



Commissioners
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PROPOSED WATER USE EFFICIENCY GOALS PUBLIC BRIEFING DOCUMENT

1. Water Use Efficiency Rule (RCW 70.119A.180, WAC 246-290 Part 8)

Purpose / Water Conservation Rule

In 2003, the Municipal Water Supply - Efficiency Requirements Act (Municipal Water Law) was passed by the Washington State Legislature. This legislation amended RCW 90.46 to require additional conservation measures. The Municipal Water Law applies to all Municipal Water Suppliers, and defines all Group "A" community water systems as Municipal Water Suppliers. Among other things, the Municipal Water law directed DOH to develop the Water Use Efficiency Rule (WUE Rule), which was adopted in January 2007. The District is a Group "A" Community water supplier under these laws and regulations, and as such is subject to the requirements of these rules and regulations.

The WUE Rule consists of a series of amendments to existing sections, and addition of new sections, to WAC 246-290, the Group "A" Public Water System Regulations, and sets additional requirements for public water purveyors. The WUE Rule is comprised of four sections:

1. Planning requirements
2. Distribution leakage standard
3. Metering requirements
4. Goal setting and performance reporting requirements

PLANNING REQUIREMENTS

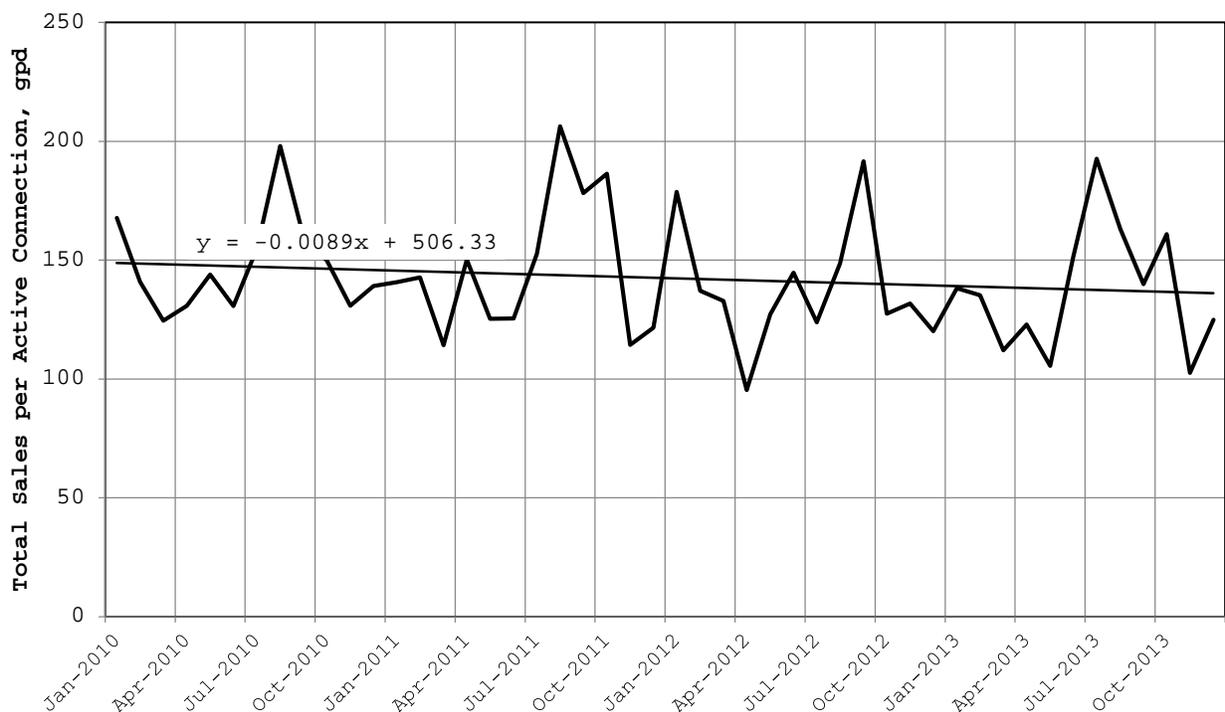
- o Estimation of the amount of water saved through implementation of the system's WUE program over the past 6 years.
- o Describe WUE Goals.
- o Select WUE Measures.
- o Evaluate selected WUE Measures to determine if they are cost effective.
- o Implement WUE Measures that are determined to be cost effective.

ESTIMATION OF WATER SAVED

Figure 4-1 shows historic water use per full-time equivalent residential connection/unit (ERU¹). Water use per connection over the data period has had an overall declining trend, as indicated by the negative slope of the water use trend line. The reduction in water use rate may be due to several influences, including water main leak repairs, improving control of reservoir overflows, construction of new homes with more water efficient fixtures, and regular promotion of water conservation by The District.

FIGURE 4-1

NBWD past Water Sales per Active Connection



The trend line formula in Figure 4-1 indicates a trend line slope of -0.0089 gpd per connection. That is, after one day the average reduction in usage rate was -0.0089 gpd per ERU, after two days it was 0.0178 gpd per ERU, after 3 days it was 0.0267 gpd per ERU, and so on. Over the data period this is a decline in water use rate of 13 gpd per ERU. Since the average water use rate reduction per ERU changed over time as did the number of ERUs, the savings on a day to day basis was calculated using a spreadsheet calculator and totaled for the data period. The total water savings over the

¹ **What is an Equivalent Residential Unit (ERU)**

An ERU is a unit of measure used to equate non-residential or multi-family residential water usage to a specific number of single-family residences.

five-year period calculates to 16.16 million gallons. This is an average savings of 11,071 gallons per day over the data period.

CURRENT WATER USE EFFICIENCY GOALS

The WUE Rule requires that the "governing body of the public water system shall establish water use efficiency goals within 1 year of the effective date of this rule." [WAC 246-290-830 (1)] The effective date of the rule was January 22, 2007. The WUE Rule further requires that water use efficiency goals must "be set in a public forum that provides opportunity for consumers and the public to participate and comment on the water use efficiency goals." [WAC 246-290-830 (4) (a)]

North Beach Public Development Authority Board of Directors adopted WUE Goals in a public meeting on September 15, 2008:

CURRENT GOAL:

1. Maintain annual customer consumption at present levels.

Analysis: Based on consumption from 2007, NBPDA residential single-unit connection used an average 293 cubic feet of water per month. Bearing in mind that many system users are seasonal in nature, there could be wide fluctuations in usage in any given month, thus the average was arrived at by taking the annual usage and dividing by 12.

THE OBJECTIVE OF THE GOAL IS TWOFOLD:

- o that existing users continue to have consumption patterns that are at or below current patterns,
- o that new users that joining the system have usage that is similar or below current users.

Measures: Staff proposes meeting this goal through education of existing residential customers by including conservation related material in agency newsletters and on the agency's website. Additionally, staff proposes meeting this goal for future customer by providing conservation related educational material to them at the time they connect to the system.

PROPOSED WATER USE EFFICIENCY GOALS

1. Reduce Distribution System Leakage (DSL), to no more than ten percent per year over the next ten years.
2. Reduce water usage per ERU by an average of one percent per year over the six-year planning horizon.

As the water system continues to grow it is anticipated that water use efficiency will continue to improve. This is due to plans to replace and improve the water distribution system, improvements in water system control, plans to replace aging water source and

service meters, and further measures to promote conservation. In addition, the uniform plumbing code has improved its conservation rules significantly since many of the homes in the District's service area were constructed. As new homes are built and existing homes are remodeled the District will realize a decline in the average ERU value.

SELECTED WATER USE EFFICIENCY MEASURES

WAC 246-290-810 identifies the minimum number of water use efficiency measures that must be evaluated based on system size. The District serves between 2,500 and 9,999 customers and therefore must evaluate or implement a minimum of six water use efficiency measures. Certain WUE Measures are mandatory in the WUE Rule, and therefore may not be counted as meeting the minimum number of WUE Measures. These mandatory measures include the following:

- o Install production (source) meters [WAC 246-290-496(1)].
- o Install consumption (service) meters [WAC 246-290-496(2)].
- o Perform meter calibration [WAC 246-290-496(3)].
- o Implement a water loss control action plan to control leakage [WAC 246-290-820(4)].
- o Educate customers about how they can use water efficiently at least once per year [WAC 246-290-810(4)(f)].

In addition, the WUE Guidebook states that any WUE measure implemented across multiple customer classes counts as one measure for each customer class to which it is applied. WUE Measures chosen by the District are listed in the following sections based on the WUE goals they are intended to help achieve.

DISTRIBUTION SYSTEM LEAKAGE (DSL) REDUCTION

- o The District will replace problem water mains, and find and repair leaks.
- o The District will replace old water meters on a ten-year water meter replacement cycle.
- o The District will continue to improve its record keeping of unmetered water use, including water main flushing, construction water use, and fire hydrant use.
- o The District will improve reservoir water level control system to reduce reservoir overflow events.

REDUCE WATER USAGE BY ONE PERCENT PER YEAR

- o The District will promote water use efficiency by distribution of water meter reading records that show consumptive history, so that customers can see how successful they are in reducing

their water usage and how they compare to other users.

- o The District will notify members who, based on water system meter reading data, appear to possibly have a leak on their side of the water service meter.
- o The District will provide technical assistance in finding and repairing leaks to members who suspect that they may have a leak on their side of the water service meter

CONSERVATION RATES

The District currently charges a base rate ranging from \$39.73 per month for a ¾-inch meter to \$677.23 per month for a 6-inch meter. All water use is billed at \$2.53 per 100 cubic feet of metered use in addition to the monthly base rate. Since all water use entails increased cost, the existing rate structure encourages water conservation. In addition, the District will, during its next rate study, consider adopting an increasing block rate structure as an additional conservation incentive.

DSL STANDARD

The WUE Rule sets a DSL standard of less than ten percent of finished water production. DSL is defined as the sum of all water metered into the distribution system over a given time period, less the sum of all metered water uses, and known or credibly estimated un-metered uses, out of the distribution system over the same time period. Known or credibly estimated unmetered uses may include uses such as construction, street sweeping, firefighting, and water main flushing. DSL for the District averaged 10.8 percent between 2010 and 2013. Water utilities that exceed the DSL standard of ten percent must develop a Water Loss Control Action Plan (WLCAP).

One factor that has contributed to DSL has been uncontrolled reservoir overflows. The control system that is intended to turn the wells on and off with reservoir level has not been nonfunctional for five or more years. The system has been operated manually in the interim. Wells are manually turned on and off based on system demand. At times, well production out paces system demand and before the Operator can manually stop one or more pumps an unknown amount of water will be lost to the overflows on the reservoirs. It is not known how much water was overflowed from the reservoirs due to this problem. The reservoir control system will be completely upgraded in 2015/2016 with improvements that are part of the Drinking Water State Revolving Fund (DWSRF) project. Those improvements are in the design stage at this time.

2. Water Use and Sources of Supply

Service Connections: North Beach Water District provides water to

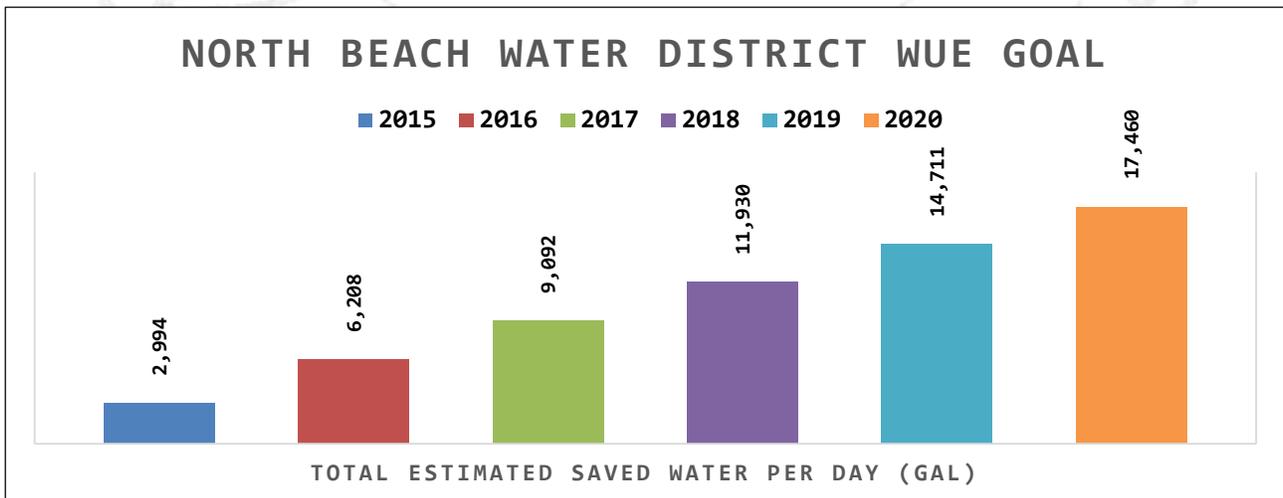
approximately 3,195 connections. Those connections include approximately 1500 full-time and 1,100 part-time single family residential connections, 95 full-time and 425 part-time residential units within 14 apartments, condominiums, duplexes or other multifamily buildings, and 100 industrial/commercial connections.

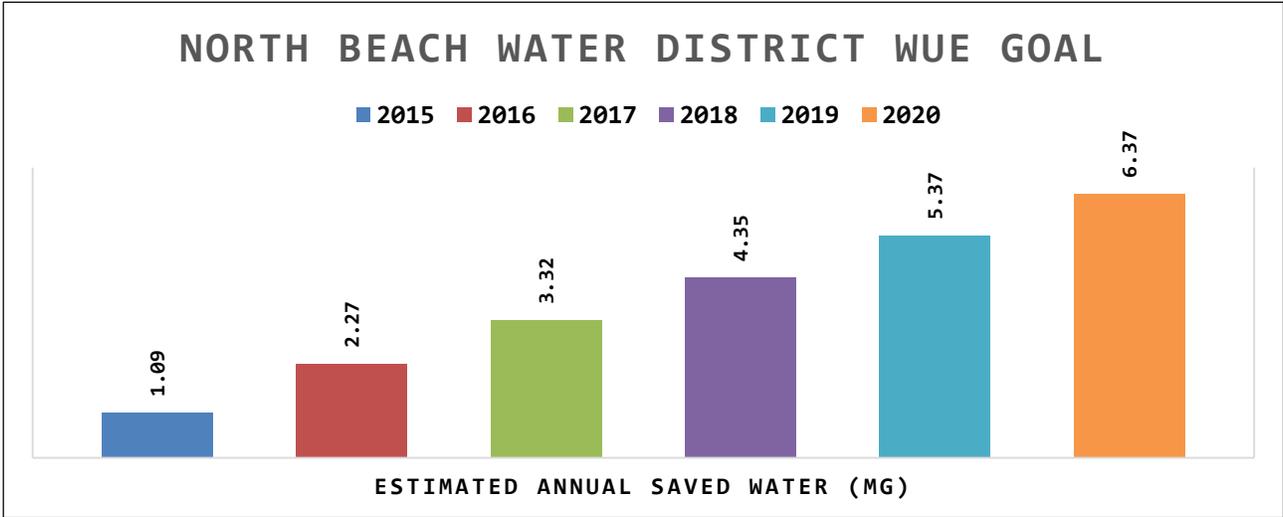
Population: The full-time population is estimated to 4,010 year round and the part-time population is estimated to be 500 in the winter months and up to 3,000 in the summer months.

Water Source: North Beach Water District receives its water from eight deep wells at North Wellfield, located on 2216 272nd Street, developed between 1962 and 1984. The well field is capable of producing a peak of 723 gallons per minute. The District's South Wellfield has three deep wells that are currently not producing any water for the District. The three wells at the South Wellfield are being replaced with three new wells that will be on line by March, 2016. The three new wells will produce 500 gallons per minute.

3. Projected Water Savings

The Charts below provide a projection of savings North Beach Water District expects proposed Water Use Efficiency Goals and Measure will provide. North Beach Water District's proposed 2015-2020 water Use Efficiency Goals are expected to generate an average of 2,238 gallons per day (gpd) of water savings each year. North Beach Water District's water reduction during the 2008-2013 was significantly greater than the amount projected for 2015-2020. The most reasonable source of savings in water from 2008-2013 is due the introduction of a rate structure that included annual increases in the commodity rate of 15% in 2008, 11% in 2009, 10% in 2010, 10% in 2011, and 5% in 2012. Projected commodity rate increases for 2014-2020 are: 2014-0%, 2015-16%, 2016-14%, 2017-8%, 2018-3%, 2019-3%, and 2020-3%





4. Evaluation

Evaluation of the Water Use Efficiency program is important to ensure anticipated savings are being achieved and to make timely modifications to the program, if necessary, to achieve the savings. North Beach Water District is required to report annually to the State and the members on progress towards meeting its Water Use Efficiency Goals.

Therefore, the water system manager will include in his monthly and annual reports to the Board of Commissioners an evaluation of the performance of the Water Use Efficiency program. The evaluation will, if needed, include recommendations for adjustment to the goals for the Board’s consideration.