

Advanced new instruments boost Wearcheck's Pinetown lab

Laboratory manager Neil Robinson tries out the sophisticated new gas chromatograph.

The purchase of three advanced new instruments is set to boost the capacity and performance of Wearcheck's Pinetown laboratory.

A gas chromatograph and an infrared spectrometer, both featuring the latest technology, arrived from Perkin Elmer in the United Kingdom during February, and a state-of-the-art Lasernet Fines particle quantifier was delivered from Spectro International in the United States during March.

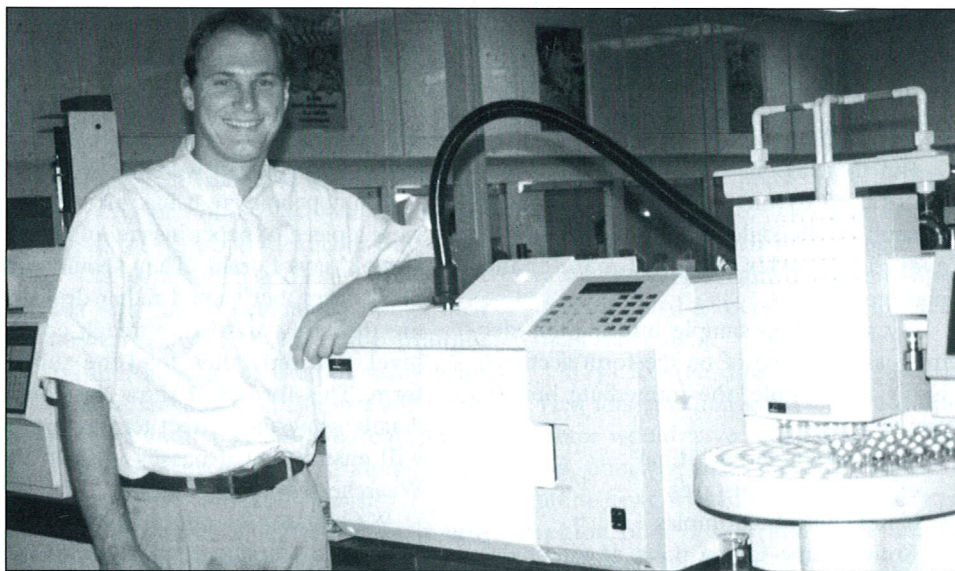
The new Perkin Elmer gas chromatograph (GC) for measuring the amount of fuel in oil will replace Wearcheck's existing GC which will be kept as a backup instrument.

Says laboratory manager, Neil Robinson, 'The new GC employs different methodology - it effectively measures the gas above the sample - so it has the potential to be quicker and more accurate, giving us greater confidence in our results.'

The new Perkin Elmer infrared spectrometer (FTIR) will back up Wearcheck's Biorad spectrometer, and will also be used for research and development (see photograph overleaf).

Says Neil, 'The FTIR is a vital instrument in the lab and we cannot afford to be without one should a breakdown occur. In the long term we will also use it to investigate extending infrared analysis to non-engine samples, such as those from hydraulics and gears.'

The new FTIR has an efficient autosampling technique which uses a pair of syringe pumps instead of a peristaltic pump, ensuring a smooth operation and enabling the instrument to handle high and low viscosity oils in the same time frame.



'As with all new instruments, it will take time for us to design application methods, write new software, and carry out modifications required to integrate the new equipment into our laboratory system,' says Neil. 'We then test it by running it concurrently with existing equipment for several months to ensure uniform results.'

State-of-the-art particle quantifier

The new LaserNet Fines particle quantifier was originally developed by Lockheed Martin in the USA in co-operation with their Naval Research Laboratory to meet the navy's requirements for an instrument with diagnostic capabilities that could be used on board ships.

Says technical manager, Alistair Geach, 'Wearcheck's interest in this instrument stems from its dual functionality as a particle counter and a particle quantifier. The new technology is very simple in concept and has great potential

for condition monitoring.'

An oil sample is 'photographed' repeatedly as it is pumped slowly through an optical cell with oil contamination being detected and analysed in the numerous 'snapshots' by sophisticated imaging software (see photograph on page 2).

'This new system should offer many advantages over optical particle counters currently in use,' says Alistair. 'Complicated calibrations are eliminated and the system is able to detect and identify contaminants such as free water and gas bubbles whose presence plays havoc with results from conventional optical particle counters.'

'The accompanying particle shape classification and quantification is an added bonus with this type of information normally only being generated by time-consuming processes. This data could prove invaluable in helping to make a fast decision whether in-depth ferrographic analysis is needed on an oil sample.'

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Maximising NetCheck

How to make better use of NetCheck

HUNDREDS of customers are reaping the benefits of Wearcheck's user-friendly NetCheck system. They are receiving their sample results by e-mail, printing their own reports and making full use of the wide variety of graphs on offer.

But there is one NetCheck feature (currently used by only 4% of NetCheck customers) which could dramatically reduce the everyday hassles faced by maintenance managers.

By submitting sample information electronically, instead of on the form accompanying the sample, the immediate benefits are:

- ◆ improved turnaround time
- ◆ elimination of mistakes
- ◆ better control of samples

From a time-saving point of view, electronic submissions completely skip the data capture step. The sample information passes straight through Wearcheck's vetting system and awaits the sample bottle.

'When sample details are submitted manually, the scope for human error increases dramatically,' says senior systems administrator Lorain de Bruin. 'For example, a site could be referred to as 'Stanger' on one occasion and as 'Stanger North' another time, which means the site will be duplicated and the unit will show a split history on the data base. This takes time to resolve, causing costly delays. If the information had been submitted electronically using the NetCheck system correctly, only one option would be available for this site.'

Correct use is vital

Lorain cautioned that, to gain full benefit from the electronic submission option, it was important to use it correctly. Almost half of current users were not doing so.

'Many people are using this option as if it were a piece of paper instead of an electronic tool,' says Lorain. 'They should not use a blank form, but should rather drill down in the tree view until they reach component level, and only then load the submission form. This form will show the component details using the correct terminology which will ensure that it passes straight through Wearcheck's vetting system.'

Wearcheck is currently beta testing **NetCheck Version 5** which will offer customers several new advanced features when it goes live later this year, including a number of new graphs which have been requested by customers. ✓

New colour e-mail reports for non-NetCheck users available soon

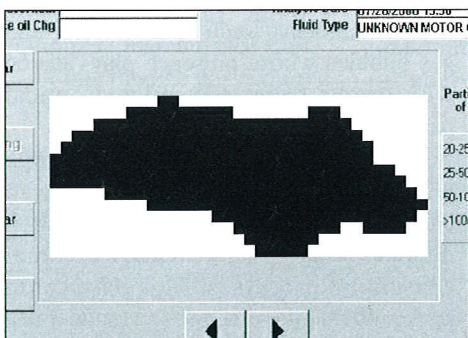
NetCheck has proved to be an invaluable tool for customers who submit more than 20 samples per month. Now customers who submit fewer samples or do not sample frequently (particularly industrial and marine operations) will soon have the option of receiving reports via e-mail which can be printed out in full colour.

'Previously, our e-mailed reports for non-NetCheck users were plain text,' says Lorain. 'We have now developed new reports in pdf format which look almost the same as our printed reports with colours and graphs.'

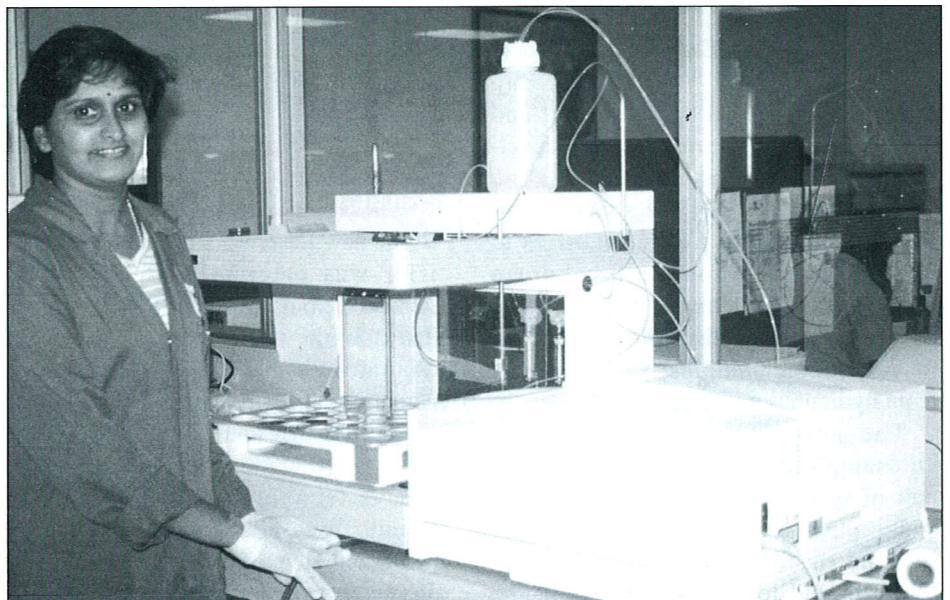
All that is needed is Adobe Acrobat software which can be downloaded free off the Internet or from Wearcheck's web site. To take advantage of this convenient new service, phone Brigette Nel on (031) 700-5460. ✓

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Wearcheck technical staff are excited about evaluating and employing the new technology provided by the three new instruments in the lab in the coming months. ✓



An example of a sliding wear particle as it would appear in a digital photograph produced by Wearcheck's new state-of-the-art Lasernet Fines particle quantifier.



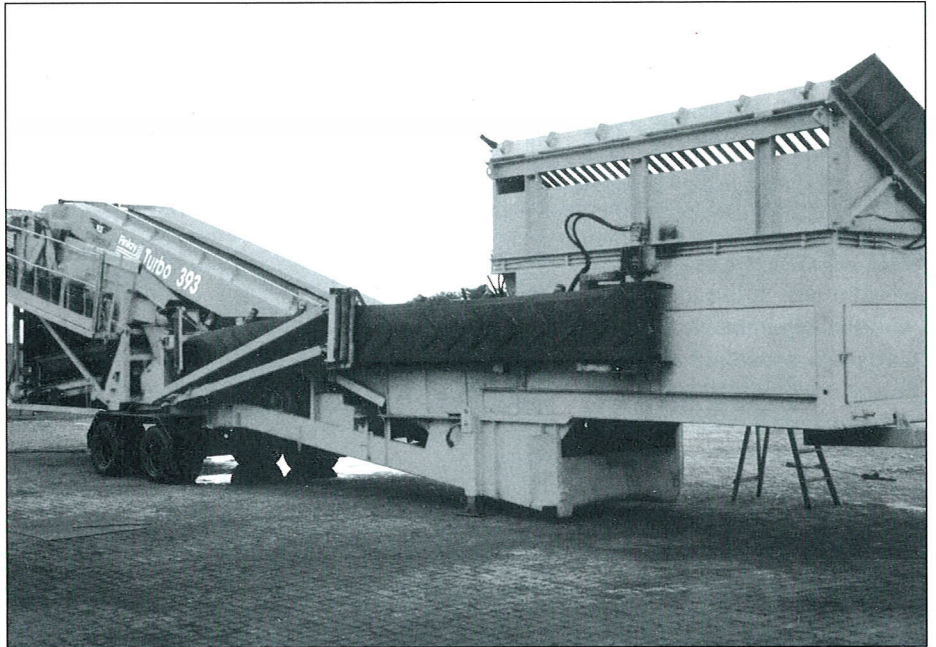
Getting to grips with the advanced new infrared spectrometer is senior lab assistant Sheila Naidoo.

Oil analysis saves costs at Ruslyn Mining and Plant Hire

SINCE Ruslyn Mining and Plant Hire in Vanderbijlpark began using Wearcheck's oil analysis programme eight months ago, the company has saved hundreds of thousands of rand in maintenance costs and is set to extend the life of most units of equipment by up to 40%.

All of Ruslyn's 35 earthmoving machines (including Daewoo mega loaders, Finlay mobile screening plants and Daewoo giant excavators with load capabilities of up to 48 tons) are on the Wearcheck programme and are sampled at the manufacturer's specification.

With a staff complement of 94, Ruslyn's current contracts include coal handling at Sigma and Delmas Colliery, ash handling and site rehabilitation at Polifin, coke



This Finlay mobile screening plant is one of 35 units of earthmoving equipment which Ruslyn Mining and Plant Hire has on Wearcheck's oil analysis programme.

screening at Iscor and Suprachim, and the screening of old diamond dump sites at Alexcor close to Alexander Bay.

The company began using Wearcheck last year on the recommendation of their newly appointed workshop planner Willie Jonker who, after his many years of experience in the plant hire and earthmoving industry, believes equipment cannot be effectively managed and maintained without oil analysis.

The benefits of the oil analysis programme came to the fore at the Alexander Bay site recently. A Finlay 693 screening plant with a Deutz motor

was identified with dust entry. Investigation led to the point of dust entry which resulted in the upgrading of the filtration system to a Donna-Spin unit and also a revised filter replacement schedule.

Says Ruslyn director Piet Meijer, 'Had this situation gone unnoticed, the motor would have failed due to ongoing, abrasive dust entry. The replacement cost would have been in the region of R95 000 and there would have been severe down-time implications as no substitute motor was available in South Africa at the time.'

Quality a high priority



Cathy Bolton (front) won first prize in the quality awareness quiz. With her are runners-up Leon Madurai, Daan Burger and Clive Govender.

- ◆ Wearcheck is well on its way to achieving ISO 9001:2000 quality registration. Quality administrator, Melanie Hynd is in the process of converting all documentation to a process based system.
- ◆ Winners of the internal quality awareness quiz are pictured above, with Cathy Bolton of the Johannesburg

office taking the honours.

- ◆ Wearcheck successfully passed two audits recently. They were conducted by Bureau Veritas (accreditation for oil analysis on ships) and the Civil Aviation Authority (analysis of oil samples and filters for aircraft). ✓

Extending the life of machines

As a direct result of the oil analysis programme, Ruslyn is also extending the life of machines.

'Units which historically were being replaced after 7 000 working hours, will now only be replaced after 10 000 hours,' says Mr Meijer. 'This equates to vast savings when you consider the high capital cost of buying new plant.'

Ruslyn now has a substantial database for all equipment. They are about to start using Wearcheck's NetCheck system which will enable them to manage their oil analysis programme from their own computers using e-mail, streamlining the flow of data.

'We expect this to enhance the already extremely good communication, service levels and sample turnaround time we already experience from Wearcheck,' Mr Meijer said. ✓

Hands-on role for new field services diagnostician

THE Pinetown office has added a new string to its bow with the appointment of Peter Carty - a seasoned maintenance specialist with 30 years' experience in the earth-moving industry in South Africa and the United Kingdom - in the new position of field services diagnostician.

An asset to the technical team, Peter will divide his time between seeing customers in KwaZulu-Natal and the Eastern Cape and working in the Pinetown diagnostics office.

Peter qualified as a contractor's plant maintenance mechanic through City and Guilds of London, and served his apprenticeship with a Caterpillar dealer, doing fault-finding and repair work on earthmoving equipment on sites throughout the United Kingdom. He emigrated to South Africa in 1981, working as a workshop and diesel mechanic for several engineering and construction companies in Zululand before joining Richards Bay Minerals' mobile equipment workshop. Here he progressed from maintenance mechanic to senior workshop and field supervisor and, later, department trainer responsible for the development and competence levels of all mobile equipment maintenance staff.

In this time he has acquired extensive experience in the



Peter Carty

maintenance and rebuilding of earthmoving equipment and has honed his diagnostic skills relating to hydraulics, transmissions, pneumatics and engines. He is also qualified to operate several different units of earthmoving equipment and has completed numerous courses related to his field of work on subjects ranging from safety, specific Caterpillar equipment and cranes to the training of trainers.

Peter is looking forward to applying his extensive knowledge and experience to the field of oil analysis and to meeting Wearcheck's customers.

'I hope to play a hands-on role in helping customers gain maximum benefit from their oil analysis programme,' he said. ✓

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Wearcheck Training Courses APRIL - MAY 2002

Date	Course	Venue
23 April	Course Two	Cape Town
24 April	NetCheck	Cape Town
20 May	Course Two	Pinetown
21 May	NetCheck	Pinetown

Technical Training Course Two The applications of oil analysis and an introduction to troubleshooting. 08h30-16h00. Cost: R650 + VAT.
This course covers the functions and classifications of lubricants, the value of oil analysis, sampling and reporting procedures, tests and their significance, troubleshooting methods and case studies.

NetCheck 08h30 - 16h00.
Cost: R 1 325 + VAT.

For bookings phone Cathy Bolton on (011) 392-6322

SNIPPETS

- ◆ Requests for Wearcheck Monitor and Technical Bulletin come from all over the world. Copies of both are regularly emailed to India, China, Argentina, Saudi Arabia, Canada, the USA, the United Kingdom as well as throughout Europe and southern Africa.
- ◆ Wearcheck's Technical Bulletins are often reproduced in publications locally and abroad such as Practising Oil Analysis and Mechanical Technology.
- ◆ Former Wearcheck Africa diagnostician, Nick Thomas, who joined the Wear Check division of Australian Laboratory Services in Brisbane, Australia in 1997 was recently promoted to regional manager of Wear Check Western Australia, based in Perth. Says Gary Brown, Set Point divisional director of Wearcheck Africa, 'The six years that Nick spent as a diagnostician at Wearcheck's Pinetown laboratory has obviously provided an excellent grounding for him in his new career and we wish him well at our WCI associate in Australia.' ✓

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