

HONOLULU BOARD OF WATER SUPPLY

RECYCLED WATER PROGRAM



USING WATER WISELY



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The Honouliuli Water Recycling Facility can produce 14 million gallons per day of recycled water for irrigation and industrial uses.



Our Limited Water Supply

Oahu's green and lush landscapes belie the fact that our island's current water supplies are limited. Most of the water we now use in our homes and businesses comes from underground aquifers. The process of rain seeping through volcanic rock and soil creates an ultra-pure water source for our community. This source, however, is limited. Other sources, such as water from lakes and streams, while only making up a small percentage of our current water supply, are also finite. As island water use continues to increase, and existing supplies

become more scarce, new water sources must be developed. Water recycling is one part of the solution.

Continuing conservation also plays a role. Improved technology may make seawater desalination, which in the past has been very expensive, a realistic future water supply option. The Honolulu Board of Water Supply is actively working on these and other initiatives to make sure we have enough water for today and for future generations.



Native Hawaiians – Early Water Recyclers

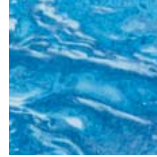
In old Hawaii, conservation and efficient use of our natural resources were the underlying principles of land stewardship. The Hawaiians carefully directed water to needy areas. As the water moved seaward, this system fed the many plantings along the way. A natural filtering system cleansed the water along the path and collected nutrients that fed the plants. Large fishponds received the nutrient-rich water from the uplands, providing the perfect environment for fish.

Native Hawaiians understood water — which gave life to all living things — had to be wisely managed. Those same principles of resource management as practiced by native Hawaiians are at the core of the Board of Water Supply's water recycling program today.

What Is Recycled Water?

Used primarily by large water users such as golf courses and refineries, recycled water is wastewater that has been treated and disinfected to a level suitable for industrial processing, irrigation, and other non-drinking uses. There are two grades of recycled water produced by the Board of Water Supply (BWS): one is used for industry (RO) and the other for irrigation (R-1). Recycled water is available year round, even in times of drought, and is good for the environment.

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Commonly Asked Questions

Is recycled water safe?

Yes, R-1 recycled water for irrigation is filtered and disinfected with UV light and meets Hawaii State Department of Health (DOH) reuse guidelines for unrestricted spray irrigation for landscaping and agriculture.

Can anyone use recycled water?

No, it is only available in the Ewa-Kapolei area where the distribution system exists. It is required for all large landscaped areas including parks, golf courses, schools and street landscaping in commercial, industrial and multi-family residential areas, if available. Current rules do not allow R-1 irrigation of single family residential units, due to cross-connection issues, but may be approved as rules and best management practices evolve.

How can I get a recycled water meter?

Obtaining a R-1 meter requires a service agreement with BWS, a cross-connection control survey, a backflow preventer on the potable meter, and DOH approval.



The Honouliuli Water Recycling Facility



The Honolulu Board of Water Supply's Honouliuli Water Recycling Facility is the largest in Hawaii. This fully automated treatment facility can produce 14 million gallons per day of recycled water. The plant is being paid for through the sale of recycled water to businesses, golf courses, and other large water users. The plant is continuously monitored, and all recycled water must meet stringent DOH requirements before it can be delivered to customers.

This fully-automated treatment facility can produce 14 million gallons of recycled water per day.

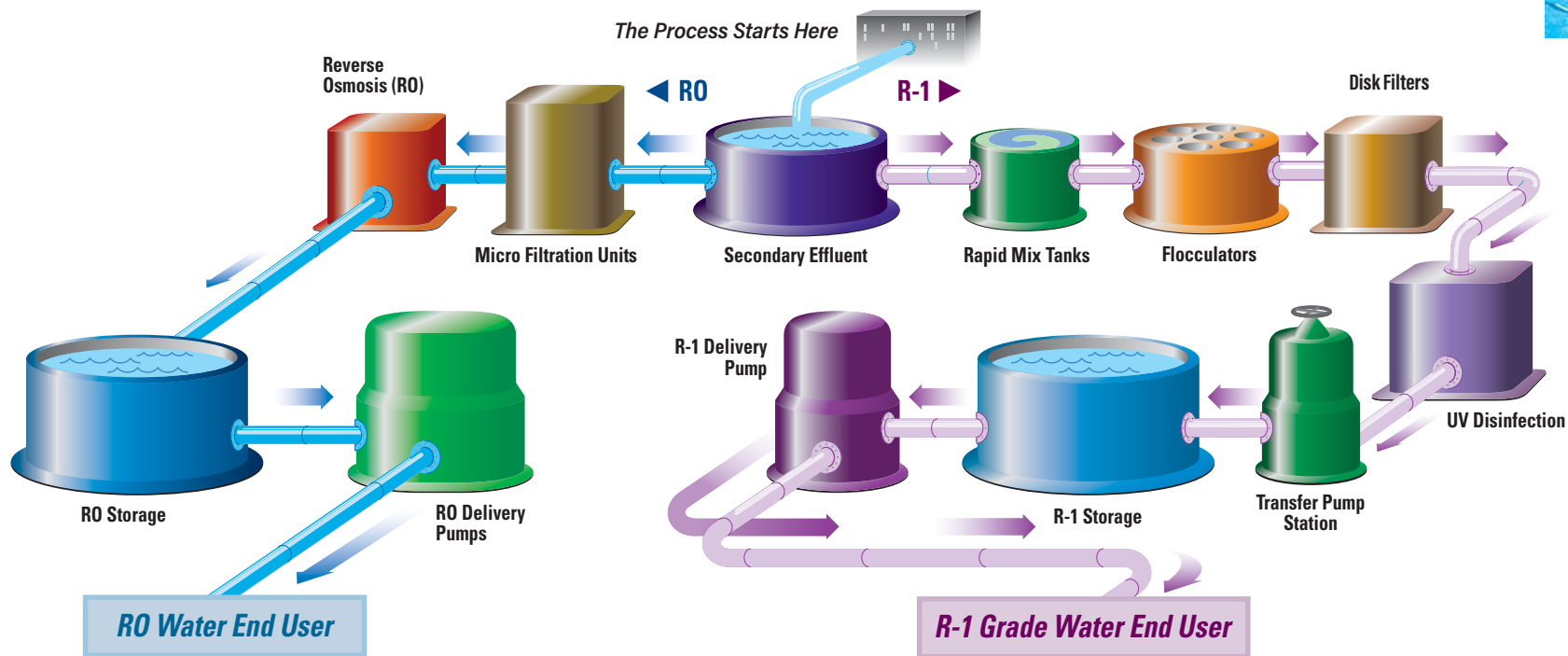


The Water Recycling Process

The Board of Water Supply uses state-of-the-art technology to speed up the purification process using a system of filters and a highly effective disinfection process. Once all health and safety standards have been met, the recycled water is delivered to local irrigation and industrial customers.

The water is processed into two grades of recycled water: R-1, which is used for irrigating crops and landscaping, and Reverse Osmosis water (RO), which is used for industrial purposes at refineries and power plants.

Honouliuli Wastewater Treatment Plant



Purple Pipes

Recycled water is delivered to users through a system of pipes separate from the drinking water distribution system. All pipes and fixtures using recycled water are easily identifiable by their distinctive purple color.



Who Uses Recycled Water?

Recycled water is available for irrigation purposes and industrial uses. It is safe for human contact, but it is not intended for drinking. It is not available to individual residents. On Oahu, recycled water is currently used at:

R-1 WATER

Barbers Point Golf Course
City of Kapolei
Coral Creek Golf Course
Ewa Beach Golf Club
Ewa Villages Golf Course
Hawaii Prince Golf Club
Hoakalei Golf Course
Kapolei Golf Course
West Loch Golf Course
Ewa Makai Middle School
Ocean Pointe District Park
Honouliuli Wastewater Treatment Plant
State Department of Transportation

RO WATER

AES Hawaii
Par Hawaii Refining
Hawaii Gas
H-Power
Covanta
Kalaeloa Partners
Tesoro Hawaii
HECO Kahe Power Plant
HECO Campbell Peaking Plant
Kalaeloa Cogeneration Plant



Reverse Osmosis

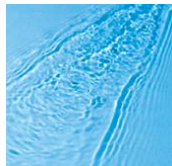
Reverse Osmosis, or RO, is the process of treating recycled water by forcing water through an ultra-fine membrane, which allows only water to pass through.

Thanks to the Board of Water Supply recycled water program, many of Oahu's businesses can use recycled water – instead of drinking water.

Where Is Recycled Water Available?



Glossary of Terms



- **Effluent** The outflow or discharge of wastewater from a treatment facility.
- **Honouliuli Water Recycling Facility** A 14 million-gallon per day water recycling facility owned by the Honolulu Board of Water Supply. The facility is situated adjacent to the Honouliuli Wastewater Treatment Plant. Recycled water from the facility is used for irrigation, agriculture, and industry.
- **Honouliuli Wastewater Treatment Plant**
A City and County facility that treats wastewater to a secondary level. Some of the treated wastewater from this facility will undergo additional treatment at the adjacent Honouliuli Water Recycling Facility.
- **MGD** Abbreviation for million-gallons-per-day.
- **Microfiltration** Separation of liquid from suspended and some dissolved materials.
- **Potable Water** Water that is suitable for drinking and meets applicable state and federal drinking water quality standards.
- **Primary Treatment** The first process in wastewater treatment which removes settled or floating solids.
- **R-1 Process** The treatment process by which effluent passes through rapid mix tanks, flocculators, filters, UV disinfection and a transfer pump station for eventual use in landscaping, and on nonfood crops and greenbelts.
- **R-1 Water** Nonpotable water that has been treated to meet Hawaii DOH standards for the highest recycled water level and deemed safe for human contact.
- **RO (Reverse Osmosis)** The process of treating recycled water by forcing water through an ultra-fine membrane, which allows only water to pass through. RO water has been processed with the reverse osmosis system.
- **Recycled Water** Treated wastewater that has undergone additional purification processes so that it can be used for irrigation, landscaping, industrial processing, and other non-drinking uses. (Also called reclaimed or reused water.)
- **Secondary Treatment** Second stage of wastewater treatment where bacteria are used to remove organic matter in the wastewater through “biological cleansing.”
- **Tertiary Treatment** Third stage of wastewater treatment including filtration and disinfection, which effectively removes up to 99% of impurities and suspended solids.
- **UV Disinfection** The process of disinfecting water by subjecting it to intense ultraviolet (UV) light.
- **Wastewater** Water that has been used for household, commercial, or industrial purposes.



Conservation Counts

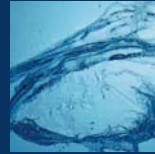
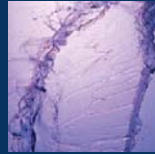
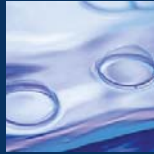
While the Board of Water Supply is working to secure additional water sources, conservation remains the most effective and economical way to ensure we have the water we need.

For information about the Board of Water Supply Water Conservation Program, please call (808) 748-5041 or email contactus@hbws.org.

Want More Information About Recycled Water?

Board of Water Supply representatives are available to answer your questions. Call (808) 748-5960.

For general information about the Water Recycling Program and other water issues, visit www.boardofwatersupply.com.



Board of Water Supply

Water Recycling Program

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About the Board of Water Supply

The Board of Water Supply is the largest municipal water utility in the State of Hawaii and a semi-autonomous agency of the City and County of Honolulu. Its mission is to provide safe, dependable, and affordable drinking water, now, and into the future, for our island community.