

The Cowlitz Project Wastewater Reclamation Plant Fact Sheet

About

The Cowlitz Indian Tribe is investing nearly \$15 million to implement one of the most advanced wastewater reclamation plants (WRP) in operation today to protect groundwater and the environment adjacent to the gaming facility currently under construction on the Tribe's reservation, scheduled to open Spring 2017.

The WRP meets or exceeds requirement under the Environmental Protection Agency's Underground Injection Control (UIC) program, and recently [EPA drinking water compliance manager Peter Contreras publicly commented](#) that there are no concerns with the system.

The Cowlitz Project's WRP is being developed by Parametrix, a leading wastewater engineering firm and one of the first to design membrane bioreactors (MBRs) using flat plate micro-filtration membranes. Parametrix has been involved in the design, construction, or reconstruction of similar systems containing this advanced level of treatment since 2001. Thirty similar systems have been constructed in Washington State and hundreds of MBRs are in use in the Northwest and all over the world, including:

- [Tulalip Tribes](#)
- [City of Shelton](#)
- [Nisqually Tribe](#)
- [City of Duvall](#)
- [LOTT Clean Water Alliance](#)
- [Skokomish Tribe](#)
- [Dosewallips State Park](#)

The Cowlitz Project Water Reclamation System Process

WRP Operations: 70,000-100,000 gallons of wastewater per day from the facility is transitioned to the water reclamation plant, an onsite, licensed staff-operated, 24 hours a day/7 days a week monitored, state-of-the-art facility. The WRP biological waste treatment is 99% better than a conventional onsite septic tank and is equivalent to one-single family home per 75 acres of land. The system also contains a dual disinfection system, with UV and chlorination capabilities for advanced groundwater protection.

Treatment Features: The wastewater undergoes an **advanced treatment process** using screening, nitrogen removal, biological waste removal, MBR technology microfiltration technology, and dual disinfection tested to:

- Remove 75% of many pharmaceuticals and personal care products (PPCP) and endocrine disrupting chemicals (EDCs) before the water is infiltrated through the vadose zone (soil)—although these chemicals are not regulated under federal or state law. This is approximately twice the removal of secondary treatment plants and much greater than septic tanks and drainfields.
- Reduce the biological waste concentrations (biochemical oxygen demand) to 1-2% of the concentrations coming from a septic tank.
- Meet primary drinking water standards required by the EPA under the UIC program before the water is infiltrated through the vadose zone (soil).
- Treat wastewater (jar on left) to reclaimed water standards (jar on right) which is considered water under Washington State Law and is "not considered a wastewater," unlike secondary treatment plant effluent (middle jar) and primary treatment (septic tank) effluent.



Additional Soil Treatment: The reclaimed water is transitioned to an onsite **Class V well** where it is infiltrated through 130 feet of fine unsaturated soil (vadose zone); additional, natural treatment and filtration will occur before it enters the groundwater.

Leading Benefits of Water Reclamation Systems

1. **Provides advanced groundwater protection by converting wastewater into reclaimed water before entering the soil.** WRP using MBR have been tested for meeting primary drinking water standards at the end of the process without additional treatment in the vadose (unsaturated) zone of soil. Most onsite septic systems rely heavily on the soil to complete 60% to 80% of the wastewater treatment, whereas WRPs rely on the soil to do less than 1% of the wastewater treatment.
2. **Preserves surface water and environmental resources.** Use of reclaimed water allows surface water to remain in the environment to support aquatic life and other environmental imperatives.
3. **Removes more than double the PPCPs and EDCs of primary and secondary septic systems.** 75% of many pharmaceuticals and personal care products (PPCP) and endocrine disrupting chemicals (EDCs) are removed before entering the ground—approximately twice the removal of secondary treatment plants and septic tanks.

Common uses of reclaimed water:

- recharge of groundwater
- aquifer storage
- recovery (ASR)
- toilet flushing
- HVAC water
- irrigation
- facility cleaning/washing
- clothes washing
- decorative water feature supply

Links to supporting materials:

- [EPA UIC program](#)
- [Class V Wells](#)
- [Safe Drinking Water Standards](#)