.4b. Performance Standard

Number of contamination problems each year.

### 1.5. Management Objective

Each year, the District will continue to monitor water levels in all selected wells within the District.

#### 1.5a. Performance Standard

Number of water levels taken each year.

## **Goal 2.0 - To Control and Prevent the Waste of Groundwater**

### 2.1. Management Objective

Each year the District will continue to provide, upon request, all informational materials and programs available for local civic groups to improve public awareness of conservation measures and wasteful practices. Each year the District will publish an article on conservation measures and wasteful practices and the availability of programs for civic groups.

#### 2.1a. Performance Standard

Number of informational materials and programs requested and provided each year.

#### 2.1b. Performance Standard

Number of articles published each year.

## 2.2. Management Objective

Each year the District will continue to cooperate with all schools within the district in providing all available information and programs on water conservation practices, water quality analysis, or other water issues, when requested. Each year the District will make a written or personal contact with school administration(s) or science department head(s) on the availability of District resources.

### 2.2a. Performance Standard

Number of informational materials or programs requested and provided each year.

### 2.2b. Performance Standard

Number of written or personal contacts each year.

## **Goal 3.0 - To Address Natural Resource Issues Impacting Groundwater**

### 3.1. Management Objective

Biannually, the District will continue to monitor all selected chemical and biological parameters for assessing water quality of the springs, creeks, and rivers within the District for possible contamination problems which would jeopardize the integrity of the water by collecting water samples for analysis.

### 3.1a. Performance Standard

Number of samples collected and analyzed biannually.

### 3.2. Management Objective

The District participates financially on a per acre basis in the West Texas Weather Modification Association for the purpose of enhancing rainfall for reduction of groundwater use, increased recharge of the aquifers, and economic benefit. Each year the District will continue to participate in the WTWMA, attend 95 % of the Board Meetings and continue to have all informational materials on rainfall enhancement activities, including but not limited to flight paths, rainfall summary images, and rainfall data, available for public viewing in the District Office

### 3.2a. Performance Standard

Number of WTWMA Board Meetings attended each year.

### 3.2b. Performance Standard

Number of informational materials available each year.

### 3.3. Management Objective

Each year the District will continue to provide, upon request, all informational materials and programs available for the local schools within the district, and local or other civic groups to provide all information on weather modification and arrange for tours of the WTWMA Office and facilities.

### 3.3a. Performance Standard

Number of requests for informational materials, programs and tours requested and provided each year.

### 3.4 .Management Objective

Each year the District will continue to monitor the San Angelo Standard Times public/legal notices for all "Notice of Application for Fluid Injection Well Permit" and the Irion County Clerk's Office for all "Application for Fluid Injection Well Permit". All newspaper notices of application and copies of all permit applications will be kept on file in the District Office.

### 3.4a. Performance Standard

Number of newspaper notices and permit applications on file each year.

### 3.5. Management Objective

The District will continue to determine if the "Application for Fluid Injection Well Permit" poses any threat to the integrity of groundwater or if the source of the water supply is of potable quality on an individual basis. Within 15 days the District will file an objection and/or a request for a public hearing for all "Application for Fluid Injection Well Permit" determined to pose a threat to the integrity of groundwater or if the source of the water supply is of potable quality.

### 3.5a. Performance Standard

Number of objections and/or hearing requests filed within 15 days.

## **Management Goals Determined Not-Applicable**

### **Goal 4.0 - To Provide for the Control and Prevention of Subsidence**

The rigid geologic framework of the region precludes significant subsidence from occurring. This management goal is not applicable to the operations of the District.

### **Goal 5.0 - To Provide for Addressing Conjunctive Surface Water Management Issues**

There are no surface water management entities within the District. This management goal is not applicable to the operations of the District.

## **Definitions and Concepts**

“Board” - the Board of Directors of the Irion County Underground Water Conservation District.

“District” - the Irion County Water Conservation District.

"Effective recharge" - the amount of water that enters the aquifer and is available for development

“Groundwater” - means water percolating below the surface of the earth.

“Integrity” - means the preservation of groundwater quality.

“Natural Recourse Issues” - includes groundwater integrity preservation

“Ownership” - pursuant to TWC Chapter 36, §36.002, means the recognition of the rights of the owners of the land pertaining to groundwater.

“Recharge” - the addition of water to an aquifer.

“Surface Water Entity” - TWC Chapter 15 Entities with authority to store, take divert, or supply surface water for use within the boundaries of a district.

“TNRCC” - Texas Natural Resource Conservation Commission.

“TWDB” - Texas Water Development Board.

"Waste" - pursuant to TWC Chapter 36, §36.001(8), means any one or more of the following:



- (1) withdrawal of groundwater from a groundwater reservoir at a rate and in an amount that causes or threatens to cause intrusion into the reservoir of water unsuitable for agricultural, gardening, domestic, or stock raising purposes;
- (2) the flowing or producing of wells from a groundwater reservoir if the water produced is not used for a beneficial purpose;
- (3) escape of groundwater from a groundwater reservoir to any other reservoir or geologic strata that does not contain groundwater;
- (4) pollution or harmful alteration of groundwater in a groundwater reservoir by saltwater or by other deleterious matter admitted from another stratum or from the surface of the ground;
- (5) willfully or negligently causing, suffering, or allowing groundwater to escape into any river, creek, natural watercourse, depression, lake, reservoir, drain, sewer, street, highway, road, or road ditch, or onto any land other than that of the owner of the well unless such discharge is authorized by permit, rule, or order issued by the commission under Chapter 26;
- (6) groundwater pumped for irrigation that escapes as irrigation tailwater onto land other than that of the owner of the well unless permission has been granted by the occupant of the land receiving the discharge; or
- (7) for water produced from an artesian well, "waste" has the meaning assigned by Section 11.205.

"Well" - means an artificial excavation that is dug or drilled for the purpose of producing groundwater.