

## CASE STUDY

# ESP + BOOST VR: VARNISH IN TURBINE

## THE PROBLEM

An Australian offshore platform's 1MW gas turbine ran for two years with a normal journal bearing differential temperature of 5° C (41° F). After eight more months, the differential temperature in the journal bearings rose to 29° C (84° F). The manufacturer recommended a shutdown and overhaul.

Oxidation had attacked the base oil, antioxidants, and antiwear additives. Acidic by-products created varnish. The varnish resulted in the journal bearings' elevated differential temperature.

## THE SOLUTION

The customer installed Fluitec's ESP (Electrophysical Separation Process™) varnish mitigation system with Boost VR solubility enhancer to dissolve varnish.

ESP with Boost VR worked on the oil for three weeks during the turbine's cleaning process.

Boost VR dissolved the lubrication system's varnish while ESP removed the dissolved contaminants from the oil.

Back online, the thrust and journal bearing differential temperatures dropped 52 % to 14° C (57° F).



## Summary

ESP and Boost VR limited the turbine's offline time to three weeks. MPC (Membrane Patch Colorimeter) varnish potential levels remained at low levels throughout the process. The turbine did not need to be overhauled.

## COST SAVINGS

By limiting the turbines offline time to three weeks and eliminating any need for overhaul, the plant estimates a savings of over \$1.2M since the installation of ESP with Boost VR.



For assets that are experiencing varnish formation, contact us to discuss our ESP and Boost VR varnish mitigation technologies.