



Pall Generates Cost Savings for the 2007 Coal Plant of the Year

Westar Energy's Lawrence Plant Deploys Pall Aria™ Microfiltration System to Treat River Water

Overview

Westar Energy is the largest electric energy provider in Kansas, delivering reliable power to more than 675,000 customers.

Sitting on 600 acres in the northern edge of town, Westar's 69-year-old Lawrence, Kansas plant was recently named 2007 Coal Plant of the Year by the PRB Coal User's Group.

The Challenge: Reduce Water Expenses

Prior to 2007, the Lawrence Power Plant was relying on city water as its makeup water source. For the years 2004-2006, the plant spent almost \$625,000 on water, about 87% of which was for city water.

The plant was relying on sand filters and clarifiers, but was not getting the results it needed.

The Solution: Pall Aria™ AP-4 Microfiltration System

The Lawrence plant had a five-year contract with a company to provide sand filtration, but the plant struggled to get the purity it needed. In fact, the plant was never able to realize consistent reliability. When the contract expired in late 2006, the plant installed a Pall Aria AP-4 microfiltration system.

Designed specifically to treat surface water like the water the plant was pulling from the Kansas River, the system performed very well. After incorporating a clean water flush before every shutdown, the plant has enjoyed excellent reliability. Currently, the Pall Aria system is providing high purity water with minimum intervention and greater degree of flexibility to the plant.



Westar Energy's Lawrence Plant

“We run for five days and shut down for two days, and we flush the membranes with city water each time we shut down,” says Vince Avila, Plant Engineer at Lawrence. “The system has handled all the seasonal changes in the water and has performed very well.”

According to Avila, the plant saved more than \$77,000 on water in 2007 – a savings he expects the plant to realize on an annual basis. “Expensive city water used to be a staple,” he says. “Now we’ve gotten it where it should be – as an emergency measure.”

Westar Lawrence Plant Water Costs

Pre Pall Aria System Implementation

Year	City	River	Total
2004-2006	\$180,788 (average per year)	\$27,180 (average per year)	\$207,968 (average per year)

Post Pall Aria System Implementation

Year	City	River	Total
2007	\$84,846	\$45,492	\$130,338

The Pall Aria system helped the Lawrence plant save more than \$77,000 on water in 2007.

Pall Aria System Weathers the Storm

In May of 2007, the Pall Aria MF system was put to a test that neither the Lawrence plant nor Pall could have anticipated; heavy rain from an already deadly storm system caused severe flooding of the Kansas River.

The plant, which was now taking almost all of its water from the river, saw turbidity, normally in the 25-30 range, average 470 NTU for the entire month, with turbidity spikes reaching 2,200 NTU. The Pall Aria system proved to be up to the challenge; incredibly, the plant did not need to switch to city water one single time.

“Every piece of debris from the banks ended up in the river,” says Vince Avila. “We

“Every piece of debris from the banks ended up in the river. We wouldn’t have been surprised if the Pall Aria system had ground to a halt. But it stayed in operation the entire time.”

Vince Avila, Plant Engineer

wouldn’t have been surprised if the system ground to a halt. But it stayed in operation the entire time.”

In addition to its ruggedness, the plant is also impressed with the user-friendly nature of the Pall unit; since there are only two lab techs on staff for the entire plant, it was critical that the solution save man-hours.

“The system has performed very well for us,” concludes Avila. “We take a set of readings in the morning, and if everything is OK, the system requires very little interaction.”



Pall Power Generation

A Leader in Fluid Purification Technologies for the Power Generation Industry

Pall advanced filtration and separation science and high-quality manufacturing are applied on all fluids throughout the power plant to improve reliability and ensure available and profitable power.

With stringent treatment regulations and a growing demand for safer water, treatment systems must ensure strict compliance with purity standards. Filtration is critical to the success of your water treatment system in meeting purity goals, and traditional filtration methods such as sand and granular mixed media are often inefficient, labor-intensive, and costly.

If you need an additional supply of pure water for critical and utility operations, you



could benefit from a Pall Aria Integrated MF/RO system. The Pall Aria line of water treatment systems uses hollow-fiber microfiltration or ultrafiltration membrane technology to produce pure water from any water source, delivering a consistent, high-quality water source for as much as 50% less than the cost of purchased water.





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