Current Knowledge & News on Advanced Water-Treatment Technology

Clearwater Signals

Volume 4, Number 2 Summer 2004

LEED-EB Rides the Money Train

Developed by the U.S. Green Building Council (USGBC), the Leadership in Energy and Environmental Design for Existing Buildings (LEED-EB) rating system is based on building performance. LEED-EB opens the building management market from thousands of facilities to millions. The purpose of LEED-EB is to help building owners and managers *reduce environmental impacts* and *gain operational cost returns* on their facilities. Simply put, LEED-EB will make building owners money.

• **LEED-EB Examples**. Under the LEED-EB pilot program, several buildings have been certified. They include: (a) the National Geographic Society headquarters in Washington, DC, which received a Silver certification in November 2002, and (b) The Joe Serna Jr. California Environmental Protection Agency (Cal/EPA) headquarters building in Sacramento, which received a Gold certification in November 2003.

• **The Value**. The $5 million investment in upgrades for LEED certification has increased the property value of the National Geographic Society headquarters building by $22 million, thereby improving the organization's credit rating and increasing its borrowing capacity. The Joe Serna Jr. Cal/EPA facility has also seen the green in more ways than one. "We are saving $1 per square foot off downtown Sacramento average building operating expenses, which amounts to a $1 million per year savings for this property," says building manager Craig Sheehy. "Given a 10% capitalization rate, this annual operating cost savings means we have increased the value of the building by $10 million."

Impressive numbers and, as described in Dolphin System water-treatment projects in this *Clearwater Signals* issue, our technology is a critical factor in showing building owners the money and reducing environmental impacts. It should be "All aboard, LEED-EB," and we're gratified to be on the train.

California Paperboard Corporation

"One Person's Trash is Another's Treasure"

Dolphin Engineering Rep Rick Taseff (left) with California Paperboard Plant Manager Steve Blankenship (right).

California Paperboard Corporation, a Newark Group Company, is a prime example of how one person's trash can be another 's treasure. The Newark Group converts the 2.5 million tons of wastepaper and fibers it collects annually into several grades of paper and fiber products.

Recycled paperboard ends up in such products as books, puzzles, game boards, and packaging.

Installing the Dolphin System helped California Paperboard save a significant amount of money and time in their manufacturing process operation.

• **Here's How.** The company needs to cool steam from a drying operation before returning the condensate to their boiler. A shell and tube heat exchanger with a steel shell and 2-inch tubes is used. Steam is fed on the shell side with plant make-up water fed on the tube side. The plant make-up water consists mainly of "purple" water (municipal reclaimed water, rarely supplemented with well or city water).

This operation had been a constant source of problems for the plant. The water to the heat exchanger was treated by patented polymer scale inhibition chemicals designed for high temperature control, yet several times per year the operation had to be stopped and the heat exchanger cleaned. Chemical treating of this large system was highly expensive and time-consuming.

Chemical treatment was stopped, and a Dolphin System (4-inch model) was installed in June of 2001. The heat exchanger has not been opened since, and the system has been completely trouble-free. The steam pressure drop has been maintained throughout this time period with no interruptions in production. A planned capital expenditure to convert this system to a cooling tower arrangement has been tabled. The success of this project has led to repeat Dolphin System sales at California Paperboard.

Dolphin System Installation at California Paperboard.

Dare County Courthouse: Preserving a Future for the Past

Dare County Courthouse.

This two-story brick building of Italianate style was completed in 1904. It contrasts with many nearby structures reflecting the English heritage of Manteo, North Carolina, which holds claim to being the first English settlement in America. Manteo is located at Shallowbag Bay on Roanoke Island, between the Croatian Sound and the Outer Banks, one of the most picturesque and venerated settings in the United States.

Environmentally sustainable aspects of this building are a viable means of preserving the functionality and longevity of its architectural significance. Being one of those important aspects, the chemical-free Dolphin System was installed to treat the water for the building's comfort cooling system. Shown in the photograph on the right, a Dolphin System (3-inch unit) was installed on a Mammoth evaporative condenser system. The cooling system previously had been treated with chemicals. Scale and bacteriological odor had become problematic, and some chemically laden leaks had marked some areas where the chemical feed pump and stored chemicals were located.

Dolphin Installation on Mammoth Unit.

Under Dolphin System water treatment, the water is now crystal clear, with extremely low total bacteria counts. There is no slime, no scale, and no odor whatsoever associated with any aspect of the entire cooling system.

West Virginia State Capitol Complex

A Case of Economic and Environmental Synergy

The new State Capitol Complex in West Virginia reflects the forward-thinking strategies being implemented by the state government. A rural state with a population of only 1.8 million people, the capitol complex was planned to show an appreciation for the state's abundance of natural resources. Designed to maximize the use of natural daylight, have open views of its adjacent river and wooded surroundings, and meet best energy efficiency standards, the complex embraces an environmentally sustainable future. The Dolphin System complements these goals through its superior performance, chemical-free, minimal maintenance, water conservation, and energy-savings features.

State Capitol complex in West Virginia.

The State of West Virginia chose the Dolphin System for several significant reasons, namely to:

- Maintain energy efficiency by controlling slime buildup.
- Eliminate toxic chemicals from entering the environment.
- Significantly reduce the life-cycle costs of water treatment.
- Reduce exposure of employees and visitors to hazardous substances.

Three 12-inch (pipe diameter) Dolphin 2000 Units and two 10-inch units were installed to handle 4,800 tons of cooling.

The complex cooling system provides comfort cooling to a total of eight buildings.

In less than one week following installation, the cooling tower water changed in appearance from murky to crystal clear.

Total Bacteria Counts have been extremely low, with no scale buildup in a non-corrosive environment.

Dolphin System Installation at the West Virginia Capitol.

Virginia Eye Institute: Expertise Includes a Vision for the Future

Virginia Eye Institute (VEI) is the leading eye care practice in central Virginia, so rated for its state-of-the-art technology applications and personal care.

Entranceway to the Virginia Eye Institute Facility in Richmond, Virginia.

In fact, 99% of the Institute's patients recommend VEI to their family and friends. Always on the cutting edge of new technologies, VEI has shown that the surgical correction of nearsightedness, farsightedness, and astigmatism provides a convenient alternative to glasses and contact lenses. The first in the state to perform refractive surgery (in 1981), this procedure has given thousands of people visual freedom from limitations associated with glasses and contact lenses. VEI also offers LADAR Vision, the first FDA-approved Excimer Laser with tracker-guidance and small-spot laser vision correction.

The eye tracker technology was initially developed for the Strategic Defense Initiative, or Star Wars. It automatically adjusts up to 4,000 times per second to compensate for small, involuntary eye movements during surgery. Having such a "vision for the future" in the practice, it was not surprising that VEI also had an interest in Dolphin System technology for treating the cooling system water at their facility. As shown on the right, the Dolphin System was installed to replace chemical treatment on the cooling tower water. With the tower situated next to a parking lot, scaling and biological fouling were noted as being problematic.

Under the chemical-free Dolphin System for water treatment, the VEI cooling tower water is crystal clear, with no scaling and total bacteria counts (TBC) way below industry standards. In short, VEI's 99% patient recommendation rate dovetails with the Dolphin System's 99% retention rate and its support of human health and the environment.

Dolphin System at Virginia Eye Institute.

Shawnee Mission Medical Center

Dolphin System Installation Demonstrates Environmental Safety

Shawnee Mission Medical Center.

Shawnee Mission Medical Center (SMMC) is one of the most preferred hospitals in the Kansas City metropolitan area. The 54-acre campus is composed of the hospital, a free-standing outpatient surgery center, a community health educational building and fitness center, five medical office buildings, an associate child care center, and a community fitness course. SMMC employs more than 2,800 local residents and supports a staff of more than 700 physicians, representing 50 medical specialties, who care for nearly 20,000 inpatients and 180,000 outpatients each year.

There were a number of economic and environmental reasons for SMMC interest in Dolphin water treatment technology. Besides having a track record of superior performance, being chemical-free, reducing maintenance requirements, conserving water, and saving energy were some of the other good reasons.

As shown in the photograph on the right, a Dolphin System was installed on a Marley cooling tower located next to the SMMC child care center. The chemical-free water treatment system therefore precludes any chemical discharge, spills, or drift that can occur from cooling systems under chemical treatment. It is sufficient to say that, with chemical-free water treatment, SMMC workers, patients, and visitors call all breathe a little easier, as can the cooling tower.

Dolphin Installation at SMMC.

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NOTE: The Dolphin System™ is covered by U.S. Patent 6,063,267 and other pending patent applications.
The Dolphin System™ is covered by Canadian Patent 2,335,496 and other pending patent applications.

UPCOMING • Conferences • Seminars • Trade Shows • Expositions • UPCOMING

Event	*Date & Location*	*Points of Contact*
41st ASHE Annual Conference and Technical Exhibition. Held in conjunction with the 18th Congress of the International Federation of Hospital Engineers. www.ashe.org	July 25-28, 2004 Gaylord Palms Resort & Convention Center Orlando, Florida	ASHE 75 Remittance Drive, Suite 1272 P.O. Box 75315 Chicago, IL 60675-5315 Questions: 312-422-3813 Fax: 312-422-3609 www.ashe.org
65th International Water Conference. A technical forum for advancements in industrial, utility, and wastewater technology. Features include a technical program , exhibit hall, and information-sharing suites. www.eswp.com	October 17-21, 2004 Omni William Penn Hotel Pittsburgh, Pennsylvania	Engineers Society of Western Pennsylvania 337 Fourth Avenue Pittsburgh, PA 15222 Questions: 412-261-0710 Fax: 412-261-1606 Conf@eswp.com
Greenbuild International Conference & Expo. A showcase for leading-edge green technologies and an educational program on energy-savings and environmentally sustainable buildings. Sponsored by the U.S. Green Building Council, this event marks the 3rd Annual USGBC Conference. www.usgbc.org	November 10-12, 2004 Portland Convention Center Portland, Oregon	U.S. Green Building Council 1015 18th Street, NW, Suite 805 Washington, DC 20036 Questions: 202-828-7422 or 312-541-0567 Fax: 202-828-5110 or 312-541-0573 info@corexpo.com

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Policy: *Clearwater Signals* is published periodically by Clearwater Systems Corporation. The publication is intended to serve readership interest in advanced, improved water-treatment technology. **Correspondence**: *Clearwater Signals* welcomes letters to the editor, articles, reports, and comments for publication. Please send, fax, or email written material to address below.
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