



LONG BEACH WATER DEPARTMENT

The Standard in Water Conservation &
Environmental Stewardship

PRESS RELEASE

For Immediate Release
Thursday, September 7, 2006

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Long Beach Desalination Technology to Receive U.S. Patent Protection

LONG BEACH, CA – The [United States Patent Office \(USPTO\)](#) has issued a Notice of Allowance for Patent Protection for a groundbreaking seawater desalination process developed by Long Beach Water Department engineers. The Two-stage Nanofiltration Process, or Long Beach Method, as it has become known, has been demonstrated to be 20 to 30 percent more energy efficient than Reverse Osmosis, the current state-of-the-art technology, and is the subject of more intense research and development activity at the nation's largest, fully functional seawater desalination research and development facility located in Long Beach. It is anticipated that the Patent will be issued in the first quarter of next year. Major foreign patents are still pending.

The new generation Long Beach desalination technology was developed by former Long Beach Water Department assistant general manager Diem Vuong, who retired last year, but remains closely involved in furthering the development of this promising technology as a consultant at the Department's seawater desalination facility located in southeast Long Beach. "The award of this patent is a true testament to the genius of Diem Vuong and to the depth of knowledge and innovation of one of the greatest engineering teams in the industry," stated [Kevin L. Wattier](#), General Manager of the Long Beach Water Department.

Vern Schooley of Fulwider Patton, who represents the Long Beach Water Department in its effort to secure patent protection, hailed the announcement by the USPTO as a significant development for the City. "The Patent Office's communication of a 'Notice of Allowance' lends itself to possible licensing opportunities for the City."

High operating costs, due primarily to high rates of power consumption, and environmental issues related to open-ocean intake and discharge have rendered seawater desalination cost/environmentally prohibitive in Long Beach. Although significant advancements in technology have extended membrane life while lowering energy requirements, overall energy consumption remains extremely high due to the very high-pressure requirements of reverse osmosis membranes.

Using a small 9,000 gallon-per-day pilot-scale desalter, the Long Beach Water Department has reduced the overall energy requirement (by 20 to 30 percent) of seawater desalination using a relatively low-pressure two staged nano-filtration process, developed by Long Beach Water engineers, known as the "[Long Beach Method](#)."

This unique process is now being tested on a larger scale. With funding assistance from the [United State Bureau of Reclamation](#) and the [Los Angeles Department of Water & Power](#), Long Beach Water is conducting research at a constructed 300,000 gallon-per-day, fully operational facility incorporating the two-stage nano-filtration process. This large-scale facility is needed to verify the energy savings when employing full-scale membranes and energy recovery units, among other things. The goal is to verify energy savings of the two-stage nano-filtration process and to optimize the process so that it can be duplicated.

Together with its funding partners, Long Beach Water is also undertaking design and construction of an [Under Ocean Floor Intake and Discharge Demonstration System](#), the first of its kind in the world, that will seek to demonstrate that viable, environmentally responsive intake and discharge systems can be developed along the coast of California.

The Long Beach Water Department is an urban Southern California water supply agency and the standard in water conservation and environmental stewardship.

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