LAKOS Curbs Energy Costs in Hospital Cooling System

System Identification:
HVAC chilled water system

Solids/Liquids:
Metallic oxide grit, scale, sand, grit and water

Problems:
Fouling from both internal and external forces reduced the efficiency of the cooling system at the 600-bed University of Alberta Hospital site in Canada. Manufacturer’s data for the coils connected to this system documents an increase in overall system energy consumption by 7% for a fouling factor of only .001. The efficiency of any cooling system can be increased by controlling the fouling of solids.

As the largest user in a district cooling system, the hospital receives water which travels through more than two kilometers of piping from the central location, gathering deposits of scale and other particulates from all areas and buildings on the system. Even in this closed loop system, the piping was becoming sufficiently obstructed to significantly impact energy consumption, demanding an effective filtration solution.

Solution:
To clean up the piping systems serving the hospitals, LAKOS Separators with Closed Recovery Systems were installed in a side-stream application on both of the chilled water systems. With flows ranging from 480-880 US gpm (110-200 m³/h) depending on the season (the system operates in two distinct modes), the separators are removing significant amounts of solids, with marked gains in energy efficiency. Independent testing identified removed solids ranging in size from 2 to 630 micron.

Doug Dunn, Manager of Building Operations, conservatively estimates 8% reduction in energy costs, saving the facility in excess of $20,000 annually. He expects payback on the units to be achieved in about two and one-half years. The LAKOS Closed Recovery System promotes zero liquid loss and easy disposal of solids, saving valuable water resources and money. Additional benefits not calculated include reduced wear and maintenance to pumps.

Integral to the success of this retrofit was the simplicity of the installation, and the relatively small footprint of the LAKOS Separator and Closed Recovery System. Performance of a single LAKOS filtration system in the first phase was so successful that the second phase was accelerated, and other facilities within the district have taken note of the success. Additional projects are now underway in other facilities on the district cooling system.

continued on reverse
Others who have used LAKOS Separators for HVAC water systems:

- Energy Square Building, Edmonton, Alberta
- Computer Devices, Calgary, Alberta
- Red Deer College, Red Deer, Alberta
- Esso Plaza Building, Calgary, Alberta
- Commerce Court, Edmonton, Alberta
- Bank of Montreal, Montreal, Quebec
- Bank of Canada, Ottawa, Ontario
- BC Chemical Ltd., Prince George, B.C.
- Canada Department of Transportation, Thunder Bay, Ontario
- Eli Lilly Cana, Scarborough, Ontario
- Hewlett Pakard, Mississauga, Ontario
- Miramichi Regional Hospital, Miramichi, New Brunswick
- Nestle, Chesterville, Ontario
- Standard Manufacturing, Winnipeg, Manitoba
- University of Saskatoon, Saskatoon, Saskatchewan
- Vancouver General Hospital, Vancouver, B.C.
- Whitehorse General Hospital, Whitehorse, Yukon
- Bell Telephone Manufacturing, Antwerp, Belgium
- Clinique Pasteur, Toulouse, France
- IBM, Valencia, Spain
- Upjohn, Grand Rapids, MI
- Intel, San Jose, CA
- AMD, Austin, TX
- Miami International Airport, Miami, FL
- University of Houston, Houston, TX
- St. Joseph Hospital, Phoenix, AZ
- Boston College, Boston, MA
- City of Sidney, Sidney, NE
- Georgetown Power Plant, Washington, DC
- Royal Alexandria Hospital, Edmonton, Alberta
- Disease Control Centre, Winnipeg, Manitoba
- Hervey Bay Hospital, Queensland, Australia
- 1 Utama Shoppong Mall, Kuala Lumpur, Malaysia
- Hilton Hotel and Jakarta Convention Center, Jakarta, Indonesia
- Tan Tock Seng Hospital, Singapore
- IBM Usine de Bordeaux Canejan
- NATO, Izmir, Turkey
- Via Catarina Shopping Center, Potugal