RELIMANS
Reliability & Maintenance Specialists

DIFFERENT APPROACHES TO LUBRICATION

Lubrication is part of the mechanical maintenance of a plant. That is why lubrication activities and philosophy would fit under four options with respect to how it performs the lubrication, which would be, as well as on the maintenance approach: Preventive systems, predictive, proactive and profit driven.

A) Preventive Lubrication Program:

Preventive Program of Lubrication must be done in the first place, planning the critical aspects of lubrication engineering for each line or equipment of the plant, taking into account all Actors (Cost Accounting, Quality System, Health-Environment-Safety, Purchasing, warehouse, Maintenance and Production) that interact with the Asset.

- Selection of Lubricant(s) for the Asset
- Right Lubricant Storage
- Contamination Control of Lubricant(s)
- Strategic Oil Analysis Program
- Safe Discard of Used Lubricating Oils and Greases
- Training of Personnel who interact with the Asset
- Written Procedures for the above operations

This overall program by asset, lubricant and lubrication point, must also lead to a lubrication engineering analysis, specifying the scheduled time for the lubrication, re-lubrication, as well as for all those equipments that use oil or grease as lubricants, study of their approximate life span, procedures that must be written for all lubrication aspects,

and the sampling that should be done at the frequencies that are included in this general timeline.

Finally, within this approach to this lubrication program, must be planned with the issuance of sectorized lubrication work orders for the specific individuals who are responsible for performing this task.

The program aimed at these persons should include the dates on which changes are made of oils, relubrication, change of grease (regrease) and oils, as well as general maintenance that will be included within this timeframe.

B) Predictive Lubrication Program:

The predictive lubrication program includes everything stated in written procedures, that should prescribe to carry out a scheduled program:

1. Registration of estimators. These estimators may be:
   a. Readings of amperages consumed,
   b. Cleanliness ISO 4406:99 codes
   c. Water Content in ppm
   d. Temperatures of engines, bearing housings and lubricating oil,
   e. Vibration Levels of the selected machines,
   f. Chemical analysis of lubricants,
   g. Infrared Analysis of the equipment,
   h. Alignment testing of engines and machines,
   i. Air borne ultrasound studies,
   j. And/Or any another estimator that is considered to be related to the efficiency/effectiveness of the lubricant.

2. Statistical analysis of the recorded parameters: This Statistical Analysis will allow us to determine if the lubricant or other type of condition that prevents the equipment to fulfilling its role and induce an unscheduled stop. Normally, for each point of inspection will remain an outline of minimum and maximum parameters of normal operation, alarms, and the respective procedure will indicate who will be responsible for every asset or system in the plant, and what to do when this alarm situation shows up.
3. Take Action. Once the Statistical Analysis is done, the respective procedure should determine if a lubrication point or all equipment shall be subjected to a revision/stop with the purpose to avoid greater damage.

C) Proactive Lubrication Program:

In the proactive approach, in addition to predictive, we try to determine what are the origins of the problems that are presented. Tracking ferrographies will allow us to find out what types of damage are presenting gear teeth, or if it is problem of a non-friction bearing or a journal bearing, among others. Using ultrasound technology you can locate the points where the lubrication is insufficient. Through surveys we can point to the hottest spots of a machine and interpret possible failures of lubrication from other sources of heat emission.

When problems are evident and induce certain amount of loss (financial, production, clients loss, health-environment loss), a Root Cause Analysis steering team should come in to establish the way for not having a recurrence of same trouble.

D) Profit Lubrication Program:

This approach is gaining ground in present times due to the fierce competition among leaders of Fortune 500 companies. Every year more and more companies are embracing the philosophy of creating High Performance Teams that involve different Human Talent of Financial Departments, Healt-Environment-Safety, Quality System, Maintenance Departments, Warehouse, Acquisitions and Production Teams, to asses and make decision proposals to High Management regarding different operational aspects of their organizations, and Lubrication is one of the aspects that is benefiting from this renewed attention.

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