



Drinking Water State Revolving Fund

Tacoma Water Green River Filtration Project

Providing safe, reliable drinking water to a large population is a big job. Tacoma Water provides direct drinking water service to about 316,000 people in the City of Tacoma, King and Pierce counties. The utility also supplies water to several wholesale customers and its Second Supply Project (SSP) partners, Covington Water District, the City of Kent, and Lakehaven Utility District. In total, more than 500,000 people receive water from Tacoma Water's system.



Tacoma Water Project Engineers, Jason Moline (right) and Gary Fox (center right), on the deck of the new flocculation basins with Secretary of Health John Wiesman (center left) and Deputy Secretary Dennis Worsham (left) during a January 2014 site visit.

The primary water supply is the Green River, one of the few remaining major unfiltered surface water supplies in the U.S. However, this source won't be unfiltered for much longer. In January 2006, the U.S. Environmental Protection Agency required that water utilities meet new national standards for public health protection by complying with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2).

Project Benefits

The filtration facility will provide long-term public health, reliability, and aesthetic benefits to a large population. Filtration will provide a physical barrier to pathogens, such as *Cryptosporidium*, and reduce disinfection byproduct precursors. The plant will also allow Tacoma Water to use the Green River source under a wider range of seasonal turbidity conditions. When complete, the filtration facility will meet

national public health standards and improve water quality by improving taste and odor, reducing iron and manganese, and greatly diminishing sediment loads to the distribution system.

Now, at the height of construction, the treatment plant site employs about 175 construction staff, representing many trades. To operate the completed facility, Tacoma Water expects to add up to five operations and maintenance staff. The facility will be able to treat up to 168 million gallons of drinking water per day, and will be the largest filtration treatment plant in Washington.

Filtration: The most effective option

LT2 requires public water systems that use surface water or groundwater under the influence of surface water to provide additional public health protection against *Cryptosporidium*. To comply with LT2, Tacoma Water began a one-year multistep process to identify feasible options, narrow the options, estimate cost and rate impacts, communicate with stakeholders, and select the best option for long-term treatment of the Green River water.

After much study and public input, Tacoma decided to filter the water supply and build the Green River Filtration Facility in south King County. "For unfiltered utilities like Tacoma Water,

there are two cost effective technology options: ultraviolet light (UV) and filtration,” wrote Tacoma Water Superintendent Linda McCrea in a March 2010, memo. UV would have satisfied the requirements of LT2 by sterilizing microorganisms. Filtration satisfies LT2 requirements by removing microorganisms while also providing a wide range of water quality and regulatory benefits.

“Filtration would change the regulatory classification of Tacoma Water’s Green River supply from unfiltered to filtered with substantial change in the regulatory framework under which the utility operates, providing long term regulatory certainty,” wrote McCrea. “Filtration will increase the yield of the Green River supply in the winter and spring months since turbidity blending will be all but eliminated as an operating constraint.” McCrea also noted that filtration would respond to uncertainties in the quality of water released from Howard Hansen Dam due to the U.S. Army Corps of Engineers’ sediment management program.



The Green River Filtration Facility covers about 25 acres.

The Office of Drinking Water approved construction of a dual-media filtration plant on the Green River in 2012. Tacoma maintains 18 finished water reservoirs with a total capacity of 128 million gallons. Tacoma’s primary reservoirs are two 33-million-gallon covered reservoirs near Puyallup.

Partnerships to fund the Green River Filtration Facility

The overall budget for the filtration system is about \$195 million. Because the project required large amounts of capital and the timeline stretched over multiple years, Tacoma Water and the SSP partners built a comprehensive funding and spending plan to ensure adequate cash flow from start to finish.

The utility and its partners secured about \$198 million for the project from various sources, including bond funds, contributions from partner utilities, and low interest state and federal loans (Table 1). They secured the first funding from a 2010 bond sale using Build America Bonds. They secured low interest state and federal loans starting with the 2010 DWSRF cycle, signing the first loan agreement in May 2011. A 2013 bond sale secured the final expected funding needs.

Table 1 – Green River Project Funding Sources	
Funding Source	Amount
Drinking Water State Revolving Fund	\$ 72,000,000
Public Works Trust Fund	\$ 38,000,000
Bonds and Internal Funds	\$ 77,000,000
Total budgeted to date	\$ 187,000,000
Lower 1.5% interest rate saved Tacoma Water \$25 million in debt service.	

Unique rules manage the funds for each funding source. These rules drive the order for spending funds and the phase of the project each respective source can fund. As they secured various funding sources, arbitrage rules drove the partners to spend bond and capital project funds first. State and federal loans will fund the latter phases of the project. Tacoma Water and the SSP partners have drawn on the state loan funds.

2015 update: Tacoma was able to complete this project ahead of schedule and under budget.

For more information, visit the Office of Drinking Water online at <http://www.doh.wa.gov/DWSRF.aspx>

For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).