

***Limits, Targets & Managing Your Data******LubeDoc 21***

In the past, the users of oil analysis have had to rely on the commercial laboratory or an oil supplier to identify when a piece of equipment is near an alarm or near equipment break down. Understanding the limitation of this problem, larger companies are taking charge of their own alarms and limit settings.

The primary purpose of alarms is to enter data so that the "Technologist" can spend their time managing and correcting situations instead of pursuing the data to find the exceptions. The alarm serves as a sign to tell the analyst that a limit has been passed and that action is soon required. Some labs set just upper limits such as particle counts and wear debris. All issues are of the same importance. Additive elements, TBN, TAN, Flash Point, Viscosity, Lubrication properties and wear debris equate to a usable oil analysis report.

There are a couple of different styles of alarms that need to be talked about to let everyone understand what might work best for their application:

**PROACTIVE ALARMS:** Noria states it best when it comes to the word Proactive. Proactive alarms alert the user of abnormal conditions associated with controlling the root cause of machine and lubrication depletion. They are keyed to a proactive maintenance philosophy of setting targets and managing the lubrication conditions within those targets.

A strategic premise of proactive alarms is... they should be set to levels that will generate improvement over the past performance maintenance levels. When using this method, it is proven that machine and equipment life can be extended 5 fold and less time is spent changing oil and filters.

When using proactive alarms we try to control parameters like contamination to achieve machine life extension. For example a hydraulic machine running at ISO 18/15, cleanliness will experience a threetime life extension if the fluid is cleaned to an ISO 15/12. Setting the limit to an ISO 15/12 is a goalbased limit. Now, if the same machine is running at an ISO 15/12 and control is lost allowing the contamination level to reach 18/15, we can expect a three-time increase in wear during that period.

**PREDICTIVE ALARMS:** Predictive alarms signal the presence of abnormal machine conditions or the onset of wear and failure. They are aligned with the goals of predictive maintenance, the early detection of machine failure. In oil analysis, properly set predictive alarms have many advantages over other predictive maintenance methods, and as such, represent an excellent compliment to vibration analysis. Most upcoming companies small and large are changing their methods to the Proactive methods to determine root cause before a problem can give you downtime.

A rate of change alarm is used when going to a predictive method. Wear debris is a great test that needs to be performed for this method. For example, a 100-PPM increase in iron over 100 hours of operation could be stated as one PPM per hour of operation. Rate of change can also be used to effectively monitor degradation of additives with "Elemental and FTIR" spectroscopy. Please choose your testing effectively.