

# Annual Water Use Efficiency Performance Report Form

Please refer to the *Getting Started – Water Use Efficiency Guidebook*, DOH Pub. 331-375, for help in filling out this form.

## General System Information:

System Name: WSU Pullman Campus Water System

System ID #: 93200Q

County: Whitman

Your Name: Ben Kovanda

Your Title: Associate Mechanical Engineer

Your Phone Number: (509) 335-9000

Today's Date: 6/9/09

## Production and Distribution System Leakage Information:

12-Month Performance Reporting Period:

6 / 2008 to 5 / 2009 (Month/Year)

<b>Distribution System Leakage Summary:</b>	
Total Water Produced and Purchased – Annual Volume	479 <input checked="" type="checkbox"/> millions of gallons* <input type="checkbox"/> gallons*
Distribution System Leakage – Volume	<input type="checkbox"/> millions of gallons* <input type="checkbox"/> gallons*
Distribution System Leakage – Percent	%

\*Report volume in millions of gallons or gallons: 1 cubic foot = 7.48 gallons

$$DSL = [(TP - AC) / TP] \times 100$$

Percent of Distribution System Leakage (DSL)  
Total Water Produced and Purchased (TP)  
Authorized Consumption (AC)

## Goal Setting Information:

**Date of Public Forum:** 8/13/2007 (Month/ Date/Year)

*Note: Goals must be established through a public process.*

**Has goal been changed since last performance report?**  Yes  No

**In the following section, provide a narrative on progress in reaching your goals.** Include the following information:

1. Identify water savings goals.
2. Identify the time schedule for achieving goals.
3. Describe progress made toward achieving goals, such as:
  - Estimate how much water you have saved.
  - Report progress toward meeting goals within your established timeframe.
  - If you are not on track to reach your goals, identify any adjustments or changes to your WUE measures.
  - Include any other information that helps you tell your story.

WSU's conservation program for 2008-2013 has identified 11 measures to assist in implementing the conservation program and achieve its conservation goals. These measures are outlined below with a progress update for this 12-month performance reporting period.

### 1.0 SOURCE METERS:

Source meters are a critical conservation tool since accurate water production data provides information used in developing conservation priorities, goals and programs. WSU has source meters on all wells. Meters are tested and calibrated when wells are taken offline temporarily for major overhauls.

### 2.0 SERVICE METERS:

Service meters are a key component in conservation planning because they provide accurate use information. WSU has not historically metered connections prior to 1996, but has initiated measures to install service meters on campus. New buildings that are connected to the WSU water system are required to have water meters installed.

Additionally, WSU plans to have a fully automated meter reading system implemented by the end of the 2009 calendar year. The automated system will be connected to the existing 26 meter points on campus. The remaining service points on campus will have meters installed in phases and will be connected to the automated meter reading system by January 2017. Capital funding for the installation of meters has not been allocated for the coming 2009-2011 biennium.

WSU is in the process and will have installed 33 service meters on irrigation points of connection this year which electronically record water use. The meter installations were completed in conjunction with the irrigation controls upgrade discussed in section 5 below. Sixty-two additional meters will be installed on irrigation connections in the future.

### 3.0 SYSTEM LEAK DETECTION AND REPAIR

Detecting and repairing water system leaks is a vital aspect of any water conservation

program. WSU uses a visual method of leak detection. Because of clay subsoil, leaks from buried pipes often surface and become apparent due to wet or icy spots on the ground and greener spots on lawn areas. When these indicators are present, the areas are investigated for possible leaks.

WSU recently purchased leak detection equipment; to date the equipment has been used with a small degree of success. WSU will continue use of the equipment over the coming year with anticipation of greater success as the system's capabilities are realized and operation is refined. With increased confidence in the results generated from the new equipment, WSU will develop a plan for routine and periodic leak detection. By surveying pipes regularly with detection equipment, WSU will be even more proactive in preventing water loss by identifying leaks before they are visible.

Groundwater quality tests indicating higher chlorine concentrations than generally found in groundwater can provide evidence that the water is leaking from WSU's system, however, these tests are not always conclusive.

When leaks are found, they are promptly repaired. In addition to repairing the actual leak, a portion of the surrounding piping is replaced as a proactive measure to prevent future water loss in the same area. Since 2002, over 190 leaks have been repaired; 24 leaks were repaired in the past year.

#### 4.0 TECHNICAL STUDIES

WSU has been an active participant in commissioning and funding studies to better understand regional water resource issues. The water supply and conservation issues facing WSU are shared by communities throughout the Palouse Basin which draw water from the regional aquifer. These studies provide information about the water system's characteristics as required under the Rule.

WSU is a board member of the Palouse Basin Aquifer Committee (PBAC), whose mission is to ensure long-term, quality water supply for the Palouse Basin region. PBAC is a voluntary, cooperative, multi-jurisdictional organization comprised of seven stakeholders in Washington and Idaho. The members are WSU; the Cities of Pullman, Moscow, and Colfax; the University of Idaho (UI); Whitman County; and Latah County. WSU funded PBAC this year with annual contributions of \$20,000 for operational costs and \$20,000 for research.

PBAC has funded hydrogeology research related to the aquifer, as reported in PBAC's 2002-2005, 2006, and 2007 Palouse Ground Water Basin Water Use Reports. Details regarding the studies can be found in those reports. Further information about PBAC's current and ongoing research can be found on their website, [www.webs.uidaho.edu/pbac](http://www.webs.uidaho.edu/pbac).

WSU provides various in kind donations for PBAC and non-PBAC research such as performing pump tests and allowing access to wells for groundwater level and water quality monitoring.

#### 5. LANDSCAPE MANAGEMENT

WSU has implemented a wide array of actions to reduce the impact of landscaping practices on its water use. The primary focus of this measure has been upgrading irrigation systems. WSU has a project, of which, the first phase will be completed this summer. The project is

to replace existing irrigation controllers with new evapotranspiration (ET) controllers which coordinate irrigation needs to local weather conditions. With these controllers, irrigation service meters are being installed which track water consumption and also shut down the system in the event of a line break. Other campuses and municipalities that have installed similar ET controllers have experienced irrigation water savings of up to 30%. The first phase of construction for this project which involves replacing 33 controllers is anticipated to be completed during the summer of 2009; the remaining 62 units on campus will be installed in the future (subject to funding availability).

WSU has continued its efforts over the past year to replace older sprinkler nozzles with more modern designs that deliver water with greater efficiency.

WSU continues to proactively seek water efficiency in new construction and major renovations. An example of WSU's commitment to water efficiency is the new Olympia Avenue Student Housing which is currently under construction, for which, WSU is anticipating a LEED Silver certification by the Leadership in Energy and Environmental Design's (LEED's) Green Building Rating System. The anticipated Silver certification is due, in part, to water conservation of many forms including utilization of water efficient landscaping.

#### 6. AGRICULTURAL MANAGEMENT

WSU has also focused on upgrading irrigation systems in agricultural operations. Tukey Orchard began using drip irrigation in portions of the facility in 1983. Since then, additional portions of the orchard have been converted to drip-line irrigation or micro-sprinklers each year. In the past year, 2 acres of the orchard was converted to drip irrigation.

Additionally, the Tukey Orchard has removed 60 trees from production and discontinued irrigation on approximately 1.5 acres. These efforts were two-fold to maximize production and reduce water usage.

#### 7. UPGRADES TO PLUMBING FIXTURES

WSU continues to proactively seek water efficiency in new construction and major renovations. The anticipated LEED Silver certification of the Olympia Avenue Student Housing Discussed in section 5 is also due, in part, to water conservation from water-use reduction in the building.

This year, WSU installed two new generation 1/8 gallon per flush (gpf) urinal systems on a trial basis in two separate buildings on campus. The potential water savings resulting from the implementation of this type of system, compared to the standard 1.0 gpf systems, is compelling and will continue to be monitored over the coming year.

WSU has continued the effort to replace shower heads in residence halls. Existing 2.5 gallon per minute (gpm) heads are replaced with 2.0 gpm heads. The new shower heads use air pressure to make up for less water. This year, 140 heads were replaced in two dormitories that house a total of 350 students.

#### 8. REDUCTION/ELIMINATION OF COOLING WATER

WSU has actively sought to reduce or eliminate cooling water to achieve water conservation. This has been achieved primarily either by reconfiguring single pass cooling systems to re-

circulating systems or by replacing water cooled equipment, such as refrigerators, with air cooled models.

A significant project completed in 2009 is the construction of the Biotechnology Life Sciences Building. The construction of the building includes a closed-loop, recirculating, process water system which will provide for equipment cooling needs and assist in the conservation effort by eliminating single pass cooling systems.

The construction of the new East Campus Chilled Water Facility was completed in April 2009. This construction included the installation of water filtration equipment and uses modern chemical treatment technology. These measures seek to reduce the amount of water blow-down and consequently reduce water make-up to the system. WSU expects that the installation of this equipment and technology will conserve over 13 million gallons of water per year.

Additional facility upgrades that have demonstrated water conservation include the deionized (DI) water plant on campus. This plant regenerates portable resin bottles to be exchanged in buildings that use DI water. A plant upgrade was completed during the beginning of 2008 and since its completion the plant has reduced water use by approximately 90%, which equates to a water savings of 625,000 gallons per year.

#### 9. EDUCATION

Palouse Basin Aquifer Committee (PBAC) began hosting an annual Water Summit in 2005 to advance development of a long-range plan for sustainable water use on the Palouse. The Water Summit brings local, regional, and national experts on Palouse Basin related water resource issues, as well as the public, together to share information and work towards solutions. PBAC hosted the Fourth Annual Water Summit October 7th, 2008. The theme was "Seeking Sound Science and Practical Solutions." The annual event is made possible with the help of sponsors including WSU. WSU contributed \$2,000 toward the event in 2008 and is sponsoring the event again in 2009.

#### 10. CLOTHES WASHERS

In 2001, WSU began replacing older clothes washers with more efficient front loading models. The clothes washer replacements in the residence halls were completed during the summer of 2008. A total of 111 washers were replaced in the residence halls as part of this seven year effort. Additionally 12 new clothes washers were installed in WSU apartment buildings, four of which were installed in the past year.

#### 11. RECLAIMED WATER

WSU is eager to implement a reclaimed water initiative to use reclaimed wastewater to irrigate major green spaces, including the golf course, and to potentially be used for process water in the Grimes Way Steam Plant and other industrial applications. This initiative has not received funding from the State Legislature.

*Note: If you cannot complete electronically, attach separate pages with general system information at the top.*

### **Meter Installation Information:**

**Is your system fully metered?**       Yes       No

If yes, / (Month/Year)

If no, complete the rest of this section.

**Date for completing installation on all existing connections and interties:**

1 / 2017 (Month/Year) Due by January 22, 2017

**Describe your progress in metering and any efforts taken to minimize leakage:**

**SERVICE METERS:**

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**Return this completed form to:**

E-mail: [wue@doh.wa.gov](mailto:wue@doh.wa.gov)

Mail: WUE Program, Office of Drinking Water

PO Box 47822, Olympia, WA 98504-7822

FAX: (360) 236-2252

For more information, contact a regional planner:

**Eastern Regional Office – Spokane – Main Office: 509-456-3115**

**Southwest Regional Office – Tumwater – Main Office: 360-236-3030**

**Northwest Regional Office – Kent – Main Office: 253-395-6750**

The Department of Health is an equal opportunity agency. For persons with disabilities, this form is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).