

# **CITY OF CITY OF BREWSTER WATER USE EFFICIENCY and CONSERVATION PLAN**

## **Introduction**

The State of Washington Department of Health revised water conservation planning requirements as a result of the 2003 Municipal Water Law. An outgrowth of that law is the Water Use Efficiency Rule (Rue), which was finalized in January 2007. The Rule has several requirements and corresponding compliance dates. Some of the requirements are associated with water system plans, while other requirements are independent of the 6 year water system planning cycle. The City of Brewster's Comprehensive Water System Plan was not technically subject to the new requirements, since it was submitted prior to the compliance dates for planning documents to adhere to the new requirements.

## **Water Conservation Program Review**

The new Water Use Efficiency Rule requires the City of Brewster to review its current conservation program and adopt conservation goals and measures. The conservation program review has three purposes:

1. Describe the City of Brewster existing conservation program
2. Review the City of Brewster compliance with conservation planning requirements
3. Describe the proposed conservation program that the City of Brewster will implement from 2008 through 2012 which will meet the requirements of the Water Use Efficiency Rule adopted by the State of Washington

## **Water Conservation Objectives**

A first step in the preparation of a conservation plan is the establishment of objectives. Conservation objectives serve as the guide for the development of the conservation program. The City of Brewster selected the following objectives for its water conservation program:

1. Target cost effective activities that result in the greatest water savings for initial implementation.
2. Be balanced and equitable, rather than unduly burden any one customer class or industry.
3. Prioritize education because it results in long-term changes in water use habits.
4. Meet or exceed the minimum requirements established by Washington State Department of Health (DOH).
5. Be primarily voluntary, assistance-oriented and informational, rather than restrictive or forced.

## **Water Conservation Program Description**

The City of Brewster water conservation program and conservation objectives are summarized in this section.

## **Current and Past Conservation Activities**

The City of City of Brewster has demonstrated a very low unaccounted-for demand of 3 percent in 2008 and a reduction of 6 percent over the past three years for a 3-year average of 10 percent. The City of Brewster uses other methods to promote water conservation such as school outreach, billing showing consumption history, leak detection, and meter calibration/replacement. The City of Brewster's historical and ongoing conservation activities are summarized by category in the following table:

Summary of City of Brewster Water Conservation Measures Implemented to Date			
Measure	DOH Required or Recommended?	Description of Activities	Year Implemented
<b>Public Education</b>			
School Outreach	No	Provide pamphlets and teaching materials to local schools	In Progress
Program Promotion	Required	Distribution of brochures, quarterly customer newsletter	2006
<b>Technical Assistance</b>			
Bills Showing Consumption History	Recommended	Customer's water consumption record provided on water bill	2009
<b>System Measures</b>			
Source Meters	Required	Installation of source meters on all water supply wells	2003
Service Meters	Recommended	Installation of service meters (all accounts are currently metered)	2006
Unaccounted Water/Leak Detection	Recommended	Repairing broken meters, identifying and repairing leaks	Ongoing
<b>Incentives/Other Measures</b>			
Conservation Pricing	Recommended	Re-evaluating best rate structure	2009

### Conservation Pricing

Rates can be used to encourage conservation action by customers. Rates typically consist of a fixed charge and a variable charge. There are four basic rate structures for the variable charge: uniform, declining block, increasing block, and seasonal. Both increasing blocks and seasonal rates are considered conservation pricing. Increasing blocks charge more per unit of consumption with additional consumption. Seasonal rates charge more per unit of consumption during the peak season.

The City of Brewster has a fixed rate with a fixed charge for excess water use (Fee per 100 cu. Ft. used over base rate). The City is currently reviewing their water rate fee structure and will not introduce a new rate structure until further study has been completed and greater customer communication on the issue of water conservation is achieved.

### Water Reclamation Opportunities Evaluation

The City of Brewster completed a preliminary evaluation of water reclamation opportunities as follows:

#### Inventory of Large Water Users

- Waste Water Treatment Plant (WWTP)
- Gebbers Farms, Inc. (GFI)
- Brewster School District
- Angle Trailer Park

#### Potential Reclaimed Water Use and Users

- Gebbers Farms, Inc.
- WWTP, City of Brewster

### **Estimated Water Savings from Use of Reclaimed Water**

- Gebbers Farms, Inc. 15,000,000 gallons
- WWTP 3,650,000 gallons
- Total 18,650,000 gallons

The feasibility of developing reclamation opportunities has been improved by the WWTP upgrade and GFI's design and build of a new water-efficient packing plant. Further reclamation of high use water is being evaluated at the City-owned Angle Trailer Park. Historical unusually high consumption has been recorded seasonally in this area.

### **Estimated Conservation Savings**

The City of Brewster staff have not routinely calculated or tracked the estimated savings associated with the conservation program. This will change in the future as a systematic tracking method is implemented.

### **Conservation Requirements and Compliance Summary**

The conservation planning requirements that must be addressed in water system plans are contained in the following DOH documents and State law:

1. Water Use Efficiency Rule (January 2007)
2. Municipal Water Law: Interim Planning Guidance For Water System Plan/Small
3. System Management Program Approvals (March 2004)
4. Water System Planning Handbook (April 1997)

The State of Washington recently revised water conservation planning requirements as a result of the 2003 Municipal Water Law. An outgrowth of that law is the Water Use Efficiency Rule (Rule), which was finalized in January 2007. The Rule has several requirements and corresponding compliance dates. Some of the requirements are associated with water system plans, while other requirements are independent of the 6 year water system planning cycle. The Comprehensive Water System Plan was not technically subject to the new requirements, since it was submitted prior to the compliance dates for planning documents to adhere to the new requirements.

The following Table lists the requirements of the Rule and shows that City of Brewster is either currently in compliance or likely will be in compliance for activities where compliance will be determined at a future date. There are seven main categories of requirements:

1. Meters
2. Data Collection
3. Distribution System Leakage
4. Goals
5. Efficiency Program
6. Demand Forecast
7. Performance Reports

**Compliance with Water Use Efficiency Rule Requirements**

Category	WAC Section	Compliance Date	New Requirement	City in Compliance?
1. Meters	246-290-496	Fully metered by January 22, 2017. Submit metering plan by July 1, 2008.	1. Meter all sources.	Yes
			2. Meter all service connections.	Yes
			3. For systems not fully metered: Create meter installation plan, perform activities to minimize leakage until fully metered, and report annually on installation and leak minimization actions.	N/A
2. Data Collection	246-290-100	WSPs submitted after January 22, 2008.	1. Provide monthly and annual production/purchase numbers for each source.	Yes
			2. Provide annual consumption by customer class.	Yes
			3. Provide seasonal variations" consumption by customer class."	Yes
			4. Provide annual quantity supplied to other public water systems.	Yes
			5. Evaluate reclaimed water opportunities.	Yes
			6. Consider water use efficiency rate structure.	Yes
3. Distribution System Leakage	246-290-820	First report completed by July 1, 2008. First compliance determination made by July 1, 2010.	1. Calculate annual volume and percent using formula defined in the Rule.	Yes. 2008 distribution system leakage was 3% and our 3-year average is 10%.
			2. Report annually: annual leakage volume, annual leakage percent, and, for systems not fully metered, meter installation progress and leak minimization activities.	Yes
			3. Develop water loss control action plan (if leakage is over 10% for 3 year average).	N/A
4. Goals	246-290-830	Goals established by January 22, 2008.	1. Establish measurable (in terms of water production or usage) conservation goals and re-establish every 6 yrs. Provide schedule for achieving goals.	In Progress
			2. Use a public process to establish the goals.	
			3. Report annually on progress.	Yes
5. Efficiency	246-290-840	WSPs submitted	1. Describe existing conservation program.	Yes

**Compliance with Water Use Efficiency Rule Requirements (cont.)**

Category	WAC Section	Compliance Date	New Requirement	City in Compliance?
5. Efficiency Program (cont.)			2. Estimate water saved over last 6 years due to conservation program.	In Progress
			3. Describe conservation goals.	Yes
			4. Evaluate and implement 1-12 measures, depending on size. (4 measures for City)	Yes
			5. Describe conservation programs for next 6 years including schedule, budget, and funding mechanism.	Yes
			6. Describe how customers will be educated on efficiency practices.	Yes
			7. Estimate projected water savings from selected measures.	In Progress
			8. Describe how efficiency program will be evaluated for effectiveness.	Yes
			9. Estimated leakage from transmission lines (if not included in distribution system leakage).	N/A
6. Demand Forecast	246-290-100	WSPs submitted after 01/22/08.	1. Provide demand forecast reflecting no additional conservation.	In Progress
			2. Provide demand forecast reflecting savings from efficiency program.	In Progress
			3. Provide demand forecast reflecting all cost effective" evaluated measures. "	In Progress
7. Performance Reports	246-290-840	First report completed by July 1, 2008.	1. Develop annual report including: goals and progress towards meeting them, total annual production, annual leakage volume and percent, and, for systems not fully metered, status of meter installation and actions taken to minimize leakage.	In Progress
			2. Submit annually by July 1 to DOH and customers and make available to the public.	In Progress

**Proposed Water Use Efficiency Goals & Measures**

The goals of a conservation program should reflect the drivers of why a utility is pursuing conservation. Conservation drivers can include meeting regulatory requirements, minimizing impacts on water resources, decreasing operating costs, deferring capital improvements, and obtaining new supply. The conservation driver(s) applicable to any one utility depend on that utilities' specific supply situation and cost structures.

The City of Brewster conservation program is driven by the desire to reduce system leakage both in the City distribution system and the customer's water system, to reduce operating costs, to educate and provide opportunities for customers to reduce their water consumption and to meet regulatory requirements. It should be noted that the City of Brewster will continue to support source meters, service meters, system leak detection and repair in order to meet or exceed it WUE goals.

**Distribution System Leakage of 10% or less of production**

It is the goal of the City of Brewster to perform annual leak detection surveys and to repair leaking distribution mains in a timely manner. This will ensure that we keep our water system leakage below 10% of

production. 2008 distribution system leakage was 3.0%. We have had an annual reduction of 6% over the last two years and are maintaining a 10% loss average over the last 3 years, meeting WUE requirements. Actively pursuing system leaks and conservation measures, the City intends to see a 3% average reduction in water loss over the next 5 years.

### **Replace Customer Service Meters and Source Production Meters**

Although the City of Brewster does not have an Automated Meter Reading program, all replacement meters are new electronic meters that can be read with an automated meter reading device. The City intends to upgrade to an AMR system in the future. Replacing both service and source meters will ensure accurate readings and allow for better analysis of water loss resulting in repair of system and customer service leaks. More accurate customer meter readings should encourage customer conservation.

### **Demand-Side Water Use Efficiency Measures**

The City of Brewster conservation program for 2008-2012 will consist of the four (4) measures listed below. These measures have been selected due to a combination of factors including applicability to City of Brewster service area, customer acceptance, cost effectiveness, and/or savings potential. Descriptions of each measure are discussed below. The four demand side measures for consideration under the Water Use Efficiency rule are:

1. Billing Statements showing consumptive History
2. Customer Education
3. Meter calibration/replacement
4. Toilet Leak Detection Dye Tablets

### **Billing Statements Showing Consumptive History**

The City of Brewster will continue to show consumptive history on customer billing statements. Customer bills providing historical consumption data allow customers to understand how their use varies throughout the year and from year to year. This information helps customers make informed choices about how they manage their water use, including implementing conservation.

### **Customer Education**

This City of Brewster will provide conservation information and tips on its website, customer brochures and on customer bills. The City will provide and make available to students and teachers water and water conservation education programs. The City will respond to speaking requests and making speakers available to a wide cross-section of service, community, and other groups, focusing on increasing public awareness of water resource and conservation issues.

### **Meter Calibration/Replacement**

The City of Brewster will continue to calibrate or replace demand-use meters. Of particular interest are meters 1.5" or larger that have high use demands. Most of these meters have not been calibrated in over 5 years. Peak demands on these meters historically show a significant increase in use particularly during fruit harvest season due to fruit processing and packing. Residential meters are being replaced at a rate of 8-10% (40-50 meters) per year throughout the City.

### Free Toilet Leak Detection Dye Tablets

This measure provides free toilet leak detection dye tablets for customers to determine if their toilets leak and provides detailed information on how to fix leaks. This measure applies to residential sectors, both existing and new customers, as well as to businesses with tank style toilets. Only tank style toilets are targeted since most leaks occur in that type of toilet, usually via flapper leaks.

### SAVINGS AND DIRECT COSTS SUMMARY

Measures	Sectors <sup>1</sup>				Quantity of Devices		Savings (at full implementation)			Direct Costs	
	R I C L	C I C L	R O C L	C O C L	Total <sup>2</sup>	Avg. Annual	GPD	% of Total	Total over Plan Period	Avg. Annual	% of Total
Bills showing Consumptive History	X	X	X	X			Not Quantified			\$300	7%
Customer Education	X	X	X	X			Not Quantified			\$500	12%
Meter Calib./Replacement	X	X	X	X	499	45	Not Quantified			\$3,368	78%
Toilet Leak Detect. Dye Tablets	X		X		559	150	Not Quantified			\$175	4%
Totals:										\$4,343	100%

1 - RICL: Residential In City Limits; CICL: Commercial In City Limits; ROCL: Residential Out Of City Limits; COCL Commercial Out of City Limits

2 - Of 663 total meters, 164 have been replaced in last 5 years