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After five years of construction, Brightwater opens on Saturday

By [KATIE ZEMTSEFF](#)

Journal Staff Reporter



Photos by Katie Zemtseff [\[enlarge\]](#)

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Brightwater Treatment Plant, King County's third wastewater treatment site, is complete, and the grand opening is Saturday, with tours and events from 9 a.m. to 4 p.m.

The massive \$1.8 billion plant is on 114 acres in Woodinville. Much of the site is covered with equipment to control odors, treat wastewater and dispose of solids, but other areas could easily be mistaken for a park, with meadows, trails, trees and an environmental education center.

There are 70 acres of open space and habitat.

Hoffman Construction was the GC/CM. Kiewit was brought in later to build a solids space under a design-bid-build contract.

Brightwater is the largest expansion of the region's wastewater treatment system in nearly 50 years. It adds capacity to accommodate growth.

Constructing the plant has been a huge effort, but it will treat only about one fifth of the volume treated by each of the other two plants: West Point in Seattle and South Plant in Renton. Brightwater will serve about 189,000 people in north King and south Snohomish County.

The project broke ground in 2006. It includes the plant site, a 13-mile deep-bore conveyance tunnel with three construction portals, one influent pump station, and one 600-foot-deep, mile-long outfall in Puget Sound off Point Wells.

The cost will be paid for through rates and capacity charges on new customers.

Though the plant is complete, the entire system is not.



Michael Popiwny, architectural design and mitigation manager for Brightwater, shows a membrane bioreactor panel to members of the media. [\[enlarge\]](#)

Mining on the conveyance tunnel was finished in August, and crews will spend the next year lining it and installing pipes. Gunars Sreibers, Brightwater project manager with the county Wastewater Treatment Division, said the goal is for the plant to be discharging out of its conveyance system in September of 2012.

“The original intent was to have both (the plant and the conveyance system) come on simultaneously, so we're a year out of synch right now,” Sreibers said.

Work was delayed by tunneling problems. Two of the project's four tunnels, BT-2 and BT-3, were significantly delayed after inspections revealed damage to the boring machines. BT-3 was stopped for more than a year. Vinci, Parsons and Frontier-Kemper, the contractor on both tunnels, completed BT-2 but the county hired Jay Dee Coluccio to use its existing machine and crew from the BT-4 tunnel to complete BT-3.

VPFK remains under contract to complete pipe installation, scheduled for early 2012.

The problems delayed the plant opening by a year and the conveyance system by two years. Sreibers said the county is in litigation with VPFK to determine who pays for the delays, which are not included in the \$1.8 billion cost.

Brightwater began operating Sept. 7 and is treating 4.5 million gallons per day. Ron Kohler, operations manager for the plant, said it will be able to treat up to 14 million gallons per day for the next year.

Once it connects to the conveyance system, the plant will have a peak capacity of 130 million gallons per day, though the average daily flow is expected to be about 24 million gallons.

King County plans to expand the plant in 2039 to treat a peak of 170 million gallons per day.

Brightwater has a unique system for treatment. After the standard cleaning, wastewater then passes through a membrane bioreactor, which is a physical barrier made of tubes the size of a pencil lead that have a hollow core. Water is sucked through the hollow core, which filters it.

Kohler said this system provides another level of cleaning, pulling out most viruses and a lot of bacteria.

He said Brightwater is the largest plant in the world to use this technology. "There are very, very few plants in the U.S... using membranes at this size."

Another unique element is odor control. Annie Kolb-Nelson, spokesperson for the Wastewater Treatment Division, said Brightwater will have the most stringent air quality standards of any treatment plant in the U.S. because of its extensive odor control system. Odor was the neighborhood's biggest concern, she said, and the county wants to make sure it makes good on its promise of an odorless plant.

Air gets scrubbed by a number of systems before it is released, and all areas where waste is treated are fully enclosed.

Brightwater looks big above ground, but it is even more impressive below ground, where most of the equipment is located. Kolb-Nelson compared the plant to a ship: "You have the deck (but) what actually runs the ship is underground."

Sean Cryan, associate principal at Mithun, the plant's architectural designer, said the team used a number of elements to make spaces more pleasant for workers. Roofs have overhangs. Glass is located on the north and south sides of buildings to maximize daylight, and skylights are numerous.

Treated water will be sent to Puget Sound though it will also be used to irrigate green space around the plant. Solids are already heading to Eastern Washington, where they are being used on hops and dry land wheat.

Other design team members were CH2M Hill, Brown and Caldwell, Hargreaves Associates and HDR. For a full list of team members, or to learn more about the project, read the DJC's Brightwater special section, published July 7 or go to www.djc.com and look under special sections and Brightwater.

The opening events will be at 22509 state Route 9 S.E., Woodinville.

Katie Zemtseff can be reached by [email](#) or by phone at (206) 622-8272.