

BEST TECHNICAL PRESENTATION AWARD

WearCheck is extremely proud of Steven Lara-Lee Lumley (technical development) who was selected by the South African Institute of Tribology (SAIT) to be awarded the prize for Best Technical Presentation Award 2014 for her paper and presentation entitled "The Role of Oil Analysis in Wind Turbine Gearbox Reliability" given at their Oil Analysis seminar earlier this year.

Steven holds an N6 mechanical engineering diploma (HND N6). She joined WearCheck in 2008 as a diagnostician, and worked her way up to the position

of senior diagnostician. She recently diagnosed her millionth sample.

With WearCheck, Steven has run customer training courses on oil analysis for customers in South Africa and Dubai, and a recent focus area of her work has been the development of condition monitoring programmes for wind turbines. She was recently promoted to the position of Lead – technical development.



Proud colleagues congratulate WearCheck's Steven Lumley (centre, with trophy) as she accepts her Award for Best Technical Presentation 2014 from the SAIT with Derek Hanekom – Minister of Science and Technology (to the right of Steven)



Two million samples – a world first?!

Congratulations to diagnostician Rowan Maartens on diagnosing his two millionth sample for WearCheck! Rowan joined WearCheck in 1982 as a diagnostician, and he has clocked up a record 2 000 000 samples in the three decades he has been at WearCheck.

We are very proud of you, Rowan! While we are unsure of the precise current global statistics, we are pretty certain that you must be in the top few people in the world, if not the first person in the world, with this incredible number of diagnoses to your name. Wow!

Diagnostician Rowan Maartens recently diagnosed his two millionth sample – almost certainly placing him amongst the top few diagnosticians in the world who have performed as many sample diagnoses

LONG SERVICE LOYAL STAFF MEMBERS APPLAUDED

WearCheck is very fortunate to have a team of very dedicated and loyal staff members, many of whom have been with the company for many years. HR Manager Michelle Padayachee praised the staff who reached important milestones recently.

‘Your dedication and experience is a boon to both the company as well as our customers – you are the oil that keeps the cog of excellent customer service and expert background knowledge turning. We

thank you for your loyalty.’

‘We are proud to recognise the dedication of four staff members who have now worked at WearCheck for a quarter of a century – John Evans, Lorain de Bruin, Trevor Pillay and Happiness Hlope.

‘And reaching the two decade milestone, we are very proud of diagnosticians Daan Burger and Ravi Chetty.’



Diagnostic manager John Evans has worked at WearCheck for 25 years



Joburg branch co-ordinator Lorain de Bruin has worked at WearCheck for 25 years



Senior mini-lab technician Trevor Pillay has worked at WearCheck for 25 years



Sample room assistant Happiness Hlope has worked at WearCheck for 25 years



Diagnostician Daan Burger has spent 20 years with WearCheck



Diagnostician Ravi Chetty has been employed at WearCheck for 20 years, and recently celebrated another impressive milestone – he diagnosed his millionth sample earlier this year. Ravi began his career in the lab working night shift, then day shift, and then on to data processing (DP), followed by a stint in the minilab. He moved into diagnostics...with all his experience in many departments, Ravi is close to being the most multi-skilled person at WearCheck!

LUBE TIP: aftermarket oil additives can backfire

From “The Practical Handbook of Machinery Lubrication – 4th Edition”:

Increasing the percentage of a certain additive may improve one property of an oil, while at the same time degrade another. When the specified concentrations of additives become unbalanced, overall oil quality can be affected. Some additives compete with each other for the same space on a metal surface. If a high concentration of an anti-wear agent is added to the oil, the corrosion inhibitor may become less effective. The result may be an increase in corrosion-related problems.

Lucky in love

Going to the office shouldn't be a chore... you never know what good things might happen at work!

This is how laboratory assistant Quintus Mosiya feels – she recently married her sweetheart, whom she met when he phoned WearCheck to place an order in 2000, when she was employed in the stores department. They gradually got to know each other, and finally tied the knot in July this year. Congratulations Quintus and Headman, from all at WearCheck!

Laboratory assistant Quintus Mosiya was lucky enough to find the love of her life through work. She and husband, Headman, met over the telephone when he was a WearCheck customer 14 years ago. They recently got married.



TECHNICAL TIP: THE WINDS OF CHANGE

BY STEVEN LARA-LEE LUMLEY (TECHNICAL DEVELOPMENT)

Wind power is the world's largest growing energy source thanks to advancing wind turbine technology. Wind turbines have the potential to generate enough power to meet the growing need for electricity, and simultaneously reduce consumption of water and emission of pollutants such as carbon dioxide. However, barriers to widespread acceptance of wind turbines include their reliability, costs of operation and maintenance of the equipment relative to alternative means of power generation.

Reliability, in its mechanical sense, can be defined as the probability of a device performing its functions adequately for the period of time intended under the operating conditions encountered. The estimated life span of wind turbines is about 20 years, compared to conventional steam turbine generator units that have averaged 40 years. The failure rate of wind turbines is about three times higher than that of conventional generators. Therefore, reliability is essential to the success of wind energy systems and this requires appropriate condition monitoring.

In the wind power industry, achieving reliability is simple in theory yet difficult to achieve as historically, wind turbine gearbox failures have plagued the industry. The wind turbine gearbox is arguably the

most critical component in terms of high failure rates and down time. These premature gearbox failures are a leading maintenance cost driver that can substantially lower the profit margin of a wind turbine operation as they typically result in component replacement.

Oil analysis, along with other condition monitoring tools, offers the potential to effectively manage gearbox maintenance by detecting early damage as well as tracking the severity of the damage. It is for this reason that most OEMs recommend routine oil analysis as part of an effective maintenance strategy.

The goal of an effective wind turbine oil analysis program is to increase the reliability and availability of the various wind systems, while minimizing maintenance costs associated with oil change outs, labour, repairs and downtime. This is achieved by monitoring the lubricant condition, contaminants and mechanical wear.

WearCheck *Technical Bulletin 58* focuses on the role of oil analysis in wind turbine gearbox reliability. To view it, please visit <http://www.wearcheck.co.za/useful-info/technical-bulletin>

STRETCHING OUT IN STEELPOORT

Business is booming in Steelpoort, and WearCheck's local branch has outgrown its original offices, and has now moved to bigger premises.

On-site sampling service is a popular option for Steelpoort customers, where WearCheck's technicians even travel underground into mine shafts to sample hard-to-reach machinery, using a specially modified vehicle.

WearCheck Steelpoort is now located at R555 Road, Block B6 at Steelpoort Mining Park, and can be contacted via cell phones: Quintin 082 381 3321 or Thomas 078 314 6873. There are currently no landlines available, however these are in the pipeline.



The International WearCheck Group (IWG) annual meeting took place this year in Wales, providing members with a forum at which to exchange knowledge, ideas and share technical advice from around the globe. Attending the conference were (left to right) Adam Cutler (UK), Ken Hill (USA), Jesus Terradillos (Spain), Neil Robinson (RSA), David Shard (UK), Akos Nemesnyik (Hungary), Bart Coen (Belgium), Jon Fazenbaker (USA), André Verlinden (Belgium), Bob Cutter (USA), Judith Berezki (Hungary), Jorge Alarcon (Spain), Barbara Monse (UK/Germany) and Bill Quesnel (Snr) (Canada)

In a similar vein, WearCheck's Johannesburg office, which was originally shared with holding company Set Point, is now shared only with Set Point Labs. Due to a growth in demand for oil analysis in Gauteng, WearCheck is now able to facilitate the extra work load using the increased office space.



You are welcome...the comfortable foyer of WearCheck's newly-renovated, bigger premises in Johannesburg



Thumbs up! The WearCheck Steelpoort team is happy with their new, bigger premises. They are (left to right) Quintin Ras (business development/technical support, with on-site samplers James Tshabalala, Captain Makofane, Rolet Mashego, Lopi Molangoane, Michael Masemola and admin clerk/sampler Thomas Mdhala

MAKING HEADWAY NEW DIAGNOSTICIAN FOR WEARCHECK

WearCheck has added a new member to our team of diagnosticians, placing recently-appointed Lea Bodenstein at our Middelburg laboratory.

Bodenstein brings with her more than 15 years' experience in the oil analysis industry, and she holds a variety of certificates in this regard. Her work to date includes invaluable diagnostic experience in the coal mining industry and all related heavy machinery.

Prior to joining the WearCheck team,

Bodenstein gained valuable experience at Andersen & Hurley Instruments and then at Joy Global Africa, testing and diagnosing oil samples from a wide range of industrial components; advising customers on the handling and storage of oil; and conducting in-house oil training.

Bodenstein also gained extensive experience in the mining industry while working at Matla Coal Mines

A constantly growing customer base - with

the resultant increase in sample quantities - created a demand for Bodenstein's diagnostic expertise in WearCheck's Middelburg facility.

The South Africa-based team of eight diagnosticians services all ten of WearCheck's world-class laboratories in South Africa and beyond the borders in Zambia, India, Dubai, Ghana and Mozambique. All samples are analysed locally in each laboratory, and the results are then sent to the diagnostics team for final diagnosis.

GETTING TECHNICAL

Annemie Willer is WearCheck's new senior sales technician for our LubriGard division. She has four years' experience in condition monitoring, managing a multi-discipline group of condition monitoring technicians. This included oil analysis, Infra-red surveying, and the utilisation of vibration data analysis reports.

Alongside developing innovative new marketing strategies, and improving maintenance programmes, Annemie has also successfully implemented lubrication programs for customers in Mpumalanga mining groups.

Her qualifications include WearCheck oil Level 1, 2 and 3; ITC level 1 Thermography and NSK Advanced Bearing Failure Analysis.

To understand the importance of lubrication, whether in the automotive or industrial industry, is exactly the same as to understand how important the function of the blood flowing through your body is.

WearCheck knows the important role lubrication plays when it comes to healthy, reliable equipment.

WearCheck is the leader in oil sampling and after developing a very successful Reliability Service division the next logical step for us is to assist our customers with their lubrication needs and give them solutions that will keep

their equipment in a healthy condition.

Lubrication is the blood that flows through your equipment. Working years in the industry the reality is that the correct type and grade of lubricant is not always used and this is a direct cause of premature equipment failure. For example: general purpose grease is being used in most machinery on the plants today. When greasing high speed bearings, for instance in electric motors, this can cause viscous drag that may cause higher operating temperatures and energy consumption. Grease with a lower viscosity will be more efficient as bearings running at higher temperatures can destroy the additive package in the grease and also cause the grease to drain out leaving the motor deprived of sufficient lubrication. This will cause damage to the bearing and premature failure. LubriGuard considers all factors involved when choosing the correct lubricant such as load conditions, revolutions per minute that the bearing is rotating and the environment the equipment is exposed to.

LubriGuard will be able to develop an automatic lubrication program that is best suited to our customers' needs. Over-greasing is not a myth and can result in higher operating temperatures, premature bearing failures and increase the risk of contamination ingress. Using an automatic lubrication program in conjunction with condition monitoring applications helps to eliminate these problems completely.

LubriGuard introduces our customers to specialised oils and greases with better additive packages, breathers and filters that keep out particles as small as five microns which can cause exponential wear in machinery and cause contamination. We will ensure that expensive and critical equipment will stay available - this, in effect - reduces downtime. Maintenance based on the condition of machinery will become the order of the day and production losses will be reduced dramatically.

LOWER OPERATING COSTS = RISE IN REVENUE

LubriGuard as a new division of WearCheck will apply our knowledge to develop a Lubrication-enabled reliability (LER) program to improve oil conditions. LubriGuard can assist our customers to implement procedures and systems to promote the correct methods for lubrication handling. This will ensure better ISO cleanliness levels, immaculate lubricant storage facilities, and a pro-active approach to protect the environment and equipment.

Pieces of plant equipment have their own language, and WearCheck has the correct tools and analysts that can understand what they are saying. Our competent, passionate staff can interpret what we see and hear to enable our customers to take the correct approach towards machinery health.



Lea Bodenstein is a diagnostician at WearCheck Middelburg



Loshini Govender is the manager of WearCheck speciality laboratory (WVSL)



Lerisha Moodley has been appointed debtors collections clerk at WearCheck Pinetown



Annemie Willer is senior sales technician for WearCheck's LubriGard division

TRAINING FOR WEST AFRICA

Training manager Ashley Mayer headed to the Cote d'Ivoire in West Africa, where he attended the Vivo Energy conference in Abidjan. Vivo Energy is a Shell licensee in most of Africa. Here, he presented a six-hour session on the reasons for doing oil analysis and laboratory result patterns used for diagnosing different scenarios, including over-fuelling, over-heating, dirt contamination and internal coolant leaks. The presentation was aimed at helping the Vivo Energy technical reps sell the concept and benefits of oil analysis to their customers.



Ashley Mayer, WearCheck training manager, (back row, third from right) ran a seminar on the benefits of oil analysis for conference delegates in the Cote d'Ivoire

Out and About

Teams from WearCheck's laboratories and offices have been present at several high profile industry expos lately, in all corners of the globe. Some of them include:

ELECTRA MINING 2014

A team from WearCheck headed to Johannesburg to meet delegates at the 2014 Electra Mining Expo. There were representatives from many divisions of WearCheck, to answer the many queries from customers.

AFRICAN UTILITIES WEEK 2014



A team from WearCheck attended the African Utilities Week conference in Cape Town. On hand to meet delegates were (l - r) Philip Schutte (reliability solutions manager), Werner Buys (Cape Town branch co-ordinator) and Steven Lumley (technical development)

AFRICA DOWNUNDER

Philip Schutte, reliability solutions manager, travelled to Australia to represent WearCheck at this well-attended mining expo.

ELECTRA MINING WEST AFRICA – GHANA 2014

Phillip Croucamp, national sales manager, joined WearCheck Ghana staffers Samuel Yenyi (laboratory supervisor) and Daniel Boakye (customer support officer) at West Africa's biggest mining expo.

MOZAMBIQUE MINING EXPO 2014



Diagnostician Quintin Verster headed to East Africa, where he attended the MMEC (Mozambique Mining, Oil & Gas and Energy Conference and Expo) in Maputo.

MINING INDABA 2014

WearCheck was present at this popular expo in Johannesburg that focuses on the African mining industry.

Keeping the cogs turning

A team from WearCheck has once again entered the 94.7 cycle race in November...watch this space to see how they fared. Good luck cyclists!

“OLÁ, BOM DIA, BEM-VINDOS À WEARCHECK!”

This is Portuguese for “Hello and welcome to WearCheck!”, and this is one of the first phrases learned by staff members who are studying the language, in a bid to facilitate communication with the company’s growing number of Portuguese-speaking customers.

WearCheck staff in Johannesburg and Durban are taking Portuguese lessons. Pictured here is the Joburg office’s class, from left to right: (back) Keith Finlayson, Ernest Moremedi, Philip Schutte, Christene Fourie, Josephine Rakolota, Vasthie Naicker. (Front) Lorain de Bruin, Ana Rocha (teacher), Michelle Alexander [Absent: Marcelle Symons]



Saving money . . . AND saving lives!

When he is not fending off potential ‘sharks’ in the business world and counting the company’s beans, WearCheck financial manager Scott Sowman has an interesting hobby – entering the sea where REAL sharks lurk, to save swimmers in trouble!

Scott is a volunteer surf lifesaver based at Umhlanga Rocks Beach Lifesaving Club, in Durban, where he has been a member for the past 24 years.

Earlier this year, Scott and his team competed at the South African National Lifesaving Champs in the chilly waters of Cape Town, taking on teams from 25 other clubs around the country in a variety of gruelling surf lifesaving events.

Says Scott, ‘Happily, the safety committee assured us that they employ shark spotters, who are stationed on high rise buildings overlooking the competition area!’

Scott won the surf swim, ski and taplin team relay events in his age group, while the team finished 6th overall. Interestingly, while the event was won by local club Fish Hoek, the next four places were taken by Durban clubs!

Scott, we salute your dedication to ensuring the safety of all beachgoers, and all the hundreds of hours you have spent volunteering for duty in your own free time. From all of us at WearCheck, we congratulate you – keep up the great service!



Scott Sowman won the Surf Swim, Ski and Taplin Team Relay events in his age group in the South African National Lifesaving Champs in Cape Town this year.

WearCheck Management Review meeting

The 2014 annual WearCheck Management Review meeting took place recently. Members of this committee from several regions met at the condition monitoring specialist’s Pinetown facility to plan and review the company’s progress.



Attending the meeting were, back row, left to right: Deepak Deepnarain, Neil Robinson (MD), Eddie Perumal, Scott Sowman, Philip Schutte, Werner Buys, Phillip Croucamp and Ashley Mayer. Front row, left to right: Meshach Govender, Michelle Padayachee, Reshma Soojan, Loshini Govender, Melanie Hynd, John Evans and Prinda Narasi

NOTICE TO CUSTOMERS:

It has come to our attention that the industrial sample kit contains a label advising critical equipment to be sampled three monthly. Please be advised that this is incorrect, and critical equipment should, in fact, be sampled monthly or as determined by the OEM.

PRODUCT PICK: WIND TURBINE ANALYSIS BY STEVEN LUMLEY

This is a time of great change in South Africa's electricity sector. The pressing demand for new electricity generation capacity has prompted the government to throw its support behind developing renewable energy sources like wind power which is the world's largest growing energy source.

While the estimated life span of wind turbines is about 20 years their failure rate is about three times higher than that of conventional steam turbine generators and this has historically been attributed to constantly changing loads experienced by the wind turbine as a result of environmental variants.

Wind turbine gearbox warranties generally only last for two years, therefore maintenance programmes are vital to ensure the turbine operates for the recommended 20 years.

Oil analysis, along with other condition monitoring tools, offers the potential to effectively manage gearbox maintenance by detecting early damage as well as tracking the severity of the damage. It is for this reason that most OEMs recommend routine oil analysis as part of an effective maintenance strategy.

Therefore, one of the newer areas onto which WearCheck has beamed the condition monitoring light is wind turbine analysis. The test kits come with two options – standard wind turbine kit (WWTS) and the advanced option (WWTA).

The tests are performed as follows:

	Test	WWTS	WWTA
1	Viscosity @ 100°C (ASTM D7279)	✓	✓
2	Viscosity @ 40°C (ASTM D7279)	✓	✓
3	Viscosity Index (VI) (ASTM D2270)	✓	✓
4	Karl Fisher Moisture (ASTM D6304)	✓	✓
5	Total Acid Number (TAN) (ASTM D974)	✓	✓
6	PQ (Particle quantifier) Index (OEM supplied method)	✓	✓
7	Oil cleanliness (ISO 4409)	✓	✓
8	ICP spectroscopy (wear, contaminants & additive concentrations) (ASTM D5185)	✓	✓
9	Fourier Transform Infrared (FTIR) oxidation (ASTM D7414)	✓	✓
10	Fourier Transform Infrared (FTIR) nitration (ASTM D7624)	✓	✓
11	Microscopic Particle Examination (MPE) (In-house method)	✓	✓
12	Remaining Useful Life (RULER) (Advanced oil analysis kit) (ASTM D6971)		✓
13	Foaming characteristics (Advanced oil analysis kit) (ASTM D892)		✓

The cherry on top

In the world of oil analysis, one good turn deserves another...

Some of the WearCheck staff in Johannesburg had a "revolutionary" idea and pooled resources to do a good deed for those in need as part of Mandela's 67 minutes of Goodwill project earlier this year.

The big-hearted team bought ingredients, baked and iced cupcakes, and purchased sweets with the extra cash they raised. In turn, these goodies were handed out to children in the wards of Edenvale Hospital by the WearCheck staff.



Ready to roll...the WearCheck "67 minutes of goodwill" team shows off their wares before going to Edenvale Hospital. They are (standing, left to right) Josephine Rakolota, John Maribeng, Rachael Dos Reis, Juliane de Beer, Gert Nel, Ernest Moremedi, Deon Yettian, Lorain de Bruin and (seated) Portia Sithole, Michelle Alexandra, Isaac Mabaso, Kabelo Mohohoma, Shiven Brijlal

Small World

We get technical enquiries from all over the globe. Some recent ones include:

- Request for heat transfer testing in Hong Kong
- Condition monitoring for mines in Eritrea

- Request for technical information from an engineering company in Chile
- Technical query from an industrial oil management company in Belgium
- Transformer oil analysis query from Pakistan

2014 TRAINING COURSES

VENUE	NetCheck Software package	Oil Analysis 1 Understanding oil and its analysis	Oil Analysis 2 Report interpretation	Oil Analysis 3 Management
Course length	One full day	Two full days	One full day	Half day
Gauteng	Available on request	21 – 22 October	23 October	24 October
Northern Cape	Available on request	18 – 19 November	20 November	21 November

COSTS

Oil Analysis One covers two full days and costs R4 750. Oil Analysis Two and the NetCheck course cover one full day each and each costs R2 375. Oil Analysis Three is a half-day course and costs R999. All courses include course material, refreshments, giveaways and certificates. Prices exclude VAT and are subject to change.

BOOKINGS

For more details on course content, view Training at www.wearcheck.co.za. For bookings phone Kay Meyrick on (031) 700-5460 or email training@wearcheck.co.za.

ON-SITE TRAINING

All courses can also be presented at the customer's premises for a minimum of seven delegates.

WearCheck also offers two more on-site courses:

- WearCheck Practical (in English or Zulu), a half day course costing R572.00 plus VAT per delegate
- WearCheck Customised – oil analysis for workshop technicians, a full day course costing R1389.00 plus VAT per delegate.

For on-site training, there may be an additional charge for the lecturer's travel and accommodation, if needed.

ARRANGE A TRAINING COURSE NEAR YOU

Training courses can also be arranged in any of the following areas:

Bloemfontein	Rustenburg
Cape Town	Steelpoort
Kimberley	Botswana
Makopane	Namibia
Middelburg	Tanzania (Mwanza)
Nelspruit	Zambia (Kitwe)
Port Elizabeth	

HIGHLIGHT YOUR SUCCESS

If oil analysis has helped prevent a major failure or saved your company money, we would like to feature this in Monitor. Our writer will contact you for the details and will write the article for your approval. Simply email melanie@wearcheck.co.za and we will contact you.

TECHNICAL BULLETIN TOPICS?

Is there a particular subject you would like to see featured in a Technical Bulletin? Simply email your suggestion to melanie@wearcheck.co.za. Before you do this, why not check out the 56 titles already available on the website: www.wearcheck.co.za

JOINING TOGETHER TO SUPPORT THE PLANET ♻️

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