Power Generation

Case Study

EnCana Keeps the Water Flowing with Pall

Cavalier Power Plant Deploys Pall Aria™ Microfiltration System to Treat Cooling Tower Blowdown Water and Provide Feed Water to RO Units

Overview

Headquartered in Calgary, EnCana Corporation is one of the largest oil and gas companies in the world.

Formed in 2002, the company is involved in operations in Alberta, British Columbia, Saskatchewan, the Rocky Mountains, Texas, and Nova Scotia. EnCana has received numerous awards for its environmental initiatives and is recognized on the Dow Jones Sustainability Index.

The Challenge: Quality Feed Water

In 2006, the Cavalier Power Plant found itself unable to provide enough quality feed water to its RO units. The inlet water had very high levels of sub-1µm particles as well as an immeasurable high SDI. The multimedia filters that were in place at the time were simply not capable of producing water of sufficient quality or quantity. The multimedia filters also required the addition of costly chemical coagulants.

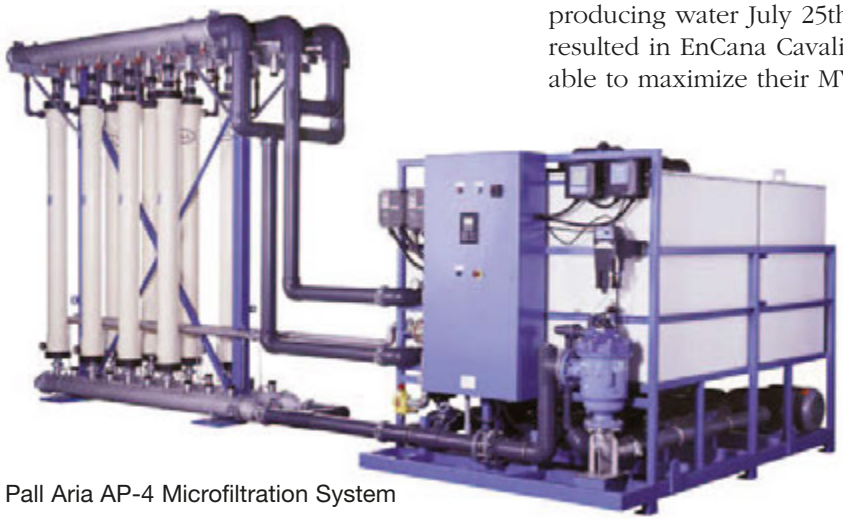
Experiencing rapid RO fouling and reduced water plant capacity, Cavalier was forced to resort to the expensive measure of trucking in DI water from another plant.

The Solution: Pall Aria™ AP-4 Microfiltration System

The level of small particles fouling the RO units, which could not be removed by the current filters, clearly indicated that a new technology was needed. After an extensive evaluation, Cavalier believed that MF/UF was the best solution, and reached out to Pall Corporation.

"Pall's MF has a reputation for being tough and reliable," says Brad Swainston, Water Treatment Plant Lead Operator, at EnCana's Cavalier Power Station. "Also, Pall was most willing to accommodate us with a trial."

Pall agreed to provide a Pall Aria AP-4 microfiltration system for a three-month trial period, guaranteeing < 3 SDI and < 1 NTU. If these parameters were not achieved, Pall agreed to refund all rental fees paid to that point, and to take back the AP-4. The unit was shipped from the Pall factory on July 14th, 2006, was commissioned at EnCana Cavalier Station on July 24th, and was producing water July 25th. This in turn, resulted in EnCana Cavalier Station being able to maximize their MW supply to the



Pall Aria AP-4 Microfiltration System

Filtration. Separation. Solution.SM

grid, only one day after receiving shipment of the Pall AP4.

It wasn't long before the Pall units proved their value. As a testament to that, EnCana was so satisfied with the results at the Cavalier plant that a second AP-4 was ordered in October, 2006

"We use our Pall AP-4 microfilters extensively in the CT blowdown recovery system at the Cavalier Power Station," says Swainston. "The overall filtration capacity of our redundant AP-4 unit exceeds the filtered water requirements at our RO inlet by roughly a factor of 2 times. This extra filtration capacity has been used to filter a portion of the raw water make up to the cooling tower and also part of the cooling water itself. This process reduces the suspended solids loading on the cooling tower and in turn increases the efficiency of our CW chemistry."

The most important benefit of this system was that it rendered the original cooling water side stream multimedia filters obsolete. These units used an excessively high volume of water for their backwash, creating a lot of waste. Also these filters were not capable of removing fine solids (sub 10 micron), so Cavalier's cooling water solids loading was weighted heavily with fine particulate. "In essence," adds Swainston, "the AP-4 units have reduced cooling tower waste water quantity and increased cooling water quality."

The cost of water treatment for the 12 months prior to installing the Pall Aria system was $.99/megawatt hour. Of that, $.25/megawatt hour was spent on multimedia filter coagulant.

"The addition of the microfilters allowed us to discontinue the use of coagulant, enabling a $.25/megawatt hour savings," reports Swainston. "We were also hauling sludge from our blowdown pit at a cost of $10,000 to $15,000 a month for trucking and disposal. Now we're able to haul sludge once a year for an additional savings of $.25/megawatt hour."

"Since implementing the Pall Aria AP-4 systems, Cavalier's water plant has proved extremely reliable," concludes Swainston. "This, in-turn, has increased over-all plant reliability and availability.

PALL® Pall Corporation

USA
25 Harbor Park Drive
Port Washington, NY 11050
800.645.6532 toll free
516.484.3600 Phone
516.484.0364 Fax

Canada
Pall Canada Ltd.
7205 Millcreek Drive
Mississauga
Ontario, L5N 3R3
905.542.0330 Phone
905.542.0331 Fax

China
Pall Filter (Beijing) Co., Ltd.
No. 12 Hongda Nanlu
Beijing Economic-Technological
Development Area (BDA)
Beijing 100176, P.R.China
86 10 6780 2288 Phone
86 10 6780 2329 Fax

France
Pall Filtration Industrielle
3, rue des Gaudines
Boite Postale 90234
78102 St-Germain-en-Laye
Cedex
33 1 30 61 38 00 Phone
33 1 30 61 57 08 Fax

Germany
Pall GmbH
Philipp-Reis Strasse 6
D-63303 Dreieich, Germany
49 6103 3070 Phone
49 6103 34037 Fax

Japan
Gotanda Nomura Shoken Building
1-5-1 Nishi Gotanda
Shinagawa-ku, Tokyo 141
81 3 3495 8300 Phone
81 3 3495 5897 Fax

Korea
Il-dong Bldg. 4F. 968-5
Daechi-3Dong,
Gangnamgu, Seoul, 135-736,
Korea
82 2 560 7800 Phone
82 2 569 9092 Fax

Russia & former CIS
Pall GmbH
Moscow Representative Office
Vyatskaya Street 27
Building 13-14
127015 Moscow, Russia
7 495 787 7614 Phone
7 495 787 7615 Fax

United Kingdom
Europa House, Havant Street
Portsmouth PO1 3PD
Hampshire, England
44 23 9 230 3303 Phone
44 23 9 230 2509 Fax

Visit us on the Web at www.pall.com, or email us at PowerGen@pall.com

Pall Corporation has offices and plants throughout the world. For Pall representatives in your area, please go to www.pall.com/contact.asp.

Filtration. Separation. Solution.SM