

Turbine Gland Steam Seals are perhaps the single largest contributor for water leakage into a turbine lube oil reservoir. Depending on leak severity, steam seal leaks can dump hundreds of gallons of water per month into the turbine lube oil reservoir.

Mechanical emulsions of oil and water created by the lube oil system's oil pumps agitate the problem, and can inhibit the turbine oil's water shedding abilities. Often turbine oil reservoirs do not allow enough retention time for the oil to separate the water from its mechanically emulsified state.

Additionally, the steam seal leak can be severe enough that it exceeds water removal capabilities of other technologies, such as centrifuges, vacuum dehydrators, air strippers, and mass transfer systems.

A power generation company in Oklahoma recently contacted us with a request for an oil purification unit that would address water in turbine oil, which was resulting from a Gland Steam Seal Leak.

The application data was:

- Equipment: Steam Turbine
- Turbine Oil reservoir = Approx. 3,600 gallons
- Turbine Oil = ISO 32
- Remove water from turbine oil resulting from gland Steam Seal leak
- Filtration system must eliminate water and particulate
- Meet ISO 17/16/13 Cleanliness Code
- Meet 100 ppm or less total water content

Although repairing the steam seal leak was an option, it could not be repaired until a major turbine overhaul was scheduled. The existing filtration equipment for the plant was outdated and did not possess the water removal capabilities necessary to handle the water ingress rate.

To solve the problem, a TURBO-TOC™ KL30 was purchased and put into service in March 2006. Oil analysis reports have revealed the KL30 is exceeding the performance criteria specified by the customer. Over a 3-month period, the KL30 has removed 1,076 gallons of water from the turbine oil.



FEATURES AND BENEFITS

Longer Turbine Life

Using TURBO-TOC™ will keep the oil system flushed and harmful contaminants removed. Oil reliability is increased.

Reduced Bearing Failure

When both water and particulate are brought down to acceptable levels, bearing failures will decrease or be eliminated.

Fewer Forced Outages

A continuous flow filtration system can quickly remove the contamination, thus preventing a forced outage.

Less-Costly Turbine Rebuilds

Clean turbine oil increases turbine dependability and helps in the reduction of repair costs that are directly associated with the contaminated oil.

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