CHAPTER 4

Water Use Efficiency Program

The purpose of this chapter is to describe the PUD's program to improve water use efficiency (WUE). WUE contributes to the long-term water supply reliability and promotes good stewardship of the state's water resources.

This chapter addresses the following topics.

Table 4-1 lists the requirements of the WUE Rules from the DOH 2025 Water Use Efficiency Guidebook and reflects the PUD's level of compliance with these requirements.

Table 4-1 | WUE Rule Requirements

Category	Requirement	Compliance Status
Meters		
	Meter all sources.	Yes, all sources are metered.
	Meter all service connections.	Yes, all services are metered.
Data Collection		
	Provide annual consumption by customer class.	Currently being updated
	Provide "seasonal variations" consumption by customer class.	Currently being updated
	Evaluate reclaimed water opportunities.	Yes, provided in Section 4.3.5.
	Consider water use efficiency rate structure.	Yes, provided in Section 4.3.6.
	Provide monthly and annual production for each source.	Currently being updated
Distribution System Leakage		
	Calculate annual volume and percent using formula defined in WUE Rules.	Yes, distribution leakage is calculated and reported in Section 4.2.
	Report annually: annual leakage volume, annual leakage percent, and for systems not fully metered, meter installation progress and leak minimization activities.	Yes, distribution leakage is reported to DOH on an annual basis.
	Develop water loss control action plan (if leakage is over 10% for 3-year average).	N/A, system has a 3-year average water loss of less than 10%.
Goals		
	Establish measurable (in terms of water production or usage) conservation goals and re-establish every 10 years. Provide schedule for achieving goals.	Yes, measurable goals were established via a public process. See Section 4.3.3.
	Report annually on progress.	Yes, report submitted annually to DOH.

Category	Requirement	Compliance Status
WUE Program		
	Describe existing conservation plan.	Yes, see Section 4.3.
	Describe conservation goals.	Yes, see Section 4.3.3.
	Implement or evaluate 1-12 measures, depending on size. Ten (10) measures for the PUD.	Yes, see Section 4.3.4.
	Describe conservation programs for next 10 years including schedule, budget, and funding mechanism.	Yes, see Section 4.3.6.
	Describe how customers will be educated on efficiency practices.	Yes, see Section 4.3.4.
	Estimate projected water savings from selected measures.	Yes, see Section 4.4.
	Describe how efficiency program will be evaluated for effectiveness.	Yes, see Section 4.3.1.
Demand Forecast		
	Provide demand forecast reflecting no additional conservation.	Yes, provided in Section 4.4.
	Provide demand forecast reflecting all "cost effective" evaluated measures.	
Performance Reports		
	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.	Yes, reports will be submitted annually to DOH.
	Submit annually by July 1 to DOH and customers and make available to the public.	

4.1 Source and Service Metering

4.1.1 Source Meters

Source meters, also known as production meters, measure the amount of water emitted from the PUD's wells. Each of the PUD's sources are metered to measure the amount of water produced. The meters are calibrated annually by an outside contractor under the direction of the Superintendent to ensure an accurate accounting of water produced. If a meter cannot be calibrated properly, it is replaced with a new one. Propeller source meters were replaced with electromagnetic (MAG) meters.

4.1.2 Service Meters

Water meters are installed on every service line to measure the quantity of water used by a customer per WAC 246-290-496 and PUD policy. All new direct service connections must be metered at the time-of-service activation per WAC 246-290-496(2)(d). All meters shall remain the property of the PUD and shall not be removed except by the PUD. In all cases where meters are lost, damaged or broken by carelessness, negligence, or willful actions of owners/operators of premises, they shall be replaced or repaired by or under the direction of the PUD. The actual cost of repairs or replacement of meters will be charged against the owners/operators. In case of nonpayment of fees, fines, charges, or penalties, the water shall be shut off and will not be turned on until all charges are paid.

In 2004, the PUD began installing an Automated Metering Infrastructure (AMI) system, as a part of the Water Meter and Billing System Improvements project, which was completed in 2012. This effort also included the upgrade and replacement of outdated and inaccurate meters. Many of the meters were vintage rebuilt meters from past utility ownership. Recent tests conducted on meters that, are 2004 or newer showed, an accuracy of over 95%. With the new AMI system, the PUD automatically received meter reads via radio transmission and integrated the data into the billing software. The benefits of an AMI system include increased accuracy and efficiency, early leak detection, and improved customer service. The AMI system is anticipated to have a 20-year life, including the system components and batteries in the radios.

In 2021, the PUD began the upgrade of the electronic meter reading devices to take advantage of new meter reading technology. The upgrade will retrofit the entire meter system with new electronic meter reading devices. This project is scheduled to be completed in 2026.

Large source meters and three-inch and larger commercial meters are tested and calibrated annually. Small meters (less than three inches) are not calibrated. All new service connections, in addition to repairs, retrofits or replacements of existing services, are typically conducted by Water Distribution Staff unless unusual circumstances arise. Meter services consist of meters, meter vaults, meter boxes, service lines, valves, setters, re-setters, and other associated equipment.

The PUD uses master meters when beneficial to the PUD and its customers. Master meters are used at certain locations such as mobile home parks, and other multi-family and commercial properties.

Large meters are used to measure water consumption by customers with significant demand requirements. They are usually employed by the following customer classes.

- Commercial
- Parks – Irrigation
- Schools
- Multifamily Complexes
- Industrial / Manufacturing Businesses
- Municipal Buildings

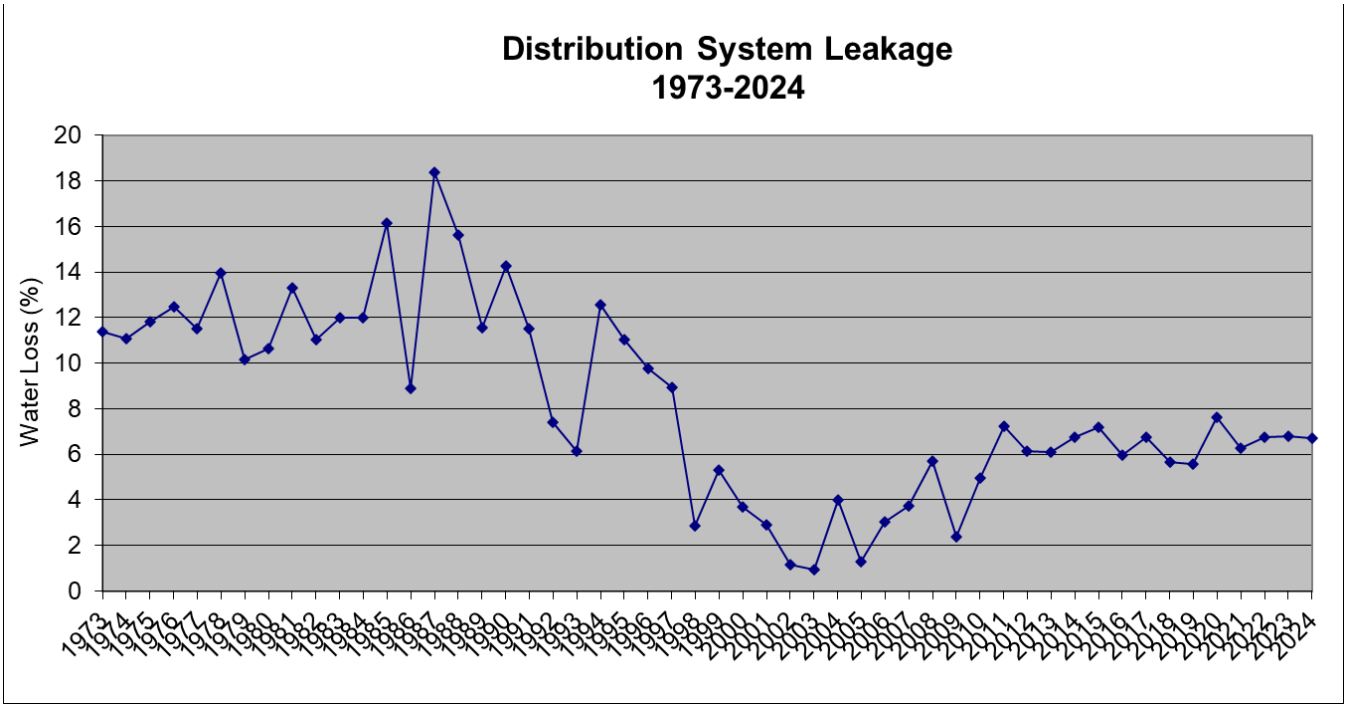
Large meters are defined as water meters three inches or larger and new meters are installed by the PUD. All large meters are calibrated for accuracy each year as part of the PUD's System Loss Program. If a meter cannot be calibrated, it is replaced with a new one by PUD staff.

4.2 Distribution System Leakage

Distribution System Leakage (DSL) represents the difference between production and documented water use (retail, wholesale, and authorized unmetered). It may include inaccurate master and service connection meters, unaccounted-for non-revenue water use, pipeline leakage, and unauthorized use. DSL does not include authorized water usage such as water used for fire protection, flushing, construction, and other maintenance and operations practices. However, to be credited, this must be accounted for by metering or estimating using credible means.

The DSL is calculated as the difference between the total amount of water produced and the sum of water sold plus any authorized unmetered water usage. The PUD's historic and recent DSL is presented in **Figure 4-1**. For the PUD's water system, the 2022-2024 three-year rolling average DSL was 6.75 percent of total production. This falls below the DOH requirement that the three-year average DSL be under ten percent to minimize water waste.

Figure 4-1 | Distribution System Leakage



The PUD is committed to maintaining DSL below the required ten percent and is actively working to identify and minimize DSL. To minimize DSL, the PUD has ongoing leak detection, meter calibration, and an active repair and replacement program for water system infrastructure. The PUD completes a leak detection study of 25 percent of the water distribution system every year to detect and fix leaks. Additionally, the PUD has an effective program to reduce non-payment of bills and water theft and has a comprehensive SCADA system that significantly increase the PUD's ability to measure DSL both temporally and geographically. The resulting information allows the PUD to better target its WUE activities to reduce DSL.

4.2.1 Water Audits

The PUD has implemented AMI throughout the system. AMI is a tool that improves the effectiveness of the WUE Program measures, providing detailed water use data for each customer that allows the PUD to better understand water use patterns and target WUE Program measures to specific customers. Data can be sent in real-time or stored for several weeks or months. Potential AMI capabilities vary depending on the chosen hardware and software however, most systems can aid in the WUE Program. Below is a summary of how the PUD can use the AMI data.

- Advanced algorithms and metering data allows the PUD to identify customer leaks.
- Advanced metering provides cost savings in the Leak Detection and Repair and Service Meter Replacements programs.
- Advanced metering aids in the PUD's efforts to reduce water theft.
- By comparing production and customer water use, DSL can be evaluated in greater temporal and geographic detail. For example, DSL may be calculated by month or for a given service area.

- Advanced metering data helps the PUD identify groups of customers to target for WUE measures and can be used to track the effectiveness of the measures for the same customers.

- Advanced metering data provides additional reporting options to educate customers, such as their peak water use.

The PUD reports DSL annually and the AMI system will provide substantial benefits for the WUE Program and improve water savings.

4.3 Water Use Efficiency Program

In 2003, the Washington State Legislature passed the 2003 Municipal Water Law (MWL) which added a requirement that water purveyors use water efficiently. This law was expanded in January 2007 with the WUE Rule and has since been updated. WUE requirements are listed under WAC 246-290 and include:

- Publicly establishing a water savings goal.
- Evaluating water use efficiency opportunities specific to each community.
- Developing a WUE planning program.
- Meter installation on all customer connections by January 22, 2017.
- Achieve a standard of no more than ten percent water loss, on a three-year rolling annual average.
- Annual reporting on WUE progress.

The PUD's WUE Program provides for efficient water use and supports continued growth. This program fulfills all the necessary requirements of DOH. The selected program measures will allow the PUD to meet its WUE goals, resulting in decreased water demand. Measures are interrelated and will help the PUD achieve its goals to both reduce average water use and peak water use per customer.

Public education measures (showing water use in bills, workshops, school outreach, fairs/trade shows, etc.) will continue to be a focus of the WUE Program to increase customer awareness and knowledge of WUE opportunities. Public education is needed to support the PUD's other WUE measures and to support reductions in both average and peak water use. Continued water savings kit giveaways help customers implement what is learned in the public education campaign.

With the implementation of AMI, it is expected that the PUD and customers will be able to identify more water loss reduction opportunities than previously possible. Therefore, customer and PUD leak detection, water audits, and meter repair and replacement may have a prominent role in the 2026-2035 WUE Program. The PUD will continue to review inclining block rates that would provide financial disincentives for excessive water use. If adopted by the PUD Board of Commissioners, this rate structure is likely to help reduce peak water usage further and may will result in the PUD being able to achieve its WUE goals, which includes reduced demand.

The 2026-2035 WUE Program will be a continuation of the PUD's existing WUE Program. The program has been updated to leverage the PUD's investments in improved SCADA, leak detection, and AMI. The WUE program complies with regulations as set forth in WAC 246-290-830 and DOH's 2025 Water Use Efficiency Guidebook. This section summarizes the program's goals, demand and supply side measures, reclaimed water, and DSL. The projected demand with the conservation goals, program budget, and cost savings are also presented.

4.3.1 Program Requirements

The WUE requirements emphasize the importance of measuring water usage and evaluating the effectiveness of the PUD's program. There are three fundamental requirements of a WUE Program that the PUD follows.

- Planning Requirements – Municipal water suppliers are required to:
  - Collect data.
  - Forecast demand.
  - Evaluate WUE measures.
  - Calculate DSL.
  - Implement a WUE Program to meet their goals.
- Distribution Leakage Standard – Municipal water suppliers are required to meet a distribution system leakage standard to minimize water loss from their distribution system.
- Goal setting and performance reporting – Municipal water suppliers are required to set WUE goals through a public process and report annually to their customers and DOH.

4.3.2 Mandatory Measures

The WUE Program includes supply side measures that the PUD implements to understand and control leakage including new meters, leak detection surveys, and water audits. Per the WUE requirements, the following measures shall be continued for the 2026-2035 WUE program.

- Install production (source) meters.
- Install consumption (service) meters.
- Perform meter calibration.
- Implement a water loss control action plan to control leakage if the three-year rolling average exceeds ten percent.
- Educate customers about water use efficiency practices.

Additionally, the following measures that must be evaluated are:

- Rates that encourage water demand efficiency
- Reclamation opportunities

The PUD has complied with these requirements in the past and will continue to comply with these regulations.

4.3.3 Program Goals

Per the WAC 246-290-830(4)(a), all water purveyors with 1,000 or more connections were required to set efficiency goals through a public process. The PUD's 2026-2035 Conservation Program builds upon the goals and framework established through the initial public process conducted in July 2008, during which the PUD's water conservation goals were developed and posted to the PUD's website for public review, in alignment with WAC 246-290-830(4)(a). This process ensured transparency and community engagement in shaping measurable conservation objectives.

The goals established in 2008, continue to guide the PUD's Conservation Program today. These goals emphasize efficient water usage and public education. The 2026-2035 Program incorporates updates to comply with WUE regulations and address evolving community needs, as detailed in Section 4.3.4.

The PUD has chosen to focus on implementing voluntary measures to decrease both the average and peak water usage. The program has established the following goals.

- Water Use per ERU Goal: Decrease the Average Day Demand (ADD) one tenth of a (.1) percent per year from the forecast planning ADD with a cumulative reduction of 2.0 percent by the year 2035. Reevaluate the goal when the planning ADD value reaches less than AD goal.

- Distribution System Leakage: Maintain three-year average DSL under ten percent to minimize water waste.

- Customer Support: Provide the service and support necessary to those water customers expressing a desire to conserve water as a means of minimizing water bills.

The WUE Program measures, as summarized below, are designed to help meet these established goals.

4.3.4 Demand-Side Program Measures

To encourage WUE and support customers, the PUD has incorporated program measures for 2026-2035 that target demand reductions. Under the WUE requirements, a program measure may include water efficient devices, actions, business practices, or policies that promote efficient water use. With 10 measures as part of the WUE Program, the PUD meets the minimum DOH required measures. WUE measures can target specific customer classes or a combination of customer classes. The PUD's demand-side program measures are summarized below.

1. School Outreach: The PUD will continue to participate in programs arranged to educate students on efficient water usage as requested by the Clarkston School District and the Walla Walla Community College.

2. Speakers' Bureau: The PUD will seek speaking opportunities to discuss efficient water use with a wide audience spectrum. Topics could include water efficient fixtures and appliances, curbing seasonal peak demands, lawn watering practices, etc. The events would include; the Asotin County Fair, monthly and annual Chamber of Commerce events and meetings, and the annual Tri-State Hospital Health Fair.

3. Program Promotion: The PUD will seek opportunities for social media, television, and/or radio public service announcements, on KRLC-AM radio station, for WUE and submit news articles to the Lewiston Morning Tribune on efficient water usage especially during the spring and summer months.

4. Water Audits: The PUD will conduct a water audit upon the request of a customer, including industrial, commercial, and institutional customers. The audits will review items such as: recirculation of cooling water, reuse of cooling and process water, reuse of treated wastewater, efficient landscape irrigation, low water using fixtures, fixing leaks, and process modifications. Customers will be notified of the water audit opportunity through a utility bill insert, PUD newsletter and on the PUD website.

5. Customer Leak Detection: The PUD identifies potential leaks through investigation of the water meter upon request of customers. The PUD runs multiple reports in the AMI system to analyze data and investigate water meters to identify leaks.

6. Bills Showing Consumption History: The PUD will continue to provide customer bills showing the previous year's water usage.

7. Water Saving Device Kits: The PUD will participate in distribution of water use efficiency kits through education events and through bill insert notifications.

8. Low-Flow Shower Heads Giveaways: The PUD gives away free low-flow shower heads at the Utility Billing Counter. Customers will be notified of the giveaways through a utility bill insert, PUD newsletter and on the PUD website.

9. School Outdoor Water Use Reduction: The PUD will target the Clarkston School District and the Walla Walla Community College to reduce their outdoor water consumption. Water audits and education on the benefits of replacing inefficient irrigation systems or landscaping (including turf) will be conducted.

10. PUD and Municipal Water Use Reduction: The PUD will audit the water use of PUD and municipal accounts to identify both indoor and outdoor water saving opportunities. The Water Utility staff will help educate PUD and Municipal account holders on WUE.

It is important to note that in addition to the water cost savings for the WUE measures, other benefits result, both to the utility and to its customers, from WUE activities. Such additional benefits could include:

- Significant customer energy savings because water heaters are the second largest energy users in the home. Hot water use can be reduced by almost one-third by cost-effective WUE measures, such as water efficient fixtures and appliances. Significant energy savings can also occur for industrial processes requiring water heating and other power uses.

- Efficient landscaping and irrigation techniques save on maintenance costs. These techniques will be provided on the PUD website, through billing inserts and in the PUD newsletter.

- Reductions in water production decrease energy required by utilities to treat and distribute water and to collect and treat wastewater. Chemical costs are also reduced in water and wastewater operations.

- System measures could provide substantial benefits in addition to water production cost savings including:

    - Identification of non-revenue water could result in recovery of unbilled revenue (inaccurate meters) and reduced unauthorized water usage (theft).
    - Leak detection helps prevent major main breaks, which could result in significant repair costs.
    - Leak detection reduces a utility's liability due to prevention of potential property damage.
    - Repair and/or replacement of service and source meters allows a utility to recover unbilled water revenues.

4.3.5 Reclaimed Water

According to WAC 246-290-100 and the WUE requirements, water systems with over 1,000 connections must collect and evaluate information on reclaimed water opportunities. Currently, there are no reclaimed water users. The PUD considers the most likely candidates for use of reclaimed water to be the irrigation customer class. There is not an opportunity for the PUD to sell reclaimed water without significant capital investments to develop a reclaimed water distribution system, and there is not currently an alternative reclaimed water source in the area.

The PUD will continue to review reclaimed water as a conservation measure and include these savings in the demand projections when specific opportunities arise. The PUD may develop demonstration projects or consider participation in water reuse projects with local municipal agencies as appropriate.

The PUD recently acquired the Wastewater Treatment Plant from the City of Clarkston. Working with the Port of Clarkston, where the treatment plant is located, we will look for opportunities to utilize reclaimed water on Port and adjacent customers properties.

4.3.6 Conservation Rate Structure

Rates can be used to encourage conservation 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 PUD has a uniform rate (same charge per unit of water used). In 1994, the PUD moved from a declining block rate (the more you use the less you pay) to a uniform rate. The change resulted in a decrease in water use by 5 percent of customers – those who use the most water. Since 1994 the PUD Board of Commissioners has raised the monthly minimum charge (fixed charge) and the uniform consumptive rate multiple times. The primary driver behind the rate increases was to meet increased operating costs and capital improvement needs.

Through setting Water Use Efficiency – Conservation Goals, the PUD evaluated the feasibility of adopting and implementing a conservation rate structure. The PUD also evaluated implementing a seasonal conservation rate (the charge per unit increases during peak usage season; generally targeting outdoor summer use). Peak season for the PUD is a 5-month period from June through October of each year.

For each class of customer, residential, multi-family, and commercial, those customers using over 500 cubic feet or 3,740 gpd would be subject to the increased seasonal rate charge. Based upon water use in 2024, the seasonal conservation rate would affect 335 residential customers, 30 multi-family customers, and 50 commercial customers. A total of 415 customers out of the nearly 7,400 customers would be subject to the conservation rate. After discussion of the conservation rate structure, the PUD Board of Commissioners has chosen to not introduce a conservation rate at this time.

The PUD has committed to review rates every 5 years to ensure adequacy for utility costs. As part of the process, the rate structure will also be evaluated, which may include consideration of a conservation-based rate structure.

4.3.7 Water Use Efficiency Budget

The PUD has established a budget for each program measure from 2026 to 2035, as required per WAC 246-290-810 4.e, shown in **Table 4-2**. WUE measures are funded through rates.

Table 4-2 | Annual WUE Budget

Measure	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Large Meter Test/Repair/Replace	$20	$21	$22	$23	$24	$25	$26	$27	$28	$29	$30
Leak Detection and Water Audits	$10	$10	$11	$11	$12	$12	$13	$13	$14	$14	$15
Conservation Education	$10	$10	$11	$11	$12	$12	$13	$13	$14	$14	$15
Water Savings Kits	$10	$10	$11	$11	$12	$12	$13	$13	$14	$14	$15
Total (in thousands)	**$50**	**$51**	**$55**	**$56**	**$60**	**$61**	**$65**	**$66**	**$70**	**$71**	**$75**

* The WUE budget is compounded utilizing a 3 to 5% annual cost adjustment.

4.4 Water Use Efficiency Savings

The WUE Program primarily provides cost savings in two ways, reducing demand and reducing DSL. Reducing demand may reduce or delay capital projects for additional supply and expanded distribution infrastructure. Reducing DSL can provide additional revenue, as well as increase the efficiency of supplying existing water uses. Additionally, advanced metering will provide cost savings in the Leak Detection and Repair and Service Meter Replacements programs.

The PUD has completed a cost analysis of their proposed WUE Program using historical data and projected annual water savings. **Table 4-3** shows projected demands with and without annual water savings. This analysis maintains the target water use efficiency goal of one percent reduction per year in the planning ERU value. This goal will be reached through implementation of the proposed program measures. These reductions in demand can be translated into tangible benefits once realized.

Table 4-3 | Demand Forecast With and Without Projected WUE Savings

Year	ADD (mgd)				Monthly Demand (mg)			
	Without WUE	With WUE	Savings	% Savings	Without WUE	With WUE	Monthly Savings	Daily Savings
2025	4.57	4.52	0.05	1.0%	139.00	137.50	1.50	.05
2026	4.61	4.56	0.05	1.1%	140.20	138.70	1.50	.05
2027	4.65	4.59	0.06	1.2%	141.45	139.60	1.85	.06
2028	4.69	4.63	0.06	1.3%	142.65	140.80	1.85	.06
2029	4.72	4.65	0.07	1.4%	143.60	141.45	2.15	.07
2030	4.76	4.69	0.07	1.5%	144.80	142.65	2.15	.07
2031	4.80	4.72	0.08	1.6%	146.00	143.60	2.40	.08
2032	4.84	4.76	0.08	1.7%	147.20	144.80	2.40	.08
2033	4.87	4.78	0.09	1.8%	148.10	145.40	2.70	.09
2034	4.91	4.82	0.09	1.9%	149.35	146.60	2.75	.09
2035	4.95	4.85	0.10	2.0%	150.55	147.50	3.05	.10