

Lube & Hydraulic Oil

Gas & Steam Turbine GE 109FA, Combined Cycle Single Shaft

CUSTOMER SAVINGS & BENEFITS

Installing the CJC® VRU Varnish Removal Unit, the following benefits were obtained:

- Varnish reduced - MPC from 44 to 8 in 6 months
- No costly oil change or turbine failure
- Prolonged lifetime of oil

CUSTOMER

Naturgy, CCC Aceca is a Spanish utility company operating power plants in Spain & Latin America.

SYSTEM

Combine Cycle Single Shaft Gas & Steam Turbine.

Type: GE 109FA

Oil type: Lube & Hydraulic Oil

Oil volume: 30,000 ltr

PROBLEMS

Dissolved oil degradation products - leading to varnish formation - were detected via Membrane Patch Colorimetry Analysis (MPC). Varnish can potentially damage the system and cause turbine malfunction. An existing conventional centrifuge was not able to remove the dissolved oil degradation products, to control the varnish potential and maintain the MPC value below 15.

SOLUTIONS

The customer decided to implement a corrective and preventive solution and opted for the installation and permanent operation of the **CJC® Varnish Removal Unit VRU** with **CJC® Varnish Removal inserts VRi**.

RESULTS

The MPC decreased from 44 to 8 in 6 months. The CJC® VRU cleaned the turbine oil circuit after removing the varnish from the oil and kept the MPC value constantly below 15 without altering the properties of the oil.

FINANCIAL BENEFITS

Thanks to the continuous operation of the CJC® VRU, the plant avoided the costly oil change and potentially great economic losses caused by turbine failures.

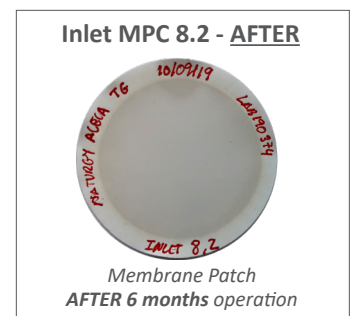
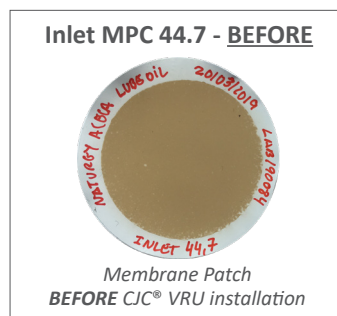
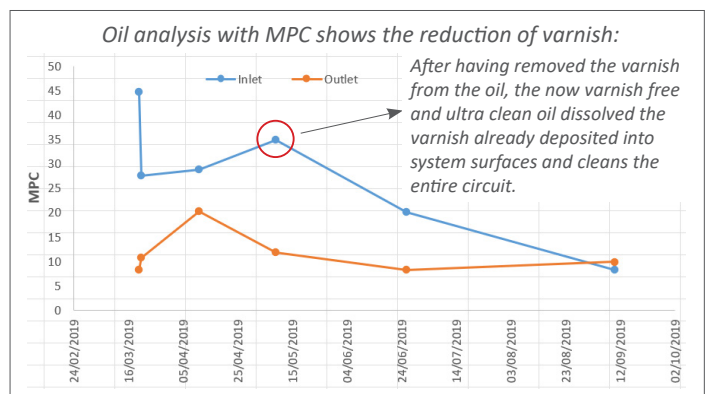
ENVIRONMENTAL BENEFITS

The CJC® VRU prevented premature oil change, prolonged the useful life of the oil, and thus avoided emissions of CO₂.



Naturgy, CCC Aceca, Spain with the CJC® VRU Varnish Removal Unit installed

RESULTS



Customer Statement:

Mr. Álvaro García García, Maintenance Manager:
"In addition to the good advice that we have always received, I positively value the effectiveness of the treatment in the short term (6 months), allowing us to prolong the lifetime of the oil, with the corresponding cost savings and reduction of the waste generated."





October 13, 2020

Roberto Garrido
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Dear Roberto:


We confirm that C.C. Jensen supplied a CJC[®] VRU – Varnish Removal Unit to our CCGT plant Aceca. The unit was installed on the 30.000 litres lube oil reservoir of our GE 9FA single shaft STAG configuration. Since its installation, the VRU runs flawless and has efficiently removed varnish and insoluble oil degradation products from the turbine oil and lowered the MPC value to safe levels below dE 10. Thanks to the VRU we could restore the oil and reduce the risk of varnish related turbine failures. The VRU also contributed to reduce maintenance work and obtain a great economic and environmental benefit by avoiding oil change.

We are fully satisfied with both performance and efficiency of the VRU and also the excellent service provided at any time for which we would like to thank C. C. Jensen.

I highly recommend C. C. Jensen's VRU for use in turbine oils and encourage turbine operators to use C. C. Jensen's VRU technology.

Your sincerely



 NATURGY GENERACIÓN, S.L.U.
C.C.C. ACECA

Álvaro García García

Maintenance manager – Naturgy Aceca