

Cedar Water Treatment Facility, Seattle Public Utilities, Washington

- Won the National Design Build Institute of America (DBIA) Design-Build Excellence Award in November 2005
- 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
- The facility is the largest UV drinking water facility in the world, providing regulator-credited 3.0-log *Cryptosporidium* disinfection
- The facility meets the Leadership in Energy and Environment (LEED™) Gold criteria
- Honored with the Voluntary Protection Program (VPP) Star award - the government's highest award of recognition for health and safety excellence

In April 2001, Seattle Public Utilities (SPU) selected CH2M HILL as the prime contractor to design, build, and operate a new \$79-million, 180-mgd water treatment facility. CH2M HILL OMI provides full operations and maintenance (O&M) services under a 25-year contract resulting in a full DBO project value of \$109 million.

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 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 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 was that it meet LEED™ criteria, eventually receiving a rating of Gold. 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 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.

The Cedar project also won the National DBIA Design-Build Excellence Award in November 2005 – a testament of CH2M HILL's technological capability and its application to design-build projects.