



CASE STUDY SAPPI SAICCOR

MODEL CUSTOMER

RIGHT FROM DAY ONE

Oil analysis has long been a powerful method of reducing maintenance costs, improving productivity and providing peace of mind. Enlightened maintenance managers are now realising that the benefits of oil analysis can be increased dramatically by the company's approach to the programme, from staff commitment and providing feedback, to making effective use of the full range of services provided by the oil analysis company.

A company which did it right from day one is Sappi Saiccor, the country's only producer of dissolving pulp for export. They decided to implement a centralised oil analysis programme at their KwaZulu-Natal South Coast plant in mid-1997.

'We had had a strong vibration analysis programme in place for several years,' explained Sid Thorne, who was Sappi Saiccor's maintenance support engineer at the time and is now head of the department. 'At the same time, the engineers in the various sections of the plant were doing ad hoc oil analysis when they felt the need, using a variety of service providers. The time had come to implement a standardised programme for the whole plant.'



Sappi Saiccor's condition monitoring team (from left) Earl Mace André, Ephraim Tekete, Jan Heymans, Sid Thorne and Evan Wright.

RESEARCH

COMPARATIVE STUDY

Step one was to decide if it would be best for Sappi Saiccor to develop its own on-site laboratory. After conducting a feasibility study it was decided that this was not a viable option.

'The two major factors were the costs involved and the fact that our database would have been too limited. With a specialist oil analysis company we knew we would have access to wear trends throughout southern Africa,' said Mr Thorne.

The next step was to select an oil analysis company. Again, this was done by the book, with Mr Thorne doing a comparative study of the three major service providers in the country.

'We looked at the analytical methodology of each company, the range of services provided, their customer base, location, the quality of technical training offered and cost. We all agreed that Wearcheck would suit our needs best, particularly because of their impressive laboratory and the comprehensive technical training they offered.'

IMPLEMENTATION

A TEAM EFFORT

Mr Thorne immediately put 45 employees nominated from the plant on Wearcheck's basic training course. He and one of his senior vibration analysts then completed the advanced course on the technical management of oil analysis. Further in-house training was also conducted.

He then asked key engineers throughout the plant to list 'critical' equipment (if it failed it would be critical to the plant) in their area of operation and supply information such as oil types and grades used, capacity, recommended resampling intervals and the unique functional location of each unit.

'Each section had input and this was important because it was one of the activities which helped them to buy into the programme,' Mr Thorne said.

About 180 components were put on the Wearcheck programme from

a variety of equipment including log loaders, turbines, bulldozers, conveyors, blowers, pumps, chipper drives, roll drives, presses and refrigeration units. This amounted to about 50 samples per month.

The whole operation, from the time the decision was taken to centralise the oil analysis programme until the system was up and running, took less than four months.

Sappi Saiccor made use of all Wearcheck's services from the start – Infocheck (now NetCheck), RPD ferrograms and even filter analysis when necessary.

'Our maintenance staff soon came to realise that oil analysis complemented vibration analysis perfectly, giving them a fuller picture of the condition of our machines. They appreciated that this helped them to offer a better service to the mill,' Mr Thorne said.



MAJOR SAVE WITHIN MONTHS

DOWNTIME AVOIDED

Within months of adopting the Wearcheck programme, Sappi Saiccor experienced a major save. A log conveyor, one of three operating in the wood yard, showed 64% water. An immediate inspection revealed that the oil dip stick had been dislodged and was hanging onto the side of the gearbox where it was being sprayed with water.

The component was drained, flushed and refilled with new oil, and the dipstick was repaired. Resampling showed no further problems. Had the component failed and been out of action for any length of time this would have meant a costly loss of production.



EIGHT YEARS LATER

EQUIPMENT AVAILABILITY SOARS

Eight years down the line, with more than 320 components on the Wearcheck programme, equipment availability for production had increased astronomically.

'In one year alone, Wearcheck picked up 33 critical problems, 51 urgent cases and 187 borderline samples – all of which could have resulted in failures,' said Ephraim Tekete, assistant divisional engineer for Sappi Saiccor's condition monitoring department.

intake pumps, Sappi Saiccor's condition monitoring team was alerted to the problem.

The company's two-weekly in-house vibration monitoring diagnosis confirmed there was a problem, and the motor was sent for an overhaul.

When the motor was opened, the NDE bearing showed evidence of bearing creep or turning in the housing. They also found heavy wear metal sediment on the bottom of the bearing housing (see photograph below), the cage was broken and there was excessive wear on the rolling element and raceways.



'Oil analysis has proved to be one of the best predictive technological tools available for both fast and slow turning oil lubricated machinery.'

Mr Tekete cited a recent example in which oil analysis saved the company a substantial amount of money. When Wearcheck detected increasing wear on the non-drive end (NDE) bearing of a vertically mounted 645 kW motor operating one of the company's water



The damaged NDE bearing which was replaced before the motor failed.

Early detection by Wearcheck of a bearing problem in the motor of this water intake plant at Sappi Saiccor, saved the company hundreds of thousands of rand.

'If the bearing problem had not been detected early, the machine could have failed catastrophically, resulting in great financial losses,' said Mr Tekete. 'The replacement value of the motor alone is in excess of R500 000, without taking into account the cost of downtime and loss of production.'

THE LEADING OIL ANALYSIS COMPANY IN AFRICA

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