



## 2022 Industrial Groundwater Conservation Plan Status Report

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**Your completed Groundwater Conservation Plan Status Report is due: June 30, 2022.** Please submit your completed report to: Edwards Aquifer Authority, Attn: Groundwater Conservation Department, 900 E. Quincy, San Antonio, TX 78215.

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### GENERAL INFORMATION

Permit Holder Name: \_\_\_\_\_

POU No.: \_\_\_\_\_

### CONTACT INFORMATION

Contact Person: \_\_\_\_\_

Contact Address (City, State, Zip): \_\_\_\_\_

Contact Phone Number: \_\_\_\_\_ Contact Fax Number: \_\_\_\_\_

Contact Email Address: \_\_\_\_\_@\_\_\_\_\_

Brief Description of Water Use: (*i.e., golf course, nursery, athletic field, etc.*): \_\_\_\_\_

Total Number of Connections in Service Area (Edwards Aquifer and Non-Edwards water): \_\_\_\_\_

Total Number of Edwards Aquifer Connections: \_\_\_\_\_

### CERTIFICATION

I hereby certify that the information given herewith is true and accurate to the best of my knowledge and belief.

Signature of Contact Representative: \_\_\_\_\_ Date: \_\_\_\_\_

## Industrial Best Management Practices

Your completion of the above Industrial BMPs must be consistent with the following chart.

<b>Mandatory BMPs TO Be Implemented</b>	
All Industrial Users	Ind-1 System Water Audits, Leak Detection and Repair
All Industrial Users	Ind-2 Waste Water Prohibition

<b>Optional BMPs</b>	
More than Five Connections (If Applicable)	Ind-3 Sub-Metering
If Applicable	Ind-4 Landscape Conservation Programs
If Applicable	Ind-5 Golf Course Conservation
If Applicable	Ind-6 Athletics Field Conservation
If Applicable	Ind-7 Nursery Conservation
If Applicable	Ind-8 Cooling Tower Conservation
If Applicable	Ind-9 Conservation Programs for Industrial Users

### USING NON-AQUIFER ALTERNATIVE WATER

If you have recently obtained the use of an alternative water source to replace or supplement the use of Edwards Aquifer groundwater from your well, please indicate the source, amount and date you obtained the alternative source of water.

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POU Number: \_\_\_\_\_

**Ind-1 SYSTEM WATER AUDITS, LEAK DETECTION AND REPAIR**

**Required to be implemented by all industrial users.**

**System Water Audit**

1. Implementation date of program: \_\_\_\_\_

2. Have you completed your annual pre-screening system water audit? **(Circle One)** Yes No

If so, please indicate the date of completion. \_\_\_\_\_

3. What was your total metered supply into the system (Total Edwards Aquifer water produced from well)?

2019 \_\_\_\_\_ acre-feet

2020 \_\_\_\_\_ acre-feet

2021 \_\_\_\_\_ acre-feet

4. Please provide your total sub-metered or verified end use amounts below (*facilities, irrigation systems, water using equipment, mobile homes, RV connections, etc.*).

2019 \_\_\_\_\_ acre-feet

2020 \_\_\_\_\_ acre-feet

2021 \_\_\_\_\_ acre-feet

5. What percentage of your water use was accounted for?

Formula:  $\text{Accounted water} = \text{sub-metered or verifiable use (see \#4 above)} / \text{Total metered supply into system (see \# 3 above)} \times 100.$

2019 \_\_\_\_\_ %

2020 \_\_\_\_\_ %

2021 \_\_\_\_\_ %

If metered end-use plus other verifiable use represents less than 85% of total supply into the system, a full scale system water audit is necessary.

6. Have you conducted a full-scale distribution system water audit? **(Circle One)** Yes No

If you have conducted a full-scale water audit, please submit any documentation of your findings and the date the audit was completed.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. If you have not yet conducted a full-scale system water audit and your pre-screened water audit represents less than 85% of total supply into the system, what are your plans to complete your audit?

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**Leak Detection and Repair Program:** Perform distribution system leak detection when warranted, and repair identified leaks.

8. Are you currently maintaining a leak detection and repair program? **(Circle one)** Yes No
9. If so, please give a brief description of your leak detection and repair program if not already provided. In addition, please describe any major repairs you have made to your system that was identified by your leak detection and repair program.

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10. For any water loss you may have had, please explain what measures are being taken to prevent water loss in the future:

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POU Number: \_\_\_\_\_

**Ind-2 WATER WASTE PROHIBITION**

**Required to be implemented by all industrial users.**

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1. Implementation date of program: \_\_\_\_\_

2. Have you adopted any policies or taken measures to prohibit wasteful activities by your customers and staff including but not limited to the following? **(Circle All That Apply)**

- |  |     |    |
|--|-----|----|
| a. Prohibition of landscape irrigation | Yes | No |
| b. Runoff from property.               | Yes | No |

(Note: Water utilities shall establish a monitoring and enforcement program of residential and nonresidential landscape irrigation in accordance with the prohibition of residential or non-residential landscape irrigation during period of peak water loss due to evapotranspiration, typically between the hours following 10:00 a.m. until 8:00 p.m.) pursuant to EDWARDS AQUIFER AUTHORITY Rules §715.122. This section applies irrespective of whether a customer is within the city limits of the extraterritorial jurisdiction of a municipal water utility.

3. If you have circled "No" to any of the above please give a brief explanation as to the reason why.

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4. If you have not already done so, please submit a copy of any adopted policy or measure to prohibit wasteful water activities to the Edwards Aquifer Authority.

POU Number: \_\_\_\_\_

**Ind-3 SUB-METERING**

**Optional**

1. Implementation date of program: \_\_\_\_\_
2. Have you conducted a feasibility study to determine the benefits of installing sub-meters on facilities or equipment that comprises at least 20% of the applicant's total water use? If so, please describe the results of your feasibility study below.

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3. Have you conducted a feasibility study to determine the benefits of installing dedicated landscape sub-meters? If so, please describe the results of the study below.

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4. Please provide a description of your sub-metering program and any sub-meters you have installed on facilities, equipment or irrigation systems used to assist you in accounting for your water use and or water loss.

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POU Number: \_\_\_\_\_

**Ind-4 LANDSCAPE CONSERVATION PROGRAMS**

**Optional to implement if your well is used for landscape irrigation.**

1. Implementation date of program: \_\_\_\_\_

2. Have you already conducted a landscape water-use survey? **(Circle One)** Yes No

If yes, please describe the results of your landscaping water-use survey below. Please provide a copy of same.

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**If you have not yet conducted a landscape water-use survey, please complete and return to the Authority the Landscape and Irrigation Water-Use Survey which is attached.**

3. Have you developed reference evapotranspiration (ET<sub>o</sub>)-based irrigation schedules that are equal to no more than 80% of evapotranspiration? If so, what was your estimated ET<sub>o</sub>-based irrigation schedule and annual water savings?

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4. If your landscape use has exceeded 20% of total use, have you installed a dedicated landscape meter? If so, describe the results obtained in using a dedicated landscape irrigation meter.

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POU Number: \_\_\_\_\_

**Ind-5 GOLF COURSE CONSERVATION**

**Optional to be implement if your well is used for golf course irrigation.**

1. Implementation date of program: \_\_\_\_\_

2. Have you performed a landscape survey to determine ETO-based irrigation schedules? **(Circle One)** Yes No

If so, please describe below the results of your study to include annual water savings and provide such documentation to the Authority.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**If you have not yet conducted a landscape water-use survey, please complete and return to the Authority the Landscape and Irrigation Water-Use Survey which is attached.**

3. Have you established a watering regimen that uses only the amount of groundwater necessary to maintain the viability of the turf and maintain it in a safe condition? **(Circle One)** Yes No

If so, please describe below your watering regimen.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Have you installed a computer controlled irrigation system (CCIS)? **(Circle One)** Yes No

5. If you have recently installed a new computer controlled irrigation system (CCIS), please describe below the operation of the CCIS using ETO-based irrigation schedules. Your CCIS system should include, at a minimum, the following components: computer controller (digital operating system), software, interface modules, satellite field controller, soil sensors, and weather stations.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Is non-Edwards Aquifer water currently available in your area to substitute for your Edwards Aquifer groundwater?

**(Circle One)** Yes No

7. What are your plans to obtain alternative water supplies? Please describe your plans and include the potential date of conversion. If you have already committed to doing so and these plans include the use of treated effluent, please provide a copy of the letter of commitment from the appropriate agency and a copy of the Texas Commission on Environmental Quality (TCEQ) permit authorizing the use of treated effluent in your area.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



POU Number: \_\_\_\_\_

**Ind-6 ATHLETIC FIELD CONSERVATION**

**Required to be implemented if you well is used to irrigate an athletic field.**

1. Implementation date of program: \_\_\_\_\_
2. Have you established a watering regimen that uses only the amount of groundwater necessary to maintain the viability of the turf and maintain it in a safe condition? **(Circle One)**      Yes      No

If so, please describe below your watering regimen and describe the location and dimensions of the athletic field and the type of turf.

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3. Have you performed a landscape survey to determine ETo-based irrigation schedules? **(Circle One)**      Yes      No

If so, please describe below the results of your study to include annual water savings and provide us with such documentation.

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**If you have not yet conducted a landscape survey to determine ETo-based irrigation schedules, please complete and return to the Authority the Landscape and Irrigation Water-Use Survey which is attached.**

4. If you have recently installed a new Computer Controlled Irrigation System (CCIS), please describe below the operation of the CCIS using ETo-based irrigation schedules. Your CCIS system should include, at a minimum, the following components: computer controller (digital operating system), software, interface modules, satellite field controller, soil sensors, and weather stations.

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POU Number: \_\_\_\_\_

**Ind-7 NURSERY CONSERVATION**

**Required to be implemented if your well is used to irrigate nursery stock.**

1. Implementation date of program: \_\_\_\_\_
2. Have you developed the use of multiple watering zones for your different variety of plants?     **(Circle One)**     Yes     No
3. Please describe the status of any new irrigation techniques and irrigation systems you are now using such as low-pressure sprinklers and/or micro irrigation systems.

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4. Describe below how you maintain use of your current irrigation techniques. This may include increasing the moisture holding capacity of soils or using soil amendments such as wetting agents, polymers/gels, peat moss or compost. Reduction of evaporative losses may also be achieved by utilizing mulch on plants in large containers.

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5. If you have implemented a water recovery and reuse system, please describe below how the program is used to capture and reuse runoff water.

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POU Number: \_\_\_\_\_

**Ind-8 COOLING TOWER CONSERVATION**

**Required to be implemented if your well is used for a cooling tower.**

1. Implementation date of program: \_\_\_\_\_

2. Program description:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Please provide the capacity and number of your cooling towers.

<u>500-200 tons</u>	<u>201-500 tons</u>	<u>501-800 tons</u>	<u>801-1000 tons</u>	<u>1001 + tons</u>
_____	_____	_____	_____	_____

**Total Number of Towers:** \_\_\_\_\_

4. Have you conducted an efficiency water audit on your cooling tower(s)? **(Circle One)** Yes No

5. Please check all conservation measures you have implemented for your cooling towers:

- \_\_\_\_\_ Using shielding to minimize evaporative loss.
- \_\_\_\_\_ Utilizing safe chemical additives to control scaling and extend useable "life" of water in cooling tower.
- \_\_\_\_\_ Running system with increased cycles of concentration.
- \_\_\_\_\_ Installed conductivity or pH monitoring systems to control bleed-off.
- \_\_\_\_\_ Installed meters to monitor amount of bleed off and make up water.
- \_\_\_\_\_ If feasible, installed an automatic shut-off system to power-down cooling tower when not in use.
- \_\_\_\_\_ Collecting water from other on site uses that is suitable for make-up water or can be treated for such use.
- \_\_\_\_\_ Harvesting rainwater as available to use as make-up water.
- \_\_\_\_\_ Reusing bleed-off water for other processes on site.

6. If you have not already provide this information, please complete the following:

Description of the process your cooling towers are used for:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. System Requirements:

Temperature \_\_\_\_\_

Volume \_\_\_\_\_

Duration of Flows (hrs/day): \_\_\_\_\_

Number of Gallons of Bleed Off: \_\_\_\_\_

Number of Gallons of make-up water used daily: \_\_\_\_\_

Number of Cycles of Concentration: \_\_\_\_\_

Description of conductivity or pH sensors used to control bleed off:

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Description of chemical compounds and amounts used to amend water quality for cooling tower use:

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POU Number: \_\_\_\_\_

**Ind-9 CONSERVATION PROGRAMS FOR INDUSTRIAL APPLICANTS**

**Required to be implemented by all industrial users if BMP-4 through BMP-8 do not apply.**

1. Implementation date of program: \_\_\_\_\_
2. You are required to conduct a water use survey or implement another method to reduce your water usage. Please indicate below which method you have chosen to reduce your water usage:

Completion of an industrial water use survey: \_\_\_\_\_

Implementation of other program: \_\_\_\_\_

**If you have chosen to complete a water use survey, please provide the Authority with the results of your own survey or you may complete and return to the Authority the Industrial Water Use Survey which is attached.**

If you have chosen to implement another water reduction program instead of completing an industrial water use survey, please describe the program below. Additionally, your water reduction must be an amount equal to 10% of baseline usage which is your total verified maximum historical use.

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# Landscape and Irrigation Water Use Survey

(Attachment to Ind.-4, Ind.-5 and Ind.-6)

## General Information:

Permit Number: \_\_\_\_\_

Owner Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Contact Phone: \_\_\_\_\_

User Type (**check one**):  Residential  Golf/Sports Field  Industrial/Commercial/Institutional

Other: \_\_\_\_\_

Method of measurement:

(**check one**)  Irrigation Meter  Well Meter  System Pressure

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## Landscape and Irrigation Water-Use Inventory

### Irrigation System

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Type:  Hose  Sprinkler  Drip

Location:  In-Ground  Aboveground No. of Valves: \_\_\_\_\_

Irrigation Controller:  Manual  Automatic Rain shut off valve?  Yes  No

Frequency of Use: Avg. no. days per week: \_\_\_\_\_ Avg. no. minutes per irrigation cycle: \_\_\_\_\_

Irrigation Time:  Mornings  Evening From \_\_\_\_\_ a.m./p.m. To \_\_\_\_\_ a.m./p.m.

Irrigation months

(**Circle all that apply**): Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Irrigation water use/cycle (gal): Initial Meter reading: \_\_\_\_\_ Ending Meter Reading: \_\_\_\_\_

Total Cycle water Use: \_\_\_\_\_

Irrigation water use/time (gal): Avg. Day: \_\_\_\_\_ Avg. Week: \_\_\_\_\_ Avg. Month: \_\_\_\_\_ Avg. Year: \_\_\_\_\_ gal

Irrigation water use (%): Turf: \_\_\_\_\_% Plant beds/garden: \_\_\_\_\_% Leaks: \_\_\_\_\_% Other \_\_\_\_\_%

Irrigation runoff:  Yes  No

If yes, describe: \_\_\_\_\_

Leaks:  Yes  No

If yes, describe: \_\_\_\_\_

Controller schedule reset:  Weekly  Monthly  Seasonal  Yearly  Never

Controller schedule set by:  Homeowner/Site Manager  Maintenance Contractor

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## Landscape Area

Total Lot size (sq. ft.): \_\_\_\_\_ Lot area irrigated (sq.ft.): \_\_\_\_\_ Lot area irrigated (%): \_\_\_\_\_

Irrigated area that is turf (sq. ft.): \_\_\_\_\_ Irrigated area that is non-turf (sq. ft.): \_\_\_\_\_

*Modified from Water Use and Conservation, Amy Vickers Associates, Inc., 2001*

## Landscape and Irrigation Water Use Survey (Continued)

(Attachment to Ind.-4, Ind.-5 and Ind.-6)

### Turf Grass and Plants

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Grass Type: \_\_\_\_\_  Cool Season  Warm Season  Mix: Cool (%): \_\_\_\_\_  Warm (%): \_\_\_\_\_

Irrigated non-turf area (describe):

Grass mow height: \_\_\_\_\_ inches                      Number of Watering Zones/Valves: \_\_\_\_\_

Are zones separated by plant/turf watering needs?                       Yes                       No

### Soil

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Soil Type:     Clay             Loam             Sandy Loam            Mix (describe): \_\_\_\_\_

Condition:Nutrient Level:             Good             Poor

Compaction:             Light             Medium             Heavy            Sufficient mulch around plants?             Yes             No

## Industrial Water Use Survey (Attachment to Ind-9)

### General Information

Owner Name: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Email address: \_\_\_\_\_

Describe type of facility, products of services: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Is recycled water currently used on your site?       Yes       No

If yes, please describe and give amount of recycled water used annually. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Building and Facility Water-Use Inventory

Please complete the following as it pertains to your operation. If your type of operation is not compatible with the categories below, please indicate type of use under "Miscellaneous Uses" at the end of this list.

Water Use	Number	Average Flow Rate or Water Use Per Unit (e.g., gallons per use per minute, etc)	Average No. Uses Per Unit Per Day	Annual Use
<b>Bathrooms/Lavatories</b>				
Drinking water fountains				
<b>Women's</b>				
Toilets				
Showerheads				
Sinks (faucets)				
Whirlpool				
Other				
Other				
Other				
<b>Men's</b>				
Toilets				
Showerheads				
Sinks (faucets)				
Whirlpool				
Other				
Other				
Other				



**Industrial Water Use Survey (Continued)**  
**(Attachment to Ind-9)**

<b>Water Use</b>	<b>Number</b>	<b>Average Flow Rate or Water Use Per Unit (e.g., gallons per use per minute, etc)</b>	<b>Average No. Uses Per Unit Per Day</b>	<b>Annual Use</b>
<b>Cleaning and Sanitation</b>				
Manual Washing				
Vehicle Washing				
Dust Control				
Steam Sterilizers				
Mop Sink				
Laboratory				
Other				
Other				
Other				
Other				
<b>Process Water Uses</b>				
Process water and rinsing				
Other				
Other				
Other				
Other				
<b>Kitchen and Restaurants</b>				
Sinks				
Dishwashers				
Icemakers				
Other				
Other				
Other				
Other				
<b>Laundries and Laundromats</b>				
Washing Machines				
Other				
Other				
Other				
Other				
<b>Swimming Pools, Ponds &amp; Lakes</b>				
Swimming Pools				
Fountains/Water Falls				
Ponds				
Lakes				
Other				
Other				
Other				

**Industrial Water Use Survey (Continued)**  
**(Attachment to Ind-9)**

Water Use	Number	Average Flow Rate or Water Use Per Unit (e.g., gallons per use per minute, etc)	Average No. Uses Per Unit Per Day	Annual Use
<b>Cooling Systems</b>				
Cooling Systems/Towers				
Heating Systems				
Other				
Other				
Other				
Other				
<b>Leaks and Losses</b>				
Leaks and Losses				
Malfunctions				
Other				
Other				
Other				
Other				
<b>Miscellaneous Uses</b>				
1				
2				
3				
4				
5				
6				

**Areas where conservation (efficiency measures) can be implemented. Please include the areas and items recommended for improvement and the recommended conservation measures.**

Item/Area	Qty.	Description:

**Industrial Water Use Survey (Continued)**  
**(Attachment to Ind-9)**

**Potential Water Savings After Improvements**

Water Efficiency Measure	Current Water Use (A)	Potential Water Savings From Efficiency Measures (B)	Estimated Future Water Use (A-B)	Estimated (%) Future Water Use With Conservation (B/A)	Projected Life of Conservation Measure

**Industrial Water Use Survey (Continued)**  
**(Attachment to Ind-9)**

**Water Use Estimates:** The following water use estimates are provided to assist you in determining your current use and/or water savings.

**House Hold Use**

Type of use and year of installation.	Use Rate or Flow Rate	Frequency of Use (per persons per day)
Clothes Washer Use	Gallons per load	Loads per day
1998 - Present	27	0.37
1990-Present	39 or 43	0.37
1980-1990	51	0.37
Dishwasher Use	Gallons per load	Loads per day
1997 - Present	4.5	0.10
1995 - Present	7-10.5	0.10
1990-1995	9.5-12.0	0.10
Faucet Use	Gallons per min.	Minutes per day
1994-Present	1.5 or 2.5	8.1
1980-1994	2.75 or 3.0	8.1
Pre-1980	3.0-7.0	8.1
Showerhead Use	Gallons per min.	Minutes per day
1994-Present	2.5	5.3
1980-1994	2.75, 3.0 or 4.0	5.3
Pre-1980	5.0-8.0	5.3
Toilet Use	Gallons per flush	Flushes per day
1994-Present	1.0 or 1.6	5.1
1980-1994	3.5, 4.0 or 4.5	5.1
1950s-1980	5.0 or 5.5	5.1

**Office Building Use**

Type of use and year of installation.	Use Rate or Flow Rate	Frequency of Use (per persons per day)	
Urinal Use	Gallons per flush	Male	Female
1990-Present (waterless)	0.0	2	0
1994-present (flush)	1.0	2	0
1980-1994 (flush)	1.5, 2.0, 3.0 or 4.5	2	0
Pre-1980 (flush)	5.0	2	0
Toilet Use	Gallons per flush		
1994-Present	1.0 or 1.6	1	3
1980-1994	3.5, 4.0 or 4.5	1	3
1950-1980	5.0 or 5.5	1	3

*Modified from Water Use and Conservation, Amy Vickers & Associates, Inc., 2001*