ONE EYE INDUSTRIES

The Leader in Industrial Magnetic Filtration

Case Study: CAT Dozer Final Drives
Oct 2009

BOWEN BASIN - AUSTRALIA OPEN CUT MINES

APPLICATION: CAT D10 & D11 FINAL DRIVES

PURPOSE: A leading coal producer in Australia's Bowen basin wanted to achieve an extension in service intervals of their dozer fleet from 250 hours to 330 hours without risking the availability of the fleet. If the service extension could be achieved the cost savings potential identified in terms of transport (float hire) costs and replacement hire fleet as well as reductions in maintenance costs would be significant.

PROBLEM: The service interval extension to 330 hrs for all the components was achieved except for the final drives. The fleet was still experiencing unscheduled failures due to ferrous metal generation from the gears causing premature wear to the duo cone seals and gear components.

SOLUTION: Replace the OEM magnetic filter plug rods with OEI rare earth magnetic filter plug rods on 4 final drives to evaluate their performance in removing ferrous metal and improving oil condition. The weekly plug rod inspections were carried out and used to record the findings on the OEI magnetic plug rods.

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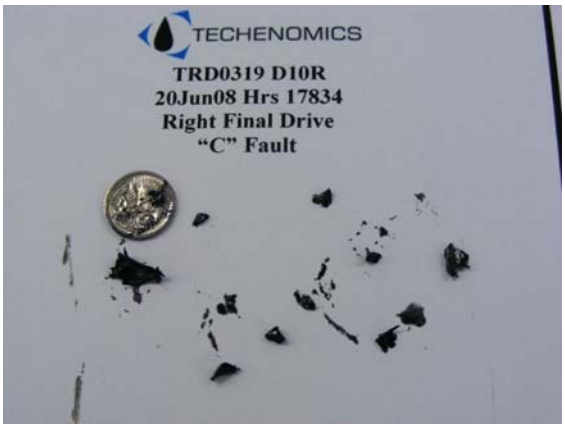

RESULTS: The OEI plug rods collected substantial more ferrous debris than the OEM plug rods. The debris was analyzed and potential failure areas were identified. This could not be done with the existing plugs as they did not capture debris in the similar volumes or in first wear condition.

Oil condition was improved and in all cases was maintained at an "A" level. The performance of the plugs allowed the service interval to be extended to the target 330 hours.

RECOMMENDATION / FURTHER ACTION:
Based on the results from the trials, the entire fleet was fitted with the OEI magnetic filter plug rods.

RESULTS – CURRENT: It has now been 18 months since the entire fleet was fitted with the OEI magnetic plugs. To date there has been no unscheduled failures of final drives resulting in increased dozer availability. The weekly plug inspection allows a proactive maintenance program by analyzing the trapped contamination and repairing the problem before it causes a serious failure and unscheduled downtime.

The ferrous contamination levels in the oil has reduced since the implementation and maintained at this level and the life of the oil, Duo-Cone seals and gear drive components has been extended.

SUMMARY: The 330 hour service interval has been achieved. The major benefits are increased production and equipment uptime, extended component life and reduced maintenance costs by the reduction in service intervals (200+ less float movements). The implementation of the OEI magnetic filter technology has resulted in saving the mine a significant sum of money in excess of 7 figures.

The OEI magnetic filter is easily cleaned and the trapped contamination analyzed for component wear identification allowing predictive maintenance planning. For further information contact our office or visit our website www.OneEyeIndustries.com.

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