



Panhandle Water Planning Area

Initially Prepared Plan

---

## **Model Water Conservation Plan for Industries**

# Water Conservation Plan for [Industries]

## Date

### Table of Contents

1.	INTRODUCTION AND OBJECTIVES.....	1
2.	DESCRIPTION OF WATER USE .....	1
3.	SPECIFICATION OF WATER CONSERVATION GOALS .....	1
4.	DESCRIPTION OF METERING ACCURACY .....	ERROR! BOOKMARK NOT DEFINED.
5.	CONTROL OF WATER LOSS AND LEAK DETECTION AND REPAIR .....	2
6.	IRRIGATION SCHEDULING AND VOLUMETRIC MEASURING OF IRRIGATION WATER USE.....	ERROR! BOOKMARK NOT DEFINED.
7.	METHODS OF LAND IMPROVEMENT .....	ERROR! BOOKMARK NOT DEFINED.
8.	IMPROVEMENTS TO IRRIGATION EQUIPMENT .....	ERROR! BOOKMARK NOT DEFINED.
9.	IMPLEMENTATION AND WATER CONSERVATION PLAN ..	ERROR! BOOKMARK NOT DEFINED.

### APPENDICES

APPENDIX A	List of References
APPENDIX B	Texas Commission on Environmental Quality Rules for Industrial or Mining Conservation Plans
APPENDIX C	TCEQ Form for Water Utility Profile
APPENDIX D	TWDB Annual Water Conservation Report

## Water Conservation Plan for [Industries]

### 1. Introduction and Objectives

The Texas Commission on Environmental Quality has developed guidelines and requirements governing the development of water conservation plans for industrial or mining 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 exist without conservation efforts.
- To reduce the loss and waste of water.
- To encourage improvement of processes that inefficiently consume water.
- To extend the life of current supplies by reducing the rate of growth in demand.
- To document the level of recycling and reuse in the water supply.

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

### 2. Description of Water Use

The TCEQ requires that each mining or industrial water user must document how water is used in the production process.

- *[Entity provides information including:]*
  - *How water flows to and through their systems*
  - *What purpose water serves in the production process*
  - *How much water is consumed in the production process and not available for reuse*
  - *Means of discharging water used in industrial processes]*

### 3. Specification of Water Conservation Goals

The TCEQ regulations require that each industrial and mining user adopt quantifiable water conservation goals in their water conservation plan. [Entity] has specified a five-year and ten-year target for water savings. *[Include quantifiable water savings targets and the details of the basis for the development of these goals.]*

The goals for this water conservation plan include the following:

- *[Name goals.] Potential goals are:*

- *Meter water use to decrease water loss through leaks*
- *Regularly inspect systems for leaks and promptly repair in order to control unaccounted water*
- *Improve, modify, or audit processes in order to increase efficient water use*

#### **4. Metering of Industrial and Mining Water Users**

[Entity]'s water use is metered at [description of location]. Submetering is a good strategy for some industrial water users. Processes or equipment that consume large quantities of water could be usefully submetered. Submetering is an effective way to account for all water use by process, subprocess, or piece of equipment in a facility. *[Identify processes and/or equipment that are currently submetered within an accuracy of plus or minus 5.0% to be used.]*

#### **5. Control of Water Loss and Leak Detection and Repair**

Careful metering of water use, detection, and repair of leaks in the distribution system and regular monitoring of unaccounted water are important in controlling losses.

Water loss is the difference between water delivered to a system and water delivered to a system plus authorized but unmetered uses. Authorized but unmetered uses includes water for firefighting, releases for flushing of lines, and water used during new construction. Water loss can be attributed to several things including:

- Inaccuracies in meters. Older meters tend to run slowly and therefore under-report actual use.
- Loss due to leaks and main breaks in the system.
- Illegal connections to a system.
- [Other].

In order to control water losses, persons in industry are asked to watch for and report water main breaks and leaks. Broken and leaking lines should be replaced or repaired in a timely manner. Meter readers are asked to report signs of illegal connections so they can be quickly assessed.

[Entity] will implement and maintain a water loss program. This program will serve to reduce losses due to leakage. The measures of the water loss program include *[select applicable measure]*:

- Conducting regular inspections of water main fittings and connections.
- Installing leak noise detectors and loggers.
- Using a leakage modeling program.
- Metering individual pressure zones

- Controlling pressure just above the minimum standard-of-service level
- Limiting surges in pressure.
- [Other]

## **6. Improving, Modifying, and Auditing Processes and Equipment**

[Entity] can increase water efficiency by improving, modifying, and auditing facility processes and equipment. Water can be conserved through the following measures *[select appropriate measure]*:

- Implementing a Water Waste Reduction Program
- Optimizing the water-use efficiency of cooling systems (other than cooling towers)
- Reducing water loss in cooling towers

Water Waste Reduction Programs cause [Entity] personnel to be more aware of wasteful activities. Measures resulting from a Water Waste Reduction Program include:

- Install water saving devices on equipment.
- Replace current equipment with more water-efficient equipment.
- Recycle water within a process.
- Change to waterless equipment or process.

## **7. Implementation and Modification to Water Conservation Plan**

Upon implementation of this water conservation plan, [Entity] is required by the TCEQ to update the plan at least every five years. New goals will be based on previous five-year and ten-year goals and any new information.

An implementation report will be prepared by the [date] of each year following the adoption of this plan. A sample report is included in Appendix C. 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.



**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 288.3, 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 Industrial of Mining use, [http://www.tceq.state.tx.us/permitting/water\\_rights/conserves.html](http://www.tceq.state.tx.us/permitting/water_rights/conserves.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.



Panhandle Water Planning Area

Initially Prepared Plan

---

## **Appendix B**

**Texas Commission on Environmental Quality Rules for Industrial or Mining Use**



[<<Prev Rule](#)[Next Rule>>](#)

## Texas Administrative Code

[TITLE 30](#)

ENVIRONMENTAL QUALITY

[PART 1](#)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

[CHAPTER 288](#)WATER CONSERVATION PLANS, DROUGHT CONTINGENCY  
PLANS, GUIDELINES AND REQUIREMENTS[SUBCHAPTER A](#)

WATER CONSERVATION PLANS

RULE §288.3

Water Conservation Plans for Industrial or Mining Use

(a) A water conservation plan for industrial or mining uses of water must provide information in response to each of the following elements. If the plan does not provide information for each requirement, the industrial or mining water user shall include in the plan an explanation of why the requirement is not applicable.

(1) a description of the use of the water in the production process, including how the water is diverted and transported from the source(s) of supply, how the water is utilized in the production process, and the estimated quantity of water consumed in the production process and therefore unavailable for reuse, discharge, or other means of disposal;

(2) specific, quantified five-year and ten-year targets for water savings and the basis for the development of such goals. The goals established by industrial or mining water users under this paragraph are not enforceable;

(3) a description of the device(s) and/or method(s) within an accuracy of plus or minus 5.0% to be used in order to measure and account for the amount of water diverted from the source of supply;

(4) leak-detection, repair, and accounting for water loss in the water distribution system;

(5) application of state-of-the-art equipment and/or process modifications to improve water use efficiency; and

(6) any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

(b) An industrial or mining water user shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The industrial or mining water user shall review and update the next revision of its water conservation plan every five years to coincide with the regional water planning group.

**Source Note:** The provisions of this §288.3 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384; amended to be effective December 6, 2012, 37 TexReg 9515

[Next Page](#)[Previous Page](#)

List of Titles

Back to List

[HOME](#)

[TEXAS REGISTER](#)

[TEXAS ADMINISTRATIVE CODE](#)

[OPEN MEETINGS](#)



Panhandle Water Planning Area

Initially Prepared Plan

---

## **Appendix C**

### **TCEQ Form for Water Utility Profile**



2. How was the surface water data and/or groundwater data provided above (B1) obtained?  
Master meter \_\_\_\_\_; Customer meter \_\_\_\_\_; Estimated \_\_\_\_\_; Other \_\_\_\_\_
  
3. Was purchased water raw or treated?  
If both, % raw \_\_\_\_\_; % treated \_\_\_\_\_ and Supplier(s): \_\_\_\_\_

*C. Industrial/Mining Information*

1. Major product(s) or service(s) produced by applicant:
  
2. North American Industry Classification System (NAICS):  
\_\_\_\_\_

**II. WATER USE AND CONSERVATION PRACTICES**

*A. Water Use in Industrial or Mining Processes*

<i>Production Use</i>	<i>% Groundwater</i>	<i>% Surface Water</i>	<i>% Saline Water</i>	<i>% Treated Water</i>	<i>Water Use (in acre-ft)</i>
Cooling, condensing, & refrigeration	_____	_____	_____	_____	_____
Processing, washing, transport	_____	_____	_____	_____	_____
Boiler feed	_____	_____	_____	_____	_____
Incorporated into product	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____

<i>Facility Use</i>	<i>% Groundwater</i>	<i>% Surface Water</i>	<i>% Saline Water</i>	<i>% Treated Water</i>	<i>Water Use (in acre-ft)</i>
Cooling tower(s)	_____	_____	_____	_____	_____
Pond(s)	_____	_____	_____	_____	_____
Once through	_____	_____	_____	_____	_____
Sanitary & drinking water	_____	_____	_____	_____	_____
Irrigation & dust control	_____	_____	_____	_____	_____

1. Was fresh water recirculated at this facility?  Yes  No

2. Provide a detailed description of how the water will be utilized in the industrial or mining process.

3. Estimate the quantity of water consumed in production and mining processes and is therefore unavailable for reuse, discharge or other means of disposal.

4. Monthly water demand for previous year (in acre-feet).

<i>Month</i>	<i>Diversion Amount</i>	<i>% of Water Returned (If Any)</i>	<i>Monthly Demand</i>
January	_____	_____	_____
February	_____	_____	_____
March	_____	_____	_____
April	_____	_____	_____
May	_____	_____	_____
June	_____	_____	_____
July	_____	_____	_____
August	_____	_____	_____
September	_____	_____	_____
October	_____	_____	_____
November	_____	_____	_____
December	_____	_____	_____
<b>Totals</b>	_____	_____	_____

5. Projected monthly water demand for next year (in acre-feet).

<i>Month</i>	<i>Diversion Amount</i>	<i>% of Water Returned</i>	<i>Monthly Demand</i>
January	_____	_____	_____
February	_____	_____	_____
March	_____	_____	_____
April	_____	_____	_____
May	_____	_____	_____
June	_____	_____	_____
July	_____	_____	_____
August	_____	_____	_____
September	_____	_____	_____
October	_____	_____	_____
November	_____	_____	_____
December	_____	_____	_____
<b>Totals</b>	_____	_____	_____

*B. Specific and Quantified Conservation Goal*

Water conservation goals for the industrial and mining sector are generally established either for (1) the amount of water recycled, (2) the amount of water reused, or (3) the amount of water not lost or consumed, and therefore is available for return flow.

1. Water conservation goal (water use efficiency measure)

Type of goal(s):

\_\_\_\_\_ % reused water

\_\_\_\_\_ % of water not consumed and therefore returned

\_\_\_\_\_ Other (specify)

2. Provide specific and quantified five-year and ten-year targets for water savings and the basis for development of such goals for this water use/facility.

3. Describe the methods and/or device(s) within an accuracy of plus or minus 5% used to measure and account for the amount of water diverted from the supply source.

4. Provide a description of the leak-detection and repair, and water-loss accounting measures used.
  
5. Equipment and/or process modifications used to improve water use efficiency.
  
6. Other water conservation techniques used.

### ***Best Management Practices***

*The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>*

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.





Panhandle Water Planning Area

Initially Prepared Plan

---

## Appendix D

### TWDB Annual Water Conservation Report

# Water Conservation Plan Annual Report

## NON WATER SUPPLIER

### (Agricultural or Industrial Operations)

#### CONTACT INFORMATION

Name of Entity: \_\_\_\_\_

Water Rights ID Number: \_\_\_\_\_

Wastewater ID Number: \_\_\_\_\_

Check all that apply:

Industrial Operation

Agricultural Operation

Agricultural Irrigation District

Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Email: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

Regional Water Planning Group: \_\_\_\_\_ [Map](#)

Groundwater Conservation District: \_\_\_\_\_ [Map](#)

Form Completed By: \_\_\_\_\_ Title: \_\_\_\_\_

Date: \_\_\_\_\_

Reporting Period (**check only one**):

Fiscal      Period Begin(mm/yyyy): \_\_\_\_\_ Period End(mm/yyyy): \_\_\_\_\_

Calendar      Period Begin(mm/yyyy): \_\_\_\_\_ Period End (mm/yyyy): \_\_\_\_\_

Check all that apply:

Received financial assistance of \$500,000 or more from the TWDB

Have a surface water right with TCEQ

Acre-feet to gallons conversion	
_____	_____gal

## Water Use Accounting for Irrigation Districts

### Data entered by Irrigation Districts only

	Total Gallons During the Reporting Period
<b>Source Water:</b> Water taken from permitted sources such as rivers, lakes, streams, and wells.	List the amount of irrigated acres for agricultural use: _____
<b>Total Water Supplied:</b> Total water supplied to water users.	
<b>Gallons Provided Per Day:</b>	[Total Water Supplied ÷ 365 = Gallons Provided Per Day]

### 1. Drought Contingency Planning

During this reporting period, did you implement your Drought Contingency Plan?

Yes                      No

If yes, how many days were water restrictions in effect? \_\_\_\_\_

If yes, check the reason(s) for implementing your Drought Contingency Plan.

Water Supply Shortage  
 High Seasonal Demand  
 Capacity Issues

Equipment Failure  
 Impaired Infrastructure  
 Other: \_\_\_\_\_

Acre-feet to gallons conversion	
_____	_____gal

## Water Use Accounting for Industrial or other Agricultural Operations

### Data entered by Industrial or other Agricultural Operations

	Total Gallons During the Reporting Period
<b>Source Water:</b> Water taken from permitted sources such as rivers, lakes, streams, and wells.	
<b>Water Imported:</b> Purchased water transferred into the system.	
<b>Total Water Supplied:</b> Total water supplied to system or operation and available for use.	[Source Water + Imported = Total Water Supplied]
<b>Consumptive Use:</b> Water use that permanently withdraws water from its source. Water that is no longer available because it has evaporated, been transpired by plants, incorporated into products or crops, consumed by people or livestock, or otherwise removed from the immediate water environment.	If applicable, list the amount of irrigated acres for agricultural use: _____
<b>Non Consumptive Use:</b> Water withdrawn for use but not consumed.	[Total Water Supplied – Consumptive Use = Non Consumptive Use]
..... <b>Gallons Consumed Per Day:</b>	[Consumptive Use ÷ 365 = Gallons Per Day]

## Targets and Goals

Provide the **specific and quantified five and ten year targets** as listed in your most current Water Conservation Plan.

	Date to Achieve Target	Specific and Quantified Targets
<b>Five-year target</b>		
<b>Ten-year target</b>		

## Water Conservation Programs and Activities

### 1. Water Conservation Plan

What year did your entity adopt or revise the most recent Water Conservation Plan? \_\_\_\_\_

Does The Plan incorporate [Best Management Practices](#)?                      Yes                      No

### 2. Water Conservation Programs

In this reporting period, has your entity implemented water conservation activities or programs?

Yes                      No

If yes, select the Best Management Practices or water conservation strategies implemented during this reporting period.

Agricultural Activities and Practices	Industrial Activities and Practices
Information Gathering and Education Practices Cropping and Management Practices Scheduling Practices Land Management Systems On-Farm Water Delivery Systems Water District Delivery Systems Water Use Audits Leak Detection / Water Loss Programs	Conservation Analysis and Planning Educational Practices System Operations Cooling Systems Management Landscaping Sector Specific Practices Water Use Audits Leak Detection / Water Loss Programs

Other activities, list or describe.

### 3. Recycle/Reuse (Water or Wastewater Effluent)

Provide the volume of gallons used for direct/indirect reuse activities during this reporting period.

Recycle/Reuse Activity	Estimated Volume (in gallons)
On-site irrigation	
Plant wash down	
Chlorination/de-chlorination	
Industrial	
Landscape irrigation (parks, golf courses)	
Agricultural	
Other, please describe:	
<b>Estimated Volume of Reuse Water</b>	

### 4. Water Savings

For this reporting period, estimate the savings from water conservation activities and programs.

Estimated Gallons Saved/Conserved	Estimated Gallons Recycled/Reused	Total Volume of Water Saved <sup>1</sup>	Dollar Value of Water Saved <sup>2</sup>

1. Estimated Gallons Saved + Estimated Gallons Recycled or Reused = Total Volume Saved

2. Estimate this value by taking into account water savings, the cost of treatment or purchase of water, and deferred capital costs due to conservation.

### 5. Program Effectiveness

In your opinion, how would you rank the overall effectiveness of your conservation programs and activities?

Less Than Effective	Somewhat Effective	Highly Effective	Does Not Apply

What might your entity do to improve the effectiveness of your programs?

Select the area(s) for which you would like to receive more technical assistance:

- Agricultural Best Management Practices
- Industrial Best Management Practices
- Drought Contingency Plans
- Landscape Efficient Systems
- Leak Detection and Equipment
- Educational Resources

- Water Conservation Plans
- Water IQ: Know Your Water
- Water Loss Audits
- Rainwater Harvesting Systems
- Recycling and Reuse