

CASE STUDY

# Nuclear Power Plant Saves Millions and Helps Environment, Preventing Massive Waste Oil Disposal

Fluitemc's Boost AO Fluid Enhancement Solution in conjunction with its ESP varnish removal and mitigation technology extends life of turbine waste oil.

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**TOTAL  
SAVINGS**

**\$2.3M**

**OIL  
SAVED**

**> 12K GAL / 45K L**

**CLIENT:** Nuclear Power Plant

**COUNTRY:** USA

**APPLICATION:** Steam Turbines

**SAVINGS:** \$2.3M

**OIL SAVED:** > 12K gal (>45K L)

**SOLUTION:** Fluitec Boost AO + ESP

## PROBLEM

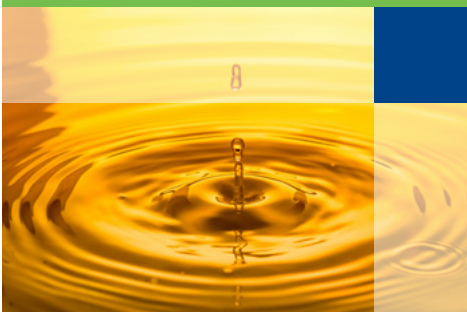
A Nuclear Power Plant's single reactor that produces 576 megawatts of zero-emissions energy (enough carbon-free electricity to power about 500,000 homes) was having severe aging issues with their turbine lubrication oil. Its antioxidant package had been thoroughly depleted to the point of requiring replacement oil.

## SOLUTION

Fluitec's **Boost AO™** Fluid Enhancement Solution in conjunction with its **ESP™** varnish removal and mitigation technology.

## RESULTS

- Drastic reduction in Membrane Patch Colorimetry
- Saved \$2.3M in oil replacement costs
- Enabled the protection of over 12,000 gallons (45,000L) of turbine waste oil
- Extended the life oil





## DEEPER DIVE

A Nuclear Power Plant had aging issues with their turbine lube oil. The oil had been replaced in 2006 and by 2017 the oil's antioxidant package had depleted to the point where they were going to have to replace the lube oil. Replacement was going to be expensive and time consuming due to the fact that the oil would need special handling and disposal from the nuclear plant. The oil had high MPC (Membrane Patch Colorimetry) varnish potential and low antioxidants in their turbine oil.

Fluitec evaluated our fluid and determined that it would be possible to reduce varnish and add the antioxidants back into the oil. The power plant used Fluitec's ESP to reduce the MPC. As the antioxidants further depleted and following qualification testing, the power plant added Boost AO to re-balance their otherwise healthy base oil with fresh antioxidants.

With ESP the MPC went from high 30's to 3 within weeks. Fluitec added the antioxidants back into the oil using Boost AO at a fraction of the cost of replacement oil. It was a win for the station because we saved our oil for a fraction of the cost of new oil. It was a win for the environment because the plant did not dispose of over 12,000 gallons (45,000 L) of turbine waste oil. Years later the oil sample results determine the oil is still in excellent condition with high antioxidant levels.