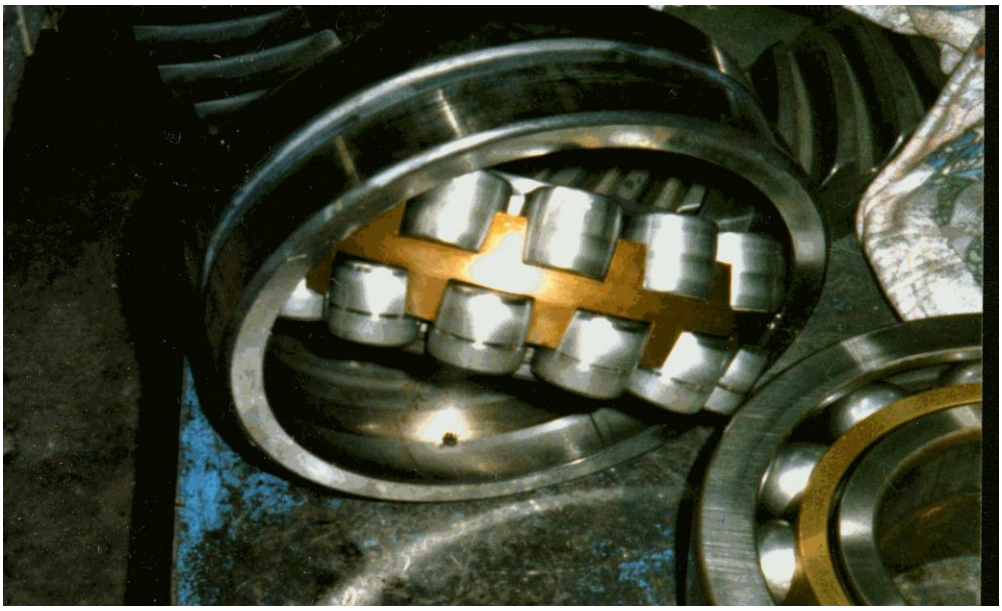
HFD Detection

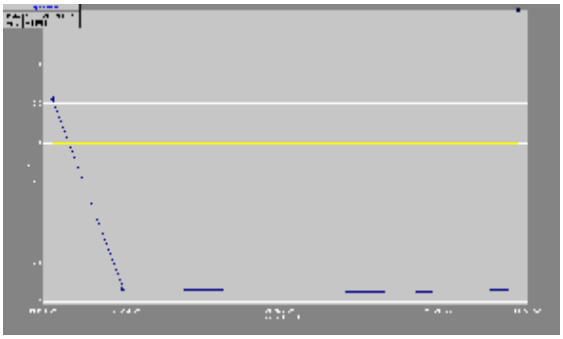


- *Early warning signs of bearing failure are subtle but can be found with the right tools.*
- *Replacing parts that are about to fail saves everyone from unnecessary headaches.*

Case History "KPL Bearing"

During March of 1999, while performing a periodic inspection of a Longwall tail drive, we were informed that the gear case oil analysis had increased wear particles and dirt. This was an indication of a special case. I have expressed in many case studies my enthusiasm for enveloped Gs filtered readings, for early detection of bearing problems. In this situation I used HFD readings (5K to 60K Hz overall reading) to recommend action. I could not find a major problem with Velocity, Acceleration, or Enveloped Gs spectrums.

The biggest clue to this problem was the use of the HFD reading. HFD readings are excellent for finding metal to metal contact and lack of lubrication. The spectrum to the right also shows the readings after the new reducer was installed.



With high wear metals and dirt present in the oil analysis we recommended that they should replace the reducer. Mine management was able to schedule the replacement of the unit during the weekend. When the unit was disassembled it was found that the cat seal on the output was worn causing dirt and water to inter the unit. The intermediate shaft bearing as shown below had one complete set of rollers on one side of the bearing with a groove cut in each roller. This is an important illustration that proves the need for all present tools (Velocity, Acceleration, Enveloped Gs and HFD readings) for an accurate recommendation to our customers.

Spend a little money now to save big money later.

Any questions feel free to contact Larry Massey
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