Customer Case

Lube & Control Oil

Combined Cycle, Natural Gas Turbine, GE7FA, Power Plant

CUSTOMER SAVINGS & BENEFITS

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

- No more costly turbine trips
- Extended oil & component lifetime
- Reduced maintenance costs

CUSTOMER

Major Power Plant in South Carolina, USA.

SYSTEM

Combine Cycle Single Shaft Gas & Steam Turbine.

Type: GE 7FA
Oil type: MOBIL DTE 832
Oil volume: 6,000 US gallons (22,712 ltr)

PROBLEMS

Soft contaminants/varnish caused costly turbine trips even at moderate MPC (Membrane Patch Colorimetric), UC (Ultra Centrifuge) and ISO particle count levels.

SOLUTIONS

A **CJC® Varnish Removal Unit VRU 27/108** with **CJC® Varnish Removal inserts VRi** was installed.

TESTS

The customer installed two different filter systems for a side-by-side test:

A chemical bead filter on turbine CT1 and a CJC® Varnish Removal Unit, VRU 27/108 on turbine CT2.
The customer would purchase two solutions of the filter system that performed the best.

RESULTS

The CJC® VRU outperformed the competition in both oil cleanliness and operational costs/ease of operation since only the CJC® VRU would effectively signal a saturated filter. The customer purchased two CJC® VRUs for both gas turbines CT1 & CT2 and is very satisfied since they have experienced **no more turbine trips!**

BENEFITS

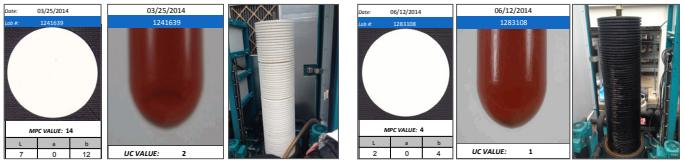
Installation of the CJC® VRU resulted in no more costly turbine trips. Furthermore, the customer will experience extended lifetime of both oil and components and lower maintenance costs.

CJC® Varnish Removal Unit, VRU installed at a major power plant Combined Cycle-Natural Gas in South Carolina, USA

RESULT

***BEFORE** installation of CJC® VRU on turbine CT2*
MPC value: *14* *- UC Value: 2*

***AFTER** installation of CJC® VRU, on turbine CT2*
MPC value: *4* *- UC Value: 1*



Oil sampling tests, by TestOil Varnish Analysis, USA

Particles (optical)	BEFORE CJC® Filtration	AFTER 3 days	AFTER 17 days	AFTER 11 weeks
Particles	18/16/12	19/16/13	15/13/10	15/14/11
MPC value	14	14	4	4
UC value	2	2	1	1

Customer Statement:

Manager of Operations & Maintenance:

*"**Before** installation of the CJC® VRU, we were experiencing failed gas valve servo(s) just about every start. We tried other varnish removal units, but we were not getting the results we wanted. **After** we installed the CJC® VRU, within a short time, the varnish problems we were experiencing, diminished. Our varnish levels dropped to very low levels and we have not experienced servo problems since. We are very satisfied with the results and now have again the confidence of a complete start once the start button is pushed."*

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Gas Turbines, Combined
Lube & Control
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