



CLEAN OIL
BRIGHT IDEAS

Turbine Oil Siemens Steam Turbine

CJC™ Application Study

Application Study
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CUSTOMER

Essent Clauscentrale, Maasbracht
Power Station, The Netherlands

THE SYSTEM

2 Siemens Steam Turbines A and B, each with a 643 MW turbine oil system.

Oil volume: 2 x 90,000 L

Oil type: Mobil DTE 798 (ISO VG 46)

THE PROBLEM

In the turbine system the oil is contaminated with water and oil degradation products (varnish, oxidation, resin/sludge). Varnish formation causes sticking valves and leads to unit tripping resulting in lost production and unexpected maintenance costs.

THE SOLUTION

Two CJC™ Filter Separators PTU3 10 x 27/108 GP-E2PTWY, processing 7,500 L/h. The unit is equipped with an extra water box and a CJC™ OilAbsorb to ensure that the discharged water contains less than 15 ppm oil-in-water.

Inserts used: CJC™ Filter Insert BLAT 27/27 that utilizes strong attractive forces (adsorption) to remove oil degradation products as well as particle contamination.

THE TEST

Oil samples were taken prior to the installation and after commissioning at regular intervals to monitor the results. The oil samples were sent to independent laboratories for testing; the results are compared and checked. Filtration of the oil sumps takes place on a 24/7 basis, with remote readings, fail-safe configurations and safety measurements according to the customer's stringent specifications.

THE RESULT

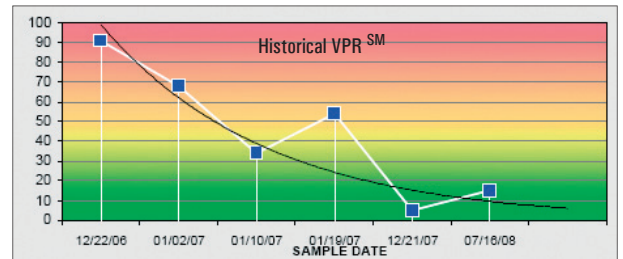
Continuous filtration with the CJC™ Filter Separator significantly lowered the level of particles, water and oil degradation products.

The following are the results regarding oil degradation products measured in VPR (Varnish Potential Rating): Turbine A started at 90 and decreased to below 20, Turbine B started at 50 and decreased to below 20 after 18 months of operation.

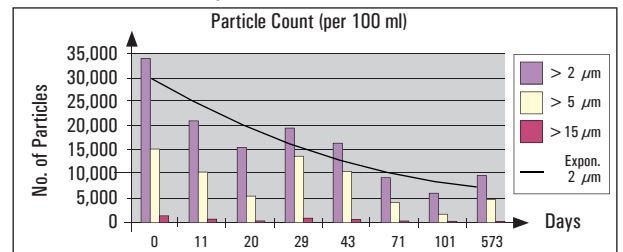


Essent Clauscentrale - Steam Turbines
Installation of one of the CJC™ Filter Separators PTU3 10x27/108 GP

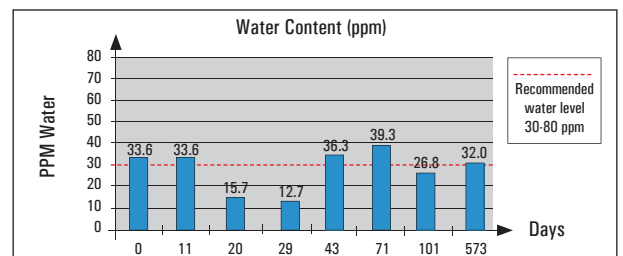
OIL DEGRADATION



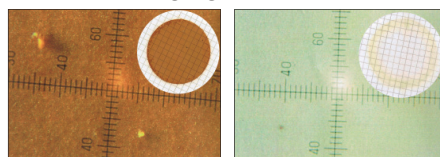
PARTICLE/CLEANLINESS DEVELOPMENT



WATER DEVELOPMENT



OIL SAMPLE



Oil Sample - BEFORE
CJC™ Filtration, at Start-up

Oil Sample - AFTER
18 months of CJC™ Filtration

THE RESULT

	22.12.06 - At Start-up	26.07.08 - After 18 Months
Particles > 2 µm	33349	8465
Particles > 5 µm	15392	4617
Particles > 15 µm	1774	372
ISO Code 4407	16/14/11	14/13/9