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Turning Wastewater Into Drinking Water

Orange County's Groundwater Replenishment System Wins National Civil Engineering Award

Reston, Va. – (April 23, 2009) Orange County faced a serious challenge: how to continue providing water for its growing population and economy. In the past, water purchased from outside Southern California had been the answer. Realizing that the old solution wasn't a sustainable answer, the Orange County Water and Sanitation District's new Groundwater Replenishment (GWR) System provides a high quality, reliable water supply. In recognition of its success, the Groundwater Replenishment System has been honored with the American Society of Civil Engineers' 2009 Outstanding Civil Engineering Achievement (OCEA) Award. Presented this evening at the 10th annual Outstanding Projects and Leaders (OPAL) Awards Gala at the Hyatt Regency Crystal City in Arlington, Va., the OCEA award recognizes the project's significant contributions to both the civil engineering profession and the local community.

"Sufficient water sources are not guaranteed," said ASCE President D. Wayne Klotz, P.E., D.WRE, F.ASCE, "especially not in Southern California. The Groundwater Replenishment System is a safe, reliable option for meeting the increasing water demands of north and central Orange County, and it is an excellent example of how civil engineering can contribute to a community's economic success, improve residents' quality of life and protect public safety."

The projected water demand in central and north Orange County for the year 2020 is 600,000 acre-feet (which is enough water for 1.3 million families annually) compared to current consumption of about 500,000 acre-feet per year (which is enough water for one million families annually). These projections indicate that demand will far outweigh supply. This imbalance will become even more pronounced in a drought. Included as a case study for raising the Drinking Water grade in the ASCE 2009 Report Card for America's Infrastructure, the GWR system to meets growing demands and reduces reliance on water imported from other sources.

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GWR SYSTEM WINS NATIONAL CIVIL ENGINEERING AWARD ADD 1-1-1

The GWR system takes water through an advanced purification process. This purified water is of a higher quality than required by all state and federal drinking water standards and is similar to distilled water. The system uses the latest water treatment technologies, and its structures have been designed to accommodate solar power, providing a reliable, drought-proof source of pure water for the county, reducing saltwater intrusion into the groundwater basin and lowering the amount of wastewater discharged to the ocean. Water from the system will be between 35 and 75 percent cheaper than water produced by seawater desalination, and the purification process will consume about half the energy.

The GWR System provides a new drought-proof water source for northern and central Orange County, will reduce reliance on imported water, and will save additional funds in the future by improving the quality of the water in the Orange County groundwater basin. This water quality improvement takes place when the new purified water, low in minerals, mixes with existing groundwater, lowering the average mineral content. Lowering the amount of minerals in the water, or reducing water hardness will decrease maintenance costs for residents and businesses by extending the life of water heaters, boilers, cooling towers and plumbing fixtures.

The contenders for the 2009 OCEA Award included the I-35W St. Anthony's Falls Bridge Project in Minneapolis; the H. Clay Whaley, Sr. Memorial Water Plant in St. Cloud, Fla.; the Lake Brazos Labyrinth Weir in Waco, Texas; the Montagua Bridge in LaGarrucha, Guatemala; and the Elk Creek Tunnel Bridge located between Elkton and Drain, Ore.

Established in 1960, the OCEA program recognizes projects on the basis of their contribution to the well-being of people and communities, resourcefulness in planning and design challenges, and innovation in materials and techniques. Previous winners have included the Woodrow Wilson Bridge project on the Washington, D.C. beltway, the Golden Gate Bridge Seismic Retrofit in San Francisco, the Cape Hatteras lighthouse relocation in North Carolina and the Saluda Dam Remediation project in Columbia, S.C.

For more information on the awards program, please contact Anthony Reed at areed@asce.org or (703) 295-6413.

Founded in 1852, the American Society of Civil Engineers represents more than 146,000 civil engineers worldwide and is America's oldest national engineering society. For more information, visit www.asce.org.