

Region F
Water Planning Group

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Model Water Conservation Plan for Irrigation Districts

Water Conservation Plan for [Irrigation District]

Date

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Water Conservation Plan for [Irrigation District]

1. Introduction and Objectives

The Texas Commission on Environmental Quality has developed guidelines and requirements governing the development of water conservation plans for irrigation use. The purpose of this water conservation plan is to:

The objectives of this water conservation plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- To document the level of recycling and reuse in the water supply.
- To extend the life of current water supplies by reducing the rate of growth in demand.

This water conservation plan is intended to serve as a guide to *[irrigation district]*. The following plan includes all conservation measures required by TCEQ.

2. Description of Water Use

[The TCEQ requires that each irrigation user must document how water is used in the irrigation production process.

- *Irrigation users will provide information including:*
 - *Type of crops.*
 - *Acreage of each crop to be irrigated.*
 - *Monthly irrigation diversions.*
 - *Details of seasonal or annual crop rotation.*
 - *Soil types of the land to be irrigated.*
 - *Description of the irrigation method including flow rates, plans, and sketches of the system layout.*
 - *Details of equipment used in the process within an accuracy of +/- 5 %.*

3. Specification of Water Conservation Goals

[The Irrigation District must specify a five-year and ten-year target for water savings and detail the basis for the development of these goals. These goals will include targets for water use efficiency and a pollution abatement and prevention plan.]

The TCEQ regulations require that each irrigation user adopt quantifiable water conservation goals in their water conservation plan. The *[Irrigation District]* has adopted goals related to improving water

efficiency of its delivery system. The *[Irrigation District]* will strive to increase water efficiency per irrigated acre by *[insert amount]* percent within 5 years and *[insert amount]* percent within 10 years.

[Alternate goal] The *[Irrigation District]* will maintain the water efficiency per irrigated acre of *[insert amount]* percent within 5 years and *[insert amount]* percent within 10 years.

The goals for this water conservation plan will be achieved through the following: *[select applicable measures and/or include additional measures.]*

- Regular inspections of systems for controllable operation losses or leaks
- Coordination of irrigation deliveries with customers
- Schedule the timing or measure the amount of water applied.
- Improve or modify irrigation processes in order to increase efficient water use.
- Employ water-conserving irrigation equipment or improve existing equipment.
- Implement methods of land improvement that reduce runoff and increase rain infiltration to the soil.
- Establish a tailwater recovery and reuse program.

4. Description of Metering Accuracy

The *[Irrigation District]* maintains their meters with an accuracy of plus or minus *[percentage]* to accurately measure and account for the amount of water diverted from the source of supply.

5. Control of Water Loss and Leak Detection and Repair

Detection and repair of leaks in an irrigation system is important in controlling losses. Unaccounted water is the difference between water delivered to a system and water delivered to a system plus authorized but unmetered uses. Unaccounted water in the irrigation system can be attributed to several things including:

- Inaccuracies in meters.
- Loss due to leaks in the conveyance system.
- Operational losses
- Illegal connections to a system.
- Other.

To help control unaccounted water, *[irrigation district]* will monitor supply deliveries, conduct water audits and adjust operations to minimize losses if applicable. Broken water lines will be replaced or repaired in a timely manner.

6. Irrigation Scheduling and Volumetric Measuring of Irrigation Water use

Volumetric Measuring

Measuring the volume of water being used to irrigate a crop is useful because it provides [irrigation district] with information needed to evaluate the efficiency of an irrigation system. With this information, [irrigation district] and customers can better manage their crops. Irrigation water users will employ a method of measuring how much irrigation water is used in their system.

The following methods may be used to directly measure amounts of irrigation water being used [*select appropriate methods*]:

- Propeller meters
- Orifice, venture or differential pressure meters
- Ultrasonic
- Stage Discharge Rating Tables
- Area/Point Velocity Measurements

Indirect methods that may be used to measure irrigation water quantities include:

- Measurement of time of irrigation and size of irrigation delivery system
- Measurement of end-pressure in a sprinkler irrigation system
- Measurement of energy used by a pump supplying water to an irrigation system
- Change in the elevation of water stored in an irrigation water supply reservoir

Irrigation Scheduling

Coordination of irrigation schedules of customers can reduce losses associated with conveying irrigation water. The [*irrigation district*] will implement an irrigation schedule for deliveries to customers to best meet the customers' water needs and minimize conveyance losses.

7. Methods of Land Improvement

To reduce the amount of water required for irrigation, the following land improvement practices are encouraged for customers of the [*irrigation district*]:

- Creation of furrow dikes
- Crop residue management and conservation tillage
- Land leveling
- Contour farming

8. Improvements to Irrigation Equipment

The *[irrigation district]* encourages customers to utilize efficient irrigation equipment, including:

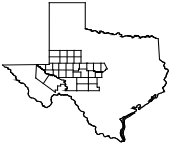
- Installation of a drip/micro-irrigation system
- Installation of gated and flexible pipe for field water distribution systems
- Replacement of on-farm irrigation ditches with pipelines
- Lining of on-farm irrigation ditches
- Installation of low pressure center pivot sprinkler irrigation systems

9. Implementation and Water Conservation Plan

Upon implementation of this water conservation plan, *[irrigation district]* is required by the TCEQ to update the plan at least every five years. Goals for irrigation use will be re-evaluated based on previous five-year and ten-year goals and any new information.

An annual conservation report will be prepared by the *[date]* of each year following the adoption of this plan. The TWDB form is included in Appendix D. This report includes:

- The list of dates and descriptions of conservation measures implemented
- Amount of water saved
- Data about whether or not targets in the plan are met
- If targets are not met, an explanation as to why the target was not met and a discussion of the progress to meet the target.



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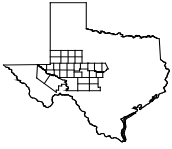
Appendix A

List of References

Appendix A

List of References

- (1) Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.4, and Subchapter B, Rule 288.21, downloaded from [http://texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=288&sch=A&rl=Y](http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=288&sch=A&rl=Y), April 2015.
- (2) Texas Commission on Environmental Quality, Utility Profile and Water Conservation Plan Requirements for Agricultural Water Suppliers Providing Water to More than One User, http://www.tceq.state.tx.us/permitting/water_rights/conserve.html, April 2015.
- (3) Texas Water Development Board, Water Conservation Plan Annual Reports, <http://www.twdb.texas.gov/conservation/municipal/plans/ARs.asp>, April 2015.

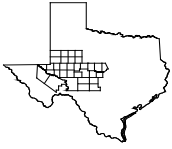


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Appendix B

Texas Commission on Environmental Quality Rules for Agricultural Use

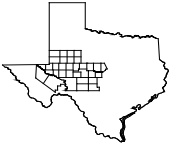


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Appendix C

TCEQ Form for Water Utility Profile



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Appendix D

TWDB Annual Water Conservation Report