LAKOS

Application Bulletin

May Company: Energy Savings Thru More Effective Filtration

Major Department Store Chain Uses LAKOS To Save Money

Application: Chilled Water Systems & Cooling Towers

System Identification: Series TBX and HTX Separators

Solids/Liquid: Dirt, grit, and other suspended solids

Problem/Challenge: Keeping chilled and condenser water systems running at maximum efficiency

Background:

A Colorado state energy utility sponsored a study to determine the amount of energy savings that would result from the use of different types of filtration on industrial cooling equipment. May Company (now Federated Department Stores) agreed to take part in the study for several store locations. New plate and frame heat exchangers were installed, and energy usage and costs were calculated over time. LAKOS Separators were then installed in 2003-4 at various locations.

The systems were started and the results were monitored via building management systems and visual inspections through the cooling season. The energy data was computer analyzed and verified by the company's internal energy use department. In addition to energy costs, additional expenses such as cleaning costs, chemical usage, and water treatment effectiveness were measured, as well as the impact the Separators had on year-end cleaning procedures. The results of those savings are shown in **Table A**.

Results:

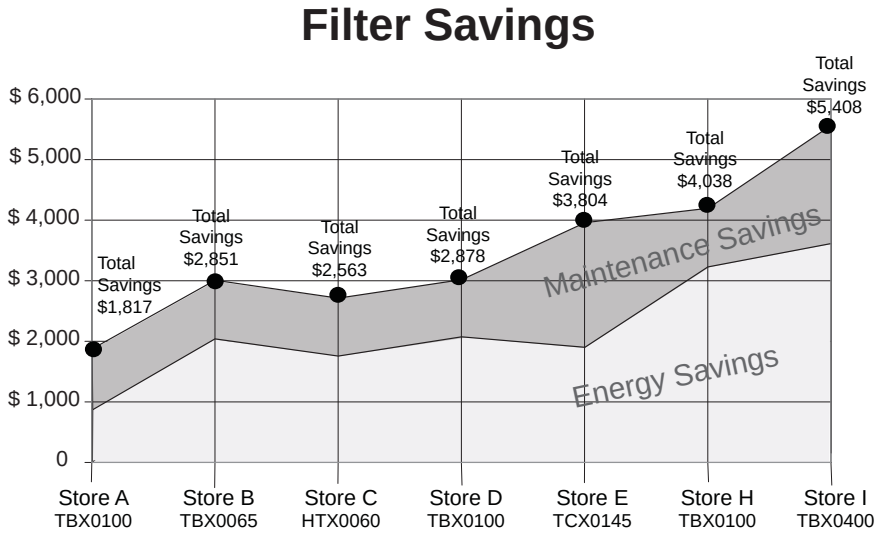
The data clearly shows that in all installations the cost savings (not including health and safety concerns) were quite substantial and resulted in Returns On Investment (ROI) that all exceeded 30% ! Not included in these numbers are the additional benefits of
- extended equipment life
- reduced risk of Legionnaire's Disease
- reduced chemical usage (between 5-10% is common)

Table A

Lakos Filter Analysis

						Filter Savings					Capital, Savings & R.O.I.			
								Maintenance						
Facility	Total Tonnage	Condenser Flow Rate	Evaporator Flow Rate	LAKOS Model	Loop	Filtration Type	Filter Flow Rate	Energy Percent	Energy $	Tower $	Chiller Tubes $	Total $	*Energy Savings (PNF) $	Total Savings $	Total Project $	Return On Investment
Store A	240	720	576	TBX0100	Condenser	Side Stream	100	3.5%	857	-	960	1,817	20,850	22,667	67,138	33.8%
Store B	240	720	576	TBX0065	Evaporator	Side Stream	65	7.1%	1,891	-	960	2,851	20,730	23,581	67,459	35.0%
Store C	215	645	516	HTX0060	Evaporator	Side Stream	60	7.0%	1,603	-	960	2,563	20,808	23,371	65,961	35.4%
Store D	360	1,080	864	TBX0100	Condenser	Side Stream	100	4.8%	1,918	-	960	2,878	20,805	23,683	69,385	34.1%
Store E	380	1,140	912	TCX0280	Tower	Basin	280	4.5%	1,744	1,100	960	3,804	20,811	24,615	69,064	35.6%
Store H	294	882	706	TBX0100	Condenser	Side Stream	100	7.5%	3,078	-	960	4,038	20,832	24,870	68,850	36.1%
Store I	1,000	3,000	2400	TBX0400	Condenser	Side Stream	400	5.6%	3,457		1,951	5,408	58,212	63,620	191,177	33.3%

* May Co determined that proper filtration is essential to achieving energy savings when using plate and frame heat exchangers in free cooling applications



CLAUDE LAVAL CORPORATION
Not connected with The DeLaval Separator Company
1365 N. Clovis Avenue • Fresno, California 93727 USA
Telephone: (559) 255-1601 • Fax: (559) 255-8093
Toll-Free: (800) 344-7205 (USA, Canada & Mexico)
www.lakos.com • E-mail: info@lakos.com