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Subject: Lube-Oil-Maintenance Hints

Many plant operators don't think too much about their lube oil unless or until they have a major problem and it becomes an expensive one. Here are some thoughts about lube-oil maintenance that can help to put you thinking in the right frame of reference about the "life blood" of your gas turbine.

Why should I employ proper maintenance practices?

- ◆ Ensure a trouble-free lube-oil system which protects bearings, journals, gears, starting means, and supplies hydraulic system.
- ◆ Maintaining proper lube-oil chemistry will minimize clogging the main filter cartridges and servo valve filters
 - This ensures good starting reliability which is critical in today's competitive power market

What are the key indicators of lube-oil condition?

- ◆ Viscosity
- ◆ Total Acid Number (TAN)
- ◆ Water content

What is important about viscosity and how does it affect the lube oil?

- Use limit =maximum 53.9 cSt @ 37.80C
minimum 25.1 cSt @ 37.80C
- High viscosity is associated with oil oxidation.
- Low viscosity is associated with contamination by water or fuel.
- Out of specification viscosity can cause operational problems.

What is important about Total Acid Number (TAN) and how does it affect the oil?

- Use limit = 0.4 mg KOH/gm (maximum)
- Total Acid Number is an indication of Lubricant condition.
- Oxidation of oil increases the TAN
 - Products of oxidation will precipitate out and can cause clogging of servo valve filters



Moog Servovalve Filter

- Can also indicate breakdown of additive package

What is important about water content and how does it affect the lube oil?

- The presence of water in the lube oil is not, in itself, indicative of decomposition
- Water can, however, promote decomposition of lube oil by reacting with the additives in the oil.
 - This reaction may cause servo valve filter plugging
 - Indicates problem with other turbine systems. Source of water should be identified and corrected.
- Water will cause rusting of critical turbine and auxiliary components

How clean is clean oil?

- ◆ Typical ISO cleanliness standard based upon analysis of a one milliliter sample
 - ISO 16 / 14 / 11
 - 320-640 2 micron particles and larger
 - 80-160 5 micron particles and larger
 - 10-20 15 micron particles and larger
- ◆ Carefully check cleanliness of recharge fluid
 - Just because the oil comes from a vendor's truck or a barrel does not ensure that it is at the proper level of cleanliness

Pond And Lucier, LLC can help you with all of your maintenance needs including proper treatment and handling of your turbine's "life's blood".