LAKOS

Application Bulletin

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.

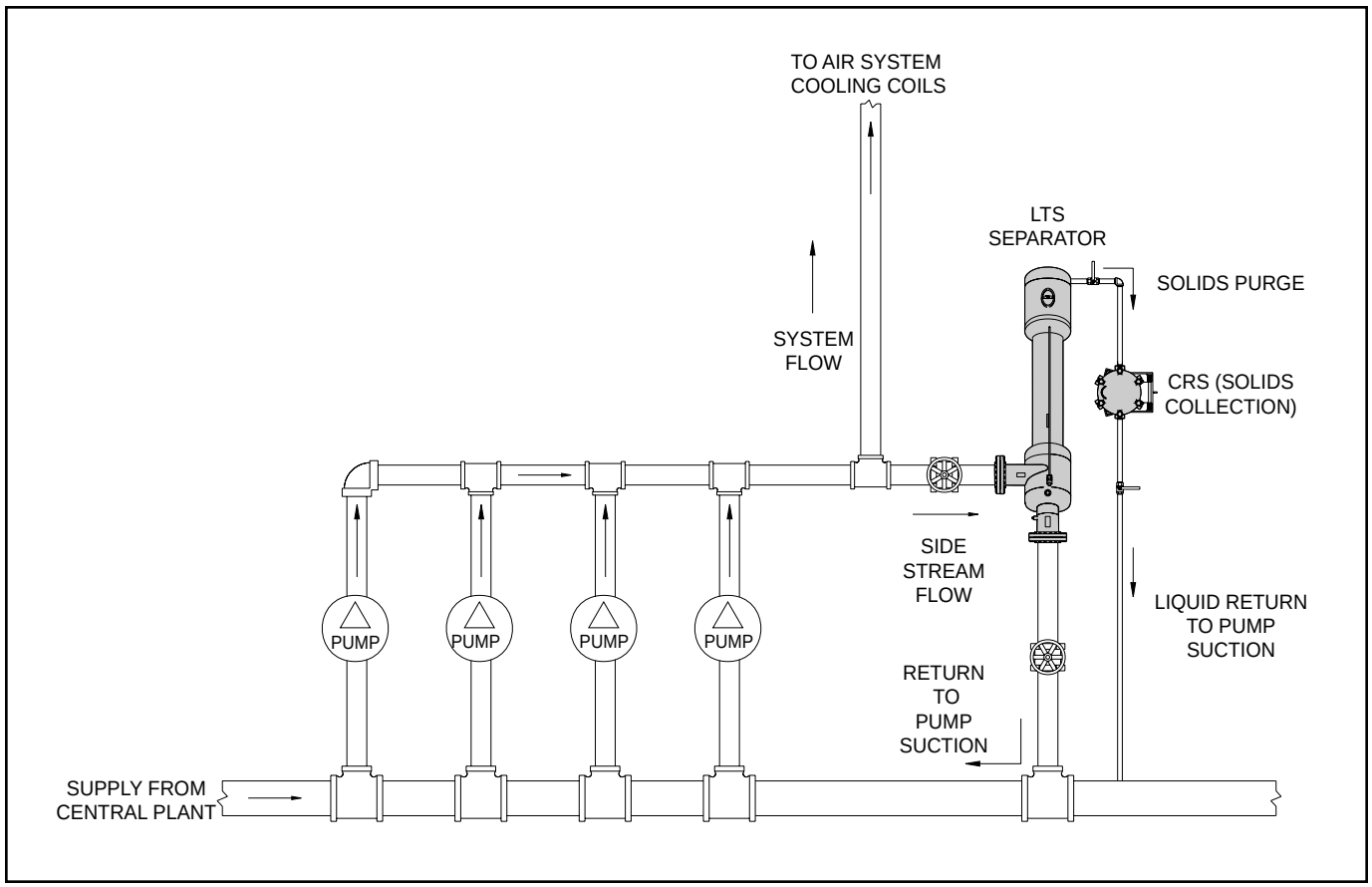
As the largest user in a district cooling system, the hospital receives water which travels through more than two kilometers of piping from the central location, gathering deposits of scale and other particulates from all areas and buildings on the system. Even in this closed loop system, the piping 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 the both of the chilled water systems. With flows ranging from 480-880 US gpm (110-200 m^3/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 on 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 Canda, Scarbough, Ontario
Hewlett Pakard, Mississauga, Ontario
Miramichi Regional Hospital, Miramichi, New Brunswick
Nestle, Chesterville, Ontario
Standard Manufacturing, Winnipeg, Manitoba
Universuty of Saskatoon, Sakatoon, Saskatchewan
Vancouver General Hospital, Vancouver, B.C.
Whitehorse General Hospital, Whitehorse, Yukon
Bell Telephone Manufacturing, Antwerp, Belgium
Clinque 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 Hospial, Singapore
IBM Usine de Bordeaux Canejan
NATO, Izmir, Turkey
Via Catarina Shopping Center, Potugal

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