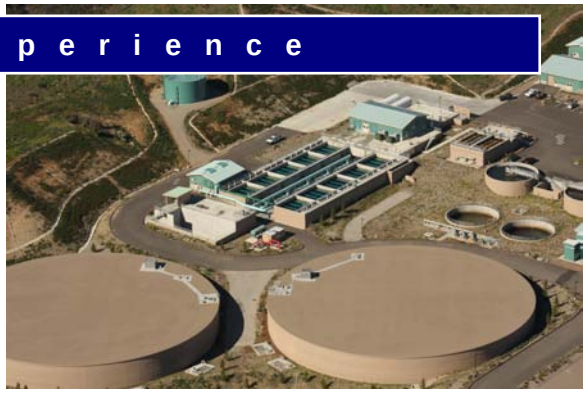
Twin Oaks Valley WTP DBO, San Diego, California

- Single-entity design-build-operate (DBO) delivery of the world's largest submerged membrane filtration water treatment plant (WTP)
- Scope includes design, permitting, and construction of 100-mgd WTP and related flow control facilities, including 15 MG clearwell storage.
- $159 million to design and build the treatment plant and a base operation and maintenance fee of $6 million per year (approximately $262 million total lifecycle cost on a net-present-value basis).
- Strong emphasis on construction safety resulted in over 612,000 hours worked without a lost time accident.

The San Diego County Water Authority (SDCWA) awarded the design, permitting, constructions, and long-term operations of a new, 100-mgd WTP to CH2M HILL in September 2005. The Twin Oaks Valley WTP helps alleviate the growing need for additional treated water capacity that has strained the Water Authority's ability to meet system demands. The WTP, the first to be built and operated by the SDCWA, will be located in Twin Oaks Valley in northern San Diego County, California.

CH2M HILL designed and constructed the treatment plant and is currently operating and maintaining the facility for a period of 20 years. The single integrated DBO delivery contract included $159 million for design, permitting, and construction plus an annual operation and maintenance fee of $6 million per year.

CH2M HILL provides the SDCWA with a single entity to design, construct, obtain governmental approvals, acceptance testing, startup, warranty for the 100-mgd water control facilities including an untreated water flow control facility, treated water flow control facility, clearwell, an Emergency Storage Project Pump Station, and an access road.



The SDCWA selected CH2M HILL's submerged membrane treatment process over two other proposed conventional treatment solutions. It was determined that the membrane treatment process will produce higher quality water, be less expensive then the conventional processes, and will be more environmentally friendly.

Submerged membrane technology and equipment for the project were provided by Zenon, making the plant's 100-mgd technology the largest membrane drinking water treatment plant in the world.

Several major provisions of this project include fine screening, ozonation for additional disinfection and ozonation with peroxide for taste and odor control, biologically active carbon contactors, chlorine addition, 15 MG of treated water storage with connections for future desalinated water, and flow control facilities.

Construction began in February 2006, and following completion of the facility in April 2008, CH2M HILL began operations and maintenance of the facility, including 24-hour onsite staffing, chemicals, capital maintenance repair and replacement, membrane maintenance and replacement, residual solids disposal, and guaranteed maximum energy usage.

CH2M HILL's delivery of the Twin Oaks facility has been recognized with several local and national industry awards, including:

- Design Honor Award for Excellence in Environmental Engineering, American Academy of Environmental Engineers
- American Society of Civil Engineers, San Diego Chapter, Project of the Year.
- American Public Works Association, San Diego Chapter, Project of the Year.
- *Global Water Intelligence*, Distinction Award, for Global Water Supply Project of the Year.