

COMBINED CYCLE POWER PLANT COOLING TOWER GEAR BOX OIL FILTRATION SUCCESS

A local combined cycle power plant was having difficulties maintaining cleanliness counts in the gear box oil of its cooling tower gear boxes. These individual gear boxes located on the roof of the cooling tower are used to drive the 12 fans which are in turn used to cool the condensate coming off of the Powerplants Heat Recovery Steam Turbine. These gearboxes were suffering from both over temperature of their oil systems during hot days along with high particulate contamination of the gear box 220 weight synthetic gear oil. Over temperature was causing coking of the oil and heavy particulate build up in it.

A FilClean™ SHD filter skid was installed to continuously kidney loop the oil from the gear box so to add both a level of cooling by recirculation along with particulate filtration of the oil.

After 1 hr. of running the temperature of the gear box oil dropped from 230F down to less than 190F and after 24 hrs. of running particulate contamination in the oil dropped from a high of iso code 22/20/19 down to 19/17/14. After 1 month of running particulate contamination had dropped below 17/15/13.

The Powerplant has purchased 3 other FilClean™ skids to install on other troublesome gear boxes and eventually plans to upgrade all 12 fans with their own FilClean™ skids as capital moneys become available.

The filter patches in figure 2 are direct results of the FilClean™ application. The patches are 25 ml of gear oil diluted with clean solvent and then drawn down through a 1.2-micron filter patch. The photos of the patches on the far right are magnified 100X under a photomicrograph.

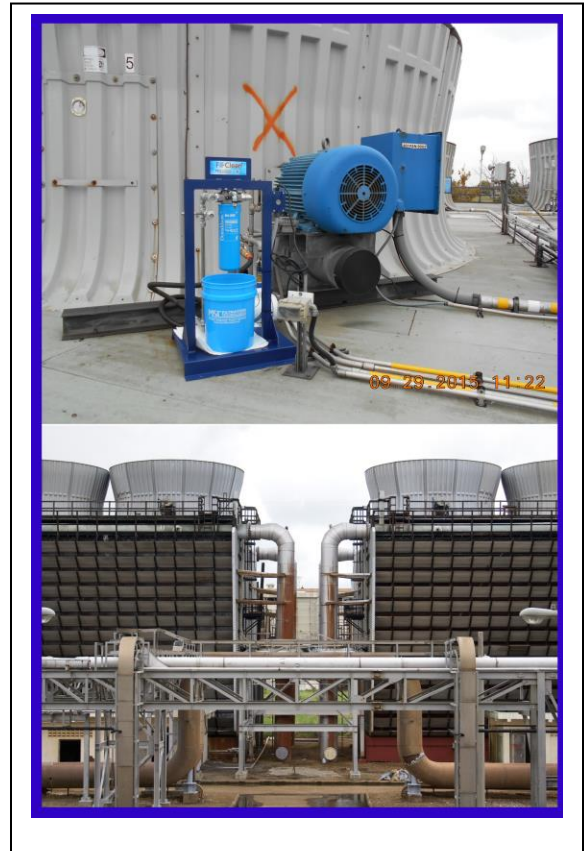


Figure 1: FilClean™ On Fan Gear Box

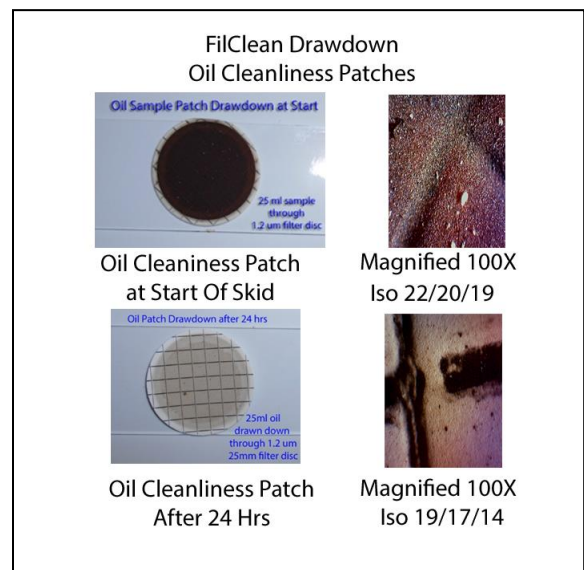


Figure 2: Filter Patch Results