

DEER CREEK WATER ASSOCIATION

2022 WATER USE EFFICENCY PROGRAM UPDATE

1.0 Water Supply Characteristics

1. Source Description:

Deer Creek Water Association (DCWA) obtains its water from two wells south of E. Smith Road and east of Guide Meridian. These two wells in a well-field are about 130 feet deep and are pumped with 30 HP submersible pumps. The water is treated to remove manganese and chlorinated to maintain a disinfectant residual in the distribution system. Part of the system was designated as Deer Creek Water Association/Guide South (DCGS) by the State Department of Health and this portion of the system is served with water purchased from the City of Bellingham, whose source is Lake Whatcom. The water purchased from Bellingham is treated by filtration and disinfection and distributed mostly through water distribution mains belonging to the City of Bellingham, except for E. Kline Road and W. Larson Road, where the distribution mains belong to DCWA.

2. Production Capacity:

DCWA is limited to 500 gallons/minute and 334 acre/feet annually under its Water Rights. DCGS is served under agreements with the City of Bellingham and there are no restrictions on the amount of water that may be purchased by DCWA to serve this portion of the system.

3. Water Rights:

DCWA holds water rights under Certificate #G1-21084-C and GWC988 for a total of 500 GPM and 334 Acre Feet annually. The Water Rights under GWC988 are limited to use within the DCWA Service Area existing as of 2006. The Water Rights under G1-21084-C may be used within the DCWA Service Area as delineated in the DCWA Water System Plan as approved by the Department of Health. This Service Area may be modified subject to DOH procedures and approval. Service area changes are processed through the Coordinated Water System Plan.

4. Legal Restraints:

One agreement with the City of Bellingham allows DCWA to purchase water for the shared service area along Guide Meridian up to Smith Road and for W. Larson Road. A second agreement provides for DCWA to purchase water for its Members along DCWA's E. Kline Road distribution main. In addition, DCWA has an agreement with the City of Bellingham for an Emergency Intertie at Smith Road and Guide Meridian. The Agreements do not allow DCWA to purchase water for uses outside of the specific designated areas with the exception of the Emergency Intertie. The definition of what events constitute an emergency, and the duration of the emergency is stipulated in the Emergency intertie Agreement.

2.0 Current Water Conservation Program

DCWA has adopted the following Water Conservation Methods

Supply Side Water Conservation Measures (DCWA)

1. DCWA does not sell bulk water to the general public.
2. The system's radio read meters have a leak detection function to determine when there is a leak on the customer side of the meter.
3. DCWA reads water meters monthly to look for customer leaks and informs customers if a leak is suspected.
4. DCWA makes repairs immediately when leaks are discovered in the distribution system.
5. DCWA only flushes water mains when aware of low chlorine or water quality issues.
6. Meter size is $\frac{3}{4}$ " for all customers in order to curtail excess flow rate.

Demand Side (Customer) Water Conservation Measures, DCWA and DCGS.

1. Conservation rates (inclining block rate structure) for all usage by all members.
2. Prompt notification to Customers of suspected leaks.
3. Leaked water discount when leaks are repaired immediately (billing adjustments upon proof of prompt repair). DCWA staff verify that the meter is no longer spinning.
4. New connections are required to sign a Membership Agreement that is recorded and includes language indicating that there is a maximum average daily use allowed.
5. Consumer Conservation Education includes:
 - Information and tips which are included on water bills,
 - Brochures mailed to customers and included in the Annual Water Quality Report
 - Consumption history table on water bills compares the same period last year with the current period.

3.0 Water Use Efficiency Goals

The goals previously set in the Association's 2010 plan are:

- Supply Side: To maintain a Distribution System Leakage standard of less than 10%
- Demand Side: To decrease average customer consumption per connection at a rate of 0.25% per year over the next six years.

The supply side goal has been met, but the demand side goal has not been met. The Association has taken several steps to reduce the residential consumption which are reflected in the new goals established in this plan update.

The objectives for reducing water demand were evaluated by the Board and include the following:

- Water supply is finite. It is doubtful that the Association can obtain additional water rights, particularly with the coming Adjudication of Water Rights in WRIA 1. The Association may be called upon to serve additional properties that do not have adequate water rights or who have water quality issues. Although the majority of the zones in the service area are rural, developers can (and do) utilize cluster development to create subdivisions in the rural zones. These subdivisions and large acreage tracts and homesites often have large landscaped areas. It is essential that the Association keeps water consumption under control in order to have sufficient water supply for the future.
- High water use in the summer stresses the water supply system. Although the wells are capable of pumping the projected maximum day demand for the next 20 years as projected, sustained pumping at the maximum allowed water right amount can shorten the life of the wells, requiring shorter time between well rehabilitation or drilling new wells.

The Board of Directors evaluated a set of Water Conservation Measures (listed above) to promote conservation. After adoption of the measures two goals were selected to present to the public for comment prior to adopting them. The goals are:

- Supply Side Goal: Reduce average annual distribution system leakage to 5% within the next 10-year planning period.
- Demand Side Goal: Reduce the Average Day Demand from the currently projected 225 gpd/ERU to 210 gpd/ERU within the next 10-year planning period.

Goals were adopted through public notification and process in accordance with WAC 246-290-830.

4.0 Description of Proposed Water Use Efficiency Measures

- Restricting the bulk sale of domestic water supplies will encourage contractors and other bulk users to utilize other sources for non-potable uses such as road construction.
- The leak detection feature of the new meters will allow timely discovery of probable leakage on the customer side of the meter.
- Immediate repair of water main breaks will help minimize distribution system leakage.
- System flushing has been reduced to flushing only as required to maintain water quality.
- Restricting meter size to ¾” restricts high rates of flow to operations such as processing plants and manufacturing operations.

- Inclining Block Rates tend to keep costs lower for small water users but charge large users for the water they use. This encourages the larger water users to cut back on water use.
- Prompt notification of customer leaks and discounts for timely repair helps minimize customer leakage, which in the past could go undetected for the two month billing period.
- Written and recorded acknowledgement on Membership Agreements of restrictions on water use allow the Association to legally take action on large users abusing water use.
- Consumer Education is important in making customers aware of the important need for water conservation. It also helps them reduce their cost for water.

4.0 Evaluation of Proposed Water Use Efficiency Measures for Cost Effectiveness

The Association considered cost when developing the adopted Water Conservation Measures. The recent change to radio read meters was funded from system reserves with the main purpose of reducing meter reading costs. The new meter reading system also allows the Association to read meters more often to monitor for customer leakage. This is expected to reduce customer leakage substantially with very little additional cost. The Association opted not to fund costly Conservation Measures such as low flush toilets or reduced flow shower heads at this time. The cost of the other adopted measures have already been included in the operating budget or will have minimal impact on future budgets. The Board will review rates annually to adjust rates to meet fiscal demands.

5.0 Estimated Water Saving from Conservation

The Association's Water System Plan projects annual water use with and without conservation for the ten-year planning period. This is covered in Tables 2-7 and 2-8. The water savings are projected to amount to approximately 80-acre feet or 26 million gallons over the 10 year planning period.

6.0 Evaluation of Effectiveness of the Water Use Efficiency Program

Every year the Association is required to submit a WUE report to the Department of Health that shows water produced, authorized consumption and distribution system leakage. This can be compared to water projections in the Water System Plan, and to the previous year's use. The figures are also used to determine the Average Day Demand, to see if the Demand Side goal has been reached. The WUE report gives the distribution system leakage percentage for the year which shows if the Supply Side Goal has been reached. By using the WUE reports abnormal use can be discovered and action taken to correct it.

7.0 Distribution System Leakage Evaluation

Distribution system leakage is reported annually by the Association to the Department of Health and is tracked on the Sentry Database. The following is a summary of the past 6 years as reported on the DOH Sentry Database.

Year	2016	2017	2018	2019	2020	2021
DSL%	12.8	9.7	11.5	9.9	2.8	12.9

The rolling average for the past three years is 8.5%.

As part of the Association's leak management efforts the main meter at the source was calibrated and new service meters installed. The new meters are expected to reduce the inaccuracies of the old meters and increase authorized consumption. With better meter accuracy the distribution system leakage should decrease.