Sasol Mining in South Africa is a division of Sasol Limited, a petro-chemical business competing in the commodity markets. Sasol Mining consists of five underground mines, a coal handling facility and a beneficiation plant situated in the Secunda area and one mine at Sasolburg. Together the Secunda operations produce and handle 42.25 million tons of coal annually as feedstock to Sasol Synfuels’ coal-to-liquids (CTL) plants, Sasol 2 and Sasol 3. The Sigma Mooikraal mining operation at Sasolburg produces 2 million tons of coal for use in the Sasol Chemical Industries plant, Sasol 1. In the CTL plants coal feedstock is converted into more than 200 different products such as; petrol, diesel, tar, solvents, oils, waxes, and many more.

Condition monitoring background

The Condition monitoring department forms an integral part of Sasol Mining's predictive and proactive maintenance strategy. Functioning on a unique but very effective competency based structure; the core condition monitoring techniques include vibration analysis, thermography, electrical circuit analysis, ultrasound, laser alignment, conveyor belt magnetic scans and video imaging. Lubrication engineering entails an on-site field oil lab and a comprehensive Total Fluid Management (TFM) program implemented all the mines and plants.

Pursuing world-class business and operating procedures

The integrated predictive maintenance strategy resulted in an increase in uptime, reduction in secondary damage to components, increased planned change-outs of equipment, and reduced repair cost. The strategy ensures a safer working environment and subsequent improved uptime of critical equipment.

Important contributing factors to the successful execution of the predictive maintenance program are:

• A passionate condition monitoring team,
• Buy-in from all stakeholders,
• Well structured predictive maintenance department,
• Competency based training enabling employee succession through a well-defined career ladder,
• Development of, and buy-in from original equipment manufacturers (OEMs),
• Investigate critical components to verify accuracy of analysis and implement corrective actions to prevent reoccurrences,
• A higher than 90% success rate to the program schedules and recommendations promotes confidence in the department and underlines the mutual trust which exists between service provider and client.

Safety

To be customer focussed and ensuring service excellence, demands sound governance, focus and a positive attitude towards working safely. Risk exposure to operators and specialists taking vibration readings, ultra-sound readings, thermographic scans and conveyor belt scans is mitigated by ensuring mining machinery and equipment are well guarded and/or fenced off when readings are taken. These tasks and activities are often performed in close proximity of rotating equipment in both underground and plant environments and is therefore an exceptional achievement that the condition monitoring department recorded zero accidents during the past seven years.

Software & Equipment

- AMS Suite: Machinery Health Manager (v 5.3) – Emerson Process Management software
- CSI Vibration Data Loggers (2120, 2130) – Emerson Process Management standard
- CSI Laser Alignment – Emerson Process Management hardware
- CSI Oil Analysis equipment (5100, 5200) – Emerson Process Management hardware
- Auto Analysis oil software – Wirsam Scientific
- Fluke Ti55 thermacam equipment & software – Microtech
- AVM UltraAnalysis (SDT 170, 270) – SDT
- R. All Test Pro 2000 - All Test Pro LCC (USA)
- BeltView – Westplex
- OneProd XPR300 MetraVib 01dB – Areva

Best Maintenance Reliability Programs

SASOL MINING