



Water Design-Build

Client
Seattle Public Utilities

Location
Seattle, WA, USA

The project was recently recognized by the Washington Industrial Safety and Health Administration (WISHA) as the first ever recipient in the State of Washington of the Voluntary Protection Program (VPP) Star award for construction.

Cedar Treatment Facility

Project Highlights

- Design-build-operate (DBO) of a 180 million gallon per day (mgd) water treatment facility, delivering approximately 70 percent of all drinking water to the Seattle metropolitan area
- Completed in 2004, the facility is the largest UV drinking water facility in the world, providing regulator-credited 3.0-log Cryptosporidium disinfection
- The facility meets the City of Seattle's Leadership in Energy and Environment (LEED™) Silver criteria
- Honored with the Design-Build Excellence Award; 2005 Design-Build Institute of America (DBIA) National Design-Build Award Competition
- Honored with the Voluntary Protection Program (VPP) Star award—the government's highest award of recognition for health and safety excellence



Project Description

In April 2001, Seattle Public Utilities (SPU) selected CH2M HILL as the prime contractor to design, build, and operate a new 180 million gallons per day (mgd) water treatment facility. Operations Management International, Inc. (OMI), a CH2M HILL company, will provide full operations and maintenance (O&M) services for up to 25 years.

The new facility has two independent treatment trains, each providing: 1) ozone generation, injection, contact, residual quenching, and destruction systems, and 2) UV disinfection . The UV disinfection system consists of 13 UV reactors – 6 for each process train plus one spare.

The project included construction of a new intake and raw water pump station that extends about 450 feet into Lake Youngs from the shoreline. Existing transmission pipelines were relined and used as highly efficient ozone contactors, thus avoiding costs and site impacts associated with construction of conventional ozone contactors. Treatment also includes chlorination, and lime addition for corrosion control. Other facility components include two 10-million-gallon clearwells for treated water storage, and flow metering and control stations designed for an ultimate capacity of 270 mgd. An advanced supervisory control and data acquisition (SCADA) system is included, and integrated with maintenance management and operations optimization programs to minimize O&M costs.

The Operations Facility houses the main control room, an analytical laboratory, offices, workroom, lockers, public toilets, and a large meeting room. The City of Seattle plans to showcase this facility as a world-class water treatment facility and will conduct tours through the plant . The design



allows the operations side of the facility to be isolated from “public” areas, but still function as an integrated facility.

One of the unique requirements of the project is that the facility meets the city of Seattle’s LEED™ Silver criteria. LEED™ is a building rating system developed by the U.S. Green Building Council to promote design of facilities that are economically and environmentally viable through the use of sound design practices and the use of sustainable materials. The Cedar Treatment Facility is designed as cost effective and durable based on the 25-year life of the contract. In addition, the design for site layout minimizes impacts to surrounding sensitive areas and wetlands.

The project was recently recognized by the Washington Industrial Safety and Health Administration (WISHA) as the first ever recipient in the State of Washington of the Voluntary Protection Program (VPP) Star award for construction. The VPP Star award is the government’s highest award of recognition available to companies for health and safety excellence. Less than 1 percent of the construction contractors throughout the United States will ever obtain this prestigious award and recognition.