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Early & **SAVE!**



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Conference.Reliableplant.com

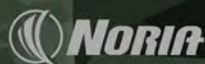
RALLY THE TROOPS *& Join the Ranks!*

Attend the RELIABLE PLANT Conference and Exhibition, the premier event for the machinery lubrication, oil analysis and reliability industry.

ENLIST TODAY!

- More Than 60 Sessions
- Specialized Pre-conference Workshops
- 80 + Exhibitors
- Keynote address by Vietnam POW
- Harley-Davidson Giveaway

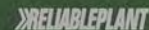
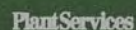
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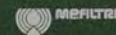
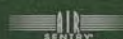
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EVENT SPONSORS





When it comes to optimum performance on the battlefield and in your plant, no problem or issue is bigger than you can handle. **RELIABLE PLANT** stands tall in 2013 – preparing you with best defense tactics and solutions. Through comprehensive conference sessions and workshops, attendees will arm themselves with useful insight in multiple areas of lubrication, oil analysis and reliability. Take the necessary course of action and make plans today to attend this one-of-a-kind industry event. No other forum gathers industry professionals together and provides an ideal staging area to network and gauge the latest trends, technologies and issues facing our industry today.

*Be the lookout for your plant and your team
-Enlist today at Conference.Reliableplant.com-*



Schedule at a Glance

MONDAY, APRIL 15

7:00 a.m. – 6:00 p.m. . . . Registration Open
8:00 a.m. – 4:30 p.m. . . . Pre-Conference Workshops
9:00 a.m. – 11:30 a.m. . . . Motts Military Museum Tour
5:30 p.m. – 8:30 p.m. . . . Certification Testing (ICML & SMRP)

TUESDAY, APRIL 16

9:30 a.m. – 6:30 p.m. . . . Exhibition Hours
7:00 a.m. – 6:00 p.m. . . . Registration Open
7:30 a.m. – 8:00 a.m. . . . Continental Breakfast
8:00 a.m. – 9:20 a.m. . . . Opening General Session
9:30 a.m. – 10:50 a.m. . . . Exhibit Hall Grand Opening
11:00 a.m. – 11:50 a.m. . . . Conference Sessions
11:50 p.m. – 1:30 p.m. . . . Lunch in Exhibit Hall
1:30 p.m. – 5:20 p.m. . . . Conference Sessions
3:20 p.m. – 4:30 p.m. . . . Refreshment Break in Exhibit Hall
5:30 p.m. – 6:30 p.m. . . . Meet and Greet Reception in Exhibit Hall

WEDNESDAY, APRIL 17

9:30 a.m. – 6:30 p.m. . . . Exhibition Hours
7:00 a.m. – 6:00 p.m. . . . Registration Open
7:30 a.m. – 8:00 a.m. . . . Continental Breakfast
8:00 a.m. – 9:50 a.m. . . . Conference Sessions
10:00 a.m. – 10:50 a.m. . . . Refreshment Break in Exhibit Hall
11:00 a.m. – 11:50 a.m. . . . Conference Sessions
11:50 p.m. – 1:20 p.m. . . . Lunch in Exhibit Hall
1:30 p.m. – 5:20 p.m. . . . Conference Sessions
3:20 p.m. – 4:20 p.m. . . . Refreshment Break in Exhibit Hall
5:30 p.m. – 6:30 p.m. . . . Networking Reception in Exhibit Hall
6:00 p.m. – 9:00 p.m. . . . Certification Testing (ICML & SMRP)

THURSDAY, APRIL 18

8:50 a.m. – 12:00 p.m. . . . Exhibition Hours
7:30 a.m. – 11:00 a.m. . . . Registration Open
7:30 a.m. – 8:00 a.m. . . . Continental Breakfast
8:00 a.m. – 11:10 a.m. . . . Conference Sessions
11:15 a.m. – 12:00 p.m. . . . Giveaways in Exhibit Hall

Using Teamwork to Overcome Tough Conditions and Achieve Your Goals

Guy D. Gruters, a former F-100 fighter pilot, will open the general session with a keynote address presenting lessons learned during the more than five years he spent as a P.O.W. in a North Vietnamese Communist Prison Camp and on his more than 400 combat missions flown in South and North Vietnam before being captured, as well as his own post-combat business experience.

Tuesday, April 16

8:00 a.m. – 9:20 a.m. ~ Open to all registered attendees

Guy was awarded more than 30 combat medals, including two silver stars, two distinguished flying crosses, two bronze stars for heroism, and two purple hearts. His fighter aircraft was shot down twice over North Vietnam. He was rescued by Jolly Greens after the first and captured after the second. The suffering in prison camp was intense 24/7, year after year, without any end in sight. Six out of seven men in Guy's situation were tortured to death or killed in one way or another by the Russians and North Vietnamese during those agonizing years. Upon returning to the United States, Guy was a successful CEO of a small computer business for 13 years, then director and VP-MIS for billion-dollar corporations. Guy and his wife, Sandy, who waited faithfully for six years until his return, raised seven children and had 25 family moves throughout the U.S. during those years.

In his keynote address, Guy will describe the various aspects of those combat and prison camp experiences, ranging from the specific conditions of his imprisonment to individual tales of heroic courage and leadership.

"There is an absolute need for teamwork in the corporate environment in order to reach the common corporate goals which have been set."

~Guy D. Gruters



OPENING GENERAL SESSION
Featured Keynote



WIN A HARLEY!

Who? All registered attendees can participate in the show prize giveaway for a chance to **win a brand new Harley-Davidson motorcycle!**

How? Check out the latest products and services from sponsoring companies in the exhibit hall – just stop by each sponsoring company booth during the show, get your entry card stamped and turn in your completed card by 11:00 a.m. on Thursday, April 18, 2013.

When & Where? A random drawing will take place at 11:15 a.m. on Thursday, April 18, 2013, at the Noria show prize giveaway booth.

What? The Iron 883™ model is the anti-chrome motorcycle—decked in black from front to back with a defiant attitude that embraces the pure essence of riding. The black powder-coated 883cc engine has black rocker covers. Black chopped fenders show off a lot of rubber. Black front forks with gators add an old-school look, along with the black oil tank cover, belt guard and drag bars. Black cast aluminum wheels shoot the Iron 883™ motorcycle into the modern rebel culture and keep the rebellious fire burning with plenty of freedom for customization. No apologies — just an authentic ride!

See terms and conditions at Conference.Reliableplant.com



WHO SHOULD ATTEND?

Call in the reserves. As a professional in the machinery lubrication, oil analysis and reliability industry, you wear many hats to command performance and ensure bottom-line results. Regardless of your rank in the plant, you fill a number of different roles without short changing any of them. Become a jack-of-all-trades. Rally the troops and make plans to attend the 14th annual RELIABLE PLANT Conference and Exhibition to create allies and gather critical intelligence among the following attendees:

Asset Care Planners
CBM Coordinators and Specialists
Chief Engineers
Design Engineers
Engineering Managers
Engineers
Facility Managers
General Managers
Hydraulic Specialists
Industrial Maintenance Supervisors
Industrial Mechanics
Infrared/Vibration Technicians
Lab Managers
Lube Analysts
Lubrication Specialists
Lubrication Technologists and Technicians
Machinery Engineers
Maintenance Engineers
Maintenance Managers

Maintenance Planners
Maintenance Supervisors and Foremen
Managers of Maintenance and Reliability
Mechanical Engineers
Operations Managers
PdM Analysts and Specialists
Planners and Schedulers
Plant Engineers
Plant Managers
Project Leaders
Quality Managers
Reliability Coordinators
Reliability Engineers
Reliability Team Leaders
Reliability Technicians
Safety Managers and Directors
Senior Reliability Engineers
TPM Coordinators and Facilitators
....and more

WHY ATTEND?

- Gather critical intelligence and acquire answers and ideas to address specific needs
- See new products and developments in the exhibition hall
- Visit with exhibiting companies and colleagues – create allies

Get a Free Noria Training Coupon Valued at \$1,195!

Full-conference registration includes a \$1,195 training coupon that can be used toward Noria's lubrication or oil analysis training courses for up to one year. Use it yourself or give it to a co-worker. It's like attending the conference and getting Noria training for free!



Terms and Conditions: Only one coupon issued per person. Coupon is transferrable within your organization and must be presented when registering for the training. Coupon is valid for Noria public training course in the United States taking place between April 19, 2013 and April 18, 2014, or online courses purchased prior to April 19, 2014. Coupons are given to full-conference (Tuesday-Thursday) attendees who pay their conference registration fee and attend the conference. Speakers and exhibitors are not eligible unless paying full-conference registration fees. Coupons may not be used for private onsite training.

...WHAT YOU'LL LEARN...

Here's a preview of what you'll be able to do after attending RELIABLE PLANT 2013:

- Decide who should be responsible for lubrication tasks
- Migrate maintenance practices from reactive to planned
- Pinpoint equipment failures with oil analysis
- Use failure modes and effects analysis (FMEA)
- Proactively use RCA for a measurable ROI
- Improve wrench time by 50% with planning and kitting
- Pull data-rich, representative oil analysis samples
- Implement a two-tiered predictive maintenance program
- Optimize your food grade lubrication program
- Make smart decisions when purchasing oil filters
- Proactively manage lubricants from delivery to dispensing
- Use particle counting in field applications
- Use ultrasound for a precision lubrication program
- Avoid costly mistakes when transforming to lubrication excellence
- Tie lubricant contamination control efforts to cost savings
- Measure the impact of machine failure over time
- Integrate PdM technologies into an asset health management strategy
- Update and improve an existing oil analysis program

Optimize your conference experience by attending specialized pre-conference workshops. Professional development is critical in any line of work. Results show that participation in pre-conference workshops ensures an enhanced conference experience. Quantify your investment by committing to any of our pre-conference workshops.



The Basics of Lubricants

Wes Cash - Noria Corporation
Monday, April 15, 1:00 p.m. - 4:30 p.m.

Lubricants are the life-blood of our equipment. Without them, production grinds to a halt, and costly repairs and downtime are imminent. We all know the importance of lubrication and the role it plays in machinery lubrication, but how much do we really know about our oils and greases? For a lubrication program to be effective, all lubrication and reliability professionals need a solid understanding of lubricants. In this workshop you will learn the basics of lubricants, what they are made of and how they work.

With Full-Conference Registration - \$225 :: Workshop Only - \$295

Fundamentals for Designing and Procuring Equipment to Increase Reliability

Jerry Putt - Noria Corporation
Monday, April 15, 8:00 a.m. - 11:30 a.m.



Most efforts to meet reliability goals generally come from the maintenance organization. Often the inherent reliability of the system is determined by the design and procurement practices employed long before the equipment becomes the responsibility of the plant. Design and procurement personnel usually are focused on meeting functionality requirements within cost and delivery time constraints. This workshop will provide suggestions for designers and procurement professionals that can result in higher potential reliability and give the maintenance team a better opportunity to consistently achieve the optimum capability of the equipment.

With Full-Conference Registration - \$225 :: Workshop Only - \$295

How to Interpret Oil Analysis Reports and Set Effective Limits

Bob Scott - LubeWorks
Monday, April 15, 8:00 a.m. - 11:30 a.m.



Precisely set alarms and limits are the critical first step to interpreting oil analysis results. With strategically set alarms and limits, costly problems quickly reveal themselves, allowing more time to make adjustments and react. You'll learn how to select the correct types of limits and how to apply those limits to maximize problem detection.

In this workshop, you'll get step-by-step instruction on how to attain maximum value from every oil analysis report you receive. You'll learn exactly what to look for, how to set strategic alarms and limits, and how to read between the lines so that you can make highly-effective maintenance decisions.

With Full-Conference Registration - \$225 :: Workshop Only - \$295



Lubrication Excellence - Manager's Summit

Jim Fitch - Noria Corporation
Monday, April 15, 1:00 p.m. - 4:30 p.m.

There's a revolution occurring. Managers who once desired equipment maintenance reliability now demand it...it is a matter of corporate survival in the global economy, and effective machinery lubrication is an essential enabler to success.

This movement has led companies in all industries to take control of reliability by reinventing their lubrication programs. Those who are responding to the challenge are seeing amazing results....on the bottom line, where it counts most.

The change goes beyond simply using better lubricants. The leaders are employing technologies, empowering employees and building ultramodern new practices - creating new and energized reliability culture. The workshop will address the following topics:

- Performance metrics for PM compliance, contamination control and lubricant quality targets
- How to evaluate needed lubrication and oil analysis skills
- How to benchmark your program to world-class status and construct a master plan for transformation
- How to build a first-rate lubrication team with the specific collection of skills needed
- What kind of return-on-investment you can expect from your program
- The importance of standardization and procedure-based lubrication
- The honest truth about synthetics and premium lubricants
- Lubrication low-hanging fruit and quick kills
- The power of the daily one-minute inspection when done correctly

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LEARNING SESSIONS

See a comprehensive list of sessions at Conference.Reliableplant.com



3 Keys to Driving Sustainable Change and Project Success

Bruce Wesner, Life Cycle Engineering

Have you ever been the leader of a significant business change and not been able to make it stick? Most organizations feel that the key element in any project is sound project management, but what about the people it is affecting? This presentation will focus on the essential elements required in effectively managing a business change initiative to ensure it is sustainable.

7 Common Traits of Winning Maintenance Reliability Programs

Terrence O'Hanlon, Reliabilityweb.com

There are common traits to every high-performance maintenance reliability program, and what separates the most successful ones from the others is usually only a slight advantage in one of a few key areas. In this session, find out all the important details about award-winning reliability programs so you can implement similar processes and procedures in your program and match their success.

8 Steps to Achieving Operational Excellence

Kevin Duggan, Institute for Operational Excellence

The ability to implement and maintain improvement initiatives like lean and Six Sigma is essential for eliminating waste, reducing costs and increasing output, but what often results is an improve-sustain-improve-sustain pattern. Rather than endure a never-ending journey, this presentation will show attendees how they can "jump" their improvement efforts and grow their business simply by setting a destination of operational excellence. Learn the step-by-step process for achieving operational excellence to facilitate real business growth in any industry.

A Structured Approach to Training and Development for Reliability

Bill Lyons, Holcim US

This presentation will discuss the benefits of using a structured approach for training and the development of skills for reliability. A cement manufacturer recently made great progress with its maintenance technical training program and certification, and this session will describe how it was done so others can implement a similar type of program at their organization. Attendees will learn about all areas of reliability in place of just lubrication, even though lubrication is the main and perhaps most important of all the reliability areas.

Advanced Gas Turbine Reliability Issues and Management

Syed Ahmed Nadeem, Pakistan International Airlines

Gas turbine maintenance costs are a big problem, especially with regard to hot section parts replacement and the performance of high-temperature alloys. The operating practices are typically aligned with turbine design limits. This session will explain the importance of a reliability program for gas turbines, material upgrades for power generation turbines, hot section failure analysis and the concept of reliability-

centered maintenance as applied to gas turbines. Attendees will learn modifications and upgrades, best operating practices, assessments for life- extension evaluation and recommendations for gas turbine reliability issues.

Air Seals: An Alternative to Packing

Tom Horner, Inpro/Seal

Although it is known to damage shafts, packing continues to be widely used in rotating equipment. It also involves a fair bit of maintenance, which takes up valuable time. Additionally, there is the cost of flushing the packing. This can be done with water, but in most cases a product like a light gas oil may be used, especially in refineries. Flushing can become very expensive when a finished product is used. This presentation will focus on the alternatives to packing, including mechanical seals, contact seals (lip and magnetic) and air purge seals, as well as the features and benefits of these options.

Alignment and Installation Factors that Impact Machine Reliability

Steve Lochard, Ludeca Inc.

Precision alignment is a necessity for keeping machinery running at optimal conditions. Many times machinery bases are not flat and coplanar relative to the machinery feet and centerline. It is critical to realize the proper alignment targets so shafts will be aligned during running conditions. Attendees of this session will become aware of the importance of precision alignment, machinery base and feet flatness, and the development of alignment targets to result in properly running machines that generate less vibration, noise and operating costs.

Alternatives to Traditional Oil Testing Methods

Susan Benes, ASPEX Corporation

Many people are not aware of the limitations of current oil testing methods like ferrography and inductively coupled plasma (ICP) spectrometry. This session will highlight these limitations and provide comparison data for existing methods and for scanning electron microscopy (SEM) and energy dispersive X- ray (EDX) testing. Attendees will learn how SEM/EDX works and how it compares to more traditional oil debris testing.

A Practical Guide to Developing KPIs

Paul Lanthier, Carver PA Corporation

Key performance indicators (KPIs) are an essential part of managing processes and ensuring the desired benefits are achieved today and for the long term. While most organizations put significant emphasis and effort in developing KPIs, many find it difficult to quantify the benefits achieved by their use. This session will discuss the various types of KPIs, simple rules for choosing and managing them, how to develop a KPI hierarchy and using factors to qualify their importance.



ASTM's Efforts to Improve Condition Monitoring

Greg Livingstone, Fluitec, and Bryan Johnson, Arizona Public Services

As a global leader in the development of standards, ASTM has been creating standards for petroleum products and lubricants for more than 100 years. The organization currently has almost 600 active standards that are used throughout industry. This presentation will summarize how ASTM's efforts are improving condition-monitoring practices and will discuss several new standard initiatives that are currently being developed. Attendees will get a glimpse into the latest developments in oil analysis testing and learn how to use these latest standards and guidelines to improve their condition-monitoring programs.

Complete Guide to Starting a Lubrication Program

Jeremy Wright, Noria Corporation

For those who have been thrust into a position as a lube champion but don't know where to begin, this session will discuss how to kick-start your lubrication program to ensure future success. From quality lubricants and lubrication to metrics and analysis, contamination control, and people and training, discover all the key components that go into creating an effective lube program.

Building the Business Case for Maintenance Planners

Andy Gager, Life Cycle Engineering

A good maintenance planner can have a significant impact on the bottom line, yet many companies don't pay adequate attention to this role. With 18 percent of a typical maintenance technician's day spent looking for parts and 24 to 26 percent walking to and from the job site, almost 50 percent of each day can be wasted doing non-value-added activity. This session will address the financial impact of maintenance planning on an organization and will provide a clear understanding of how to improve this function and yield better results.

Case Studies in Contamination Control at Mine Sites

Christian Bauer, Pall Corporation

From drilling and blasting to hauling and loading, mechanical and metallurgical processing, as well as environmental protection, effective contamination control in mining processes is essential for achieving and maintaining the required levels of fluid system cleanliness and factors into a mine's operating cost. In this session, learn how implementing a contamination control program, including cleanliness monitoring and the use of high-efficiency filtration, can help operations that are prone to a high contamination environment improve reliability and productivity.

Case Study: What You Can Learn from a Single Machine Failure across Your Site

Brian Blyth, DuPont Louisville

Many plants have long-standing predictive maintenance programs such as oil and vibration analysis that over time can become less effective without basic upkeep. This presentation highlights some of the neglected parts of those programs and presents a case study on improvements that were made after a single refrigeration machine failure. Attendees will learn basic root-cause failure analysis and failure-mode-and-effect analysis techniques and how to leverage this learning across an entire site to deliver cost savings as well as high reliability.

Changing Maintenance Professionals from Parts Replacers to Diagnosticians

Dale Constantine, Step Energy Services

With the increasing competition in the marketplace, maintenance must look at repairs and services differently. Preventative and predictive maintenance systems should be examined, and repairs viewed as opportunities to find the root cause and return equipment back to a timeline based on PMs, not just removing and replacing parts. We have created an environment of maintenance professionals who have been taught how to replace parts and not on root cause and post-failure strategies. We must undo years of training and develop maintenance professionals who are more at home with calculators, micrometers, thermo-imagers, vibration tools and oil sample reports. All the greatest equipment and ideas are meaningless if the final caretaker is not trained, supported and coached at being a diagnostician rather than a parts replacer.





LEARNING SESSIONS

CONTINUED

See a comprehensive list of sessions at Conference.Reliableplant.com

Two-Tiered Predictive Maintenance Programs for Multiple Plant Organizations

Jack Nicholas, Brent Miley and John Shinn, Metropolitan Sewer District of Greater Cincinnati

A two-tiered predictive maintenance (PdM) program can improve team member productivity and employment for organizations with multiple plants. PdM team members serving widely dispersed plants are often unable to provide adequate coverage. This problem can be eased if local repair personnel are provided with simple, easy-to-learn PdM tools that can confirm when a problem exists, even if its exact nature cannot be determined until a team member is called to the site. Cooperation between PdM team members and repair personnel can be developed so that overall maintenance effectiveness is enhanced. In this session, attendees will learn the details for setting up a two-tiered PdM program, including the benefits, frequently encountered problems and technologies employed at each level of the program.

Conditioning and Regeneration of Ester-Based Fluids

Steffen Nyman, C.C.Jensen

More and more industries are changing to ester-based fluids due to environmental or fire-hazard concerns. However, ester fluid is not your typical hydraulic or lubrication oil. It requires special care. A poorly maintained ester fluid will have a very short life and will result in expensive component failure and costly downtime. If fluid contamination is controlled, many ester-based fluids can be in operation for decades. This presentation will describe the pros and cons of ester fluids, how ester-based fluid degrades, and how the ester can be conditioned/regenerated to prolong its service.

Creating Mixed Model Value Streams

Kevin Duggan, Institute for Operational Excellence

Today's factories are often complex with shared resources, product variations, uncertain demand from day to day and lots of tailoring for customers, making it challenging to run a mix of products through the same value stream. This session takes the concepts of value stream mapping to the next level, describing a method for creating flow in factories that have a high complexity of products, demand and shared resources. By learning how to apply lean principles in a high-variety environment and understanding product family selection, attendees will know which techniques to use when faced with difficult situations, including high product mix, scheduling problems, shared resources and unstable customer demand.

Determining Who Should be Responsible for Lubrication Tasks

Pete Oviedo, Noria Corporation

As industries adjust to fluctuations in the economy, many job responsibilities shift. Among the most frequently asked questions is who is responsible for lubrication. Often there will be a change in the personnel responsible for lubrication tasks. While change is inevitable, you must provide your organization with the best opportunity to become successful and not lose any progress that has been made. This session will include a discussion of how to minimize mistakes when there are many "hands in the pot."

Effective Enterprise Asset Management Master Planning

Mike Greenholtz, GenesisSolutions

Enterprise asset management (EAM) in capital-intensive industries provides a major opportunity for improving equipment availability, operating performance and financial results. Effective EAM addresses the elements of the equipment lifecycle from conceptual design, manufacture, construction, commissioning, operations and maintenance through decommissioning and retirement. EAM includes computerized maintenance management systems (CMMS) and associated databases needed to support total lifecycle management of assets, as well as the associated business processes and key metrics required to govern the entire program. This session will cite real-world examples of the benefits that can be achieved through the deployment of an effective EAM program, including bottom-line improvements, a blueprint for continuous improvement principles on reliability efforts, examples of how this method can work and how to gain executive endorsement.

Efficient Real-World Contamination Control of Hydraulic Fluids

Dan Zoller and Glenn Bauernfeind, Schroeder Industries

Contamination control is an important part of operating and maintaining hydraulic systems. Substantial cost savings can be achieved through proper fluid conditioning and monitoring along with the effective use of fluid treatment equipment. This presentation will outline strategies to improve fluid condition and consequently extend the life expectancy of hydraulic fluid and equipment while also exploring the development of an efficient real-world method of controlling and maintaining acceptable contamination levels.

Environmentally Safe Lubricants in Industry

Mark Miller, Terresolve

While many operators want to use environmentally preferable technology, there is much confusion over the various types and their respective performance characteristics. This presentation will provide a no-nonsense approach to environmentally safe lubricants to help you choose the right fluid for the right application. Attendees will learn the various definitions of "biodegradable," the strengths and limitations of each product type, and the maintenance practices required to prolong the life of the fluid and the equipment. Water infiltration, high pressure, wide temperature range usage and ways to manage these challenges will also be discussed, along with environmental fluid compatibility with hydraulics, pumps, sealing materials, hoses and other important components.

Expectations vs. Reality: How Well Does Your Filter Perform?

Christian Bauer, Pall Corporation

This session will explain why you should look beyond the filtration ratio as the primary indicator of filtration performance in the context of fluid system cleanliness specifications and requirements, as well as provide answers and insights to the following questions: "Do we know how well a filter is performing over the course of its service life?" "Will a filter that is nearing its changeout differential pressure still adequately protect the fluid system in which it is installed?"



Food-Grade Lubricants: What You Need to Know

Toby Porter, Kluber Lubrication North America L.P.

As the machinery in the food, beverage and pharmaceutical industries continues to improve, it is important that your lubrication program keeps pace. Increasing production demands, risk analysis programs, etc., pose significant new challenges for maintenance managers, and lubrication can sometimes be overlooked in the larger picture of manufacturing reliability. The lubrication of necessary components must take into account the improvements of these industries, while also maintaining safety in cases where incidental food contact is a possibility. Understanding these variables is crucial to the creation of an optimized lubrication program.

FRACAS – Anatomy of a Failure

James Taylor, Machinery Management Solutions

One of the most difficult steps in failure analysis in a facility or industrial setting is capturing good data about the failure. This presentation explains how to capture and store that data either automatically or with minimal effort. The data can then be used to support failure analysis and corrective action. This session will also look at the scene of the failure and discuss ways to collect the right physical and subjective evidence.

FTIR Spectroscopy – A Misunderstood Lubricant Analysis Tool

Dave Wootan, Wootan-Consulting

Fourier transform infrared (FTIR) spectroscopy has been used for analyzing in-service fluids for more than 30 years. Today, there are a dozen ASTM standards designed around FTIR spectral data for characterizing in-service fluids. Most in-service test programs include FTIR spectral data as part of the monitoring program. However, very few of these programs actually use this data, which is often misunderstood, misinterpreted or misused. This is due to the complexity of the data generated and the lack of proper training on the technique. This presentation will discuss how FTIR spectroscopy should be utilized, including current practices, available techniques and advanced applications.

Getting to Effective Preventive Maintenance

John Crossan, John Crossan Consulting, and Randy Quick, Kerry Ingredients and Flavors

Many plants continue to perform maintenance in a mostly reactive mode where it seems impossible to find the time and staff to get the essential preventive maintenance (PM) work done that would enable them to move toward the world of proactive maintenance. This presentation will describe methods for making preventive maintenance effective in moving from reactive to proactive maintenance, along with the most common reasons for failure and ways to avoid them. Attendees will learn the importance of constant training and education mechanisms, having dedicated time for preventive maintenance, and developing ownership and participation by all.

Grease: Filling the Void

Lisa Wadlington, Shell

Grease is often the most overlooked, underutilized and misunderstood of all the lubricants. This presentation will explore the facts and applications for grease to help get your plant rolling along smoothly. Attendees will discover how to determine if you are using the correct grease for the application at hand, proper greasing techniques, best practices for storage and handling, and the benefits of single-point lubrication.

How a Proactive Fluid Analysis Program Can Save Money and Extend Equipment Life

William Willis Jr., On-Site Analysis, Inc.

Through the years numerous studies have documented the benefits of a condition-based preventative maintenance program. This session will detail how a proactive fluid analysis program can actually pay for itself, generate significant operation savings and increase service-bay throughput. Case studies will be presented for truck service providers, truck fleet operators, mining operators, municipalities and industrial users demonstrating the specific advantages of fluid analysis, such as a reduction in unscheduled repairs, elimination of engine-related breakdowns and extension of the useful life of the equipment.

How Clean Fluid Can Extend Component Life and Provide Cost Savings

Eric Miller, Petralink USA

This session addresses the importance of fluid cleanliness in extending component life and the cost savings associated with systems operating at optimum cleanliness levels. Attendees will learn the importance of particle count analysis to monitor fluid cleanliness and how to interpret the particle count analysis results. This interpretation will allow the maintenance professional to know when and what measures should be taken to keep the system fluid at the optimum cleanliness level and therefore realize maximum cost savings by reducing the cost associated with replacing equipment and the downtime it creates.



LEARNING SESSIONS

CONTINUED

See a comprehensive list of sessions at Conference.Reliableplant.com

How to Choose the Right Oil Filter

Wes Cash, Noria Corporation

Filtration is key to prolonging the life of your equipment, but are all filters created equally? Not all filters behave the same way in service, so understanding how they work is important when deciding what filter to use. This session will explore what you should consider when purchasing filters for use in different machine types as well as look at what makes some filters better than others.

How to Design a World-Class Lube Room

Mark D. Jones, Lubrication Engineers

Since very few people know how to properly design a lube room, this session will detail a step-by-step approach to create a world-class lube room. Attendees will learn what it takes to plan, build and execute a lube room, as well as understand the importance of consolidating lubes, color coding, spill containment and how to decide whether to use plastic or metal.

How to Efficiently Remove Varnish

Felix Michold and Axel Wegner, C.C. Jensen

Many industries are experiencing varnish-related problems. These problems occur frequently in power generation, and the consequences can include turbine trips, high maintenance costs, loss of revenue and even penalties when varnish strikes. During this session, attendees will learn how to remove varnish efficiently and avoid varnish-related failures, reduce operation and maintenance costs, prevent unnecessary oil changes and achieve maximum oil lifecycles. Several practical case studies will be presented, including one with a leading energy company.

How to Extend Asset Lifecycles

Lannie Morris, Rockwell Automation

Many organizations around the globe rely on legacy automation equipment to meet today's production demands. Unfortunately, using older, discontinued products can lead to unnecessary obsolescence risk. Having a lifecycle management plan in place can help minimize the financial consequences that may occur due to extended unplanned downtime when spare parts or speedy repair are unavailable. Learn how to identify and understand obsolescence risks, options for migrating to newer technology, and ways to develop a service bridge in order to manage and extend the lifecycle of automation investments.

How to Identify Root Causes of Lubrication Failures

Jorge Alarcon, IK4-Tekniker

According to recent studies, many maintenance problems are due to lubrication failures. While it can be difficult to classify these failures, it is important to find a pattern that enables the identification of the reason for the failures. This session will present an approach that is the result of five years of study and based on real cases in industry to help determine the causes of lubrication failures. Attendees will learn through actual case studies how it is possible to identify the root cause of failure.

How to Keep Your Lubrication Program Moving Forward

Pete Oviedo, Noria Corporation

Once lubrication training has been completed and certification has been achieved, it is critical to apply the knowledge and initiative that have been gained without delay. There is a short window of opportunity to maximize on this energy and move your lubrication program forward. In this session, learn how to provide the support your organization needs to create and sustain momentum for a successful lubrication program.

How to Select Heat Transfer Fluids

Gaston Arseneault, Petro-Canada Lubricants

Although many plants operate heat transfer systems, the number of people with in-depth knowledge of these systems is diminishing. End users must realize that while they sample 5-gallon gearboxes, they may have hundreds of gallons of heat transfer oils that go unchecked for years. This presentation will discuss the various types of heat transfer fluids, including their basic properties and modes of degradation, as well as describe how to properly select them, instead of just focusing on price or one test result.

How to Select the Right Lubricant for the Right Application

Anoop Kumar, Royal Manufacturing

Most end users do not know how to read and analyze a lubricant supplier's product data sheet in order to make the proper selection of lubricating greases. This session will explain how to distinguish data from different suppliers so you can choose the right product for your application. Attendees will learn the basics of lubricating greases, what properties to look for and when to use oil or grease lubrication.

Implementing a Strategic Maintenance Program

Jack Ecktmann, Rockwell Automation

Maintenance costs can run as high as 40 percent of a manufacturer's operating budget, even more if the unplanned downtime cost includes the loss of production. Many manufacturers still work off a 70- to 80-percent breakdown maintenance plan, which has higher costs and a reduced equipment lifecycle. Unfortunately, manufacturers accept these expenses as "the cost of doing business." This presentation will explain how to migrate maintenance practices from a purely reactive mode to a best-in-class planned or predictive mode. Real-world examples will be used to show how reliability-based techniques can reduce equipment downtime by more than 50 percent, resulting in significant cost reductions, increased profitability and extended equipment lifecycles.

Implementing Reliability into Assets through Predictive Maintenance and Lube Excellence

Ken Hughes, Power Partners Inc.

Applying lean methods such as reliability-centered maintenance (RCM), total productive maintenance (TPM) and lube excellence can help any organization attain continuous improvement and transform its facility from reactive to proactive maintenance. This session will show attendees where to focus to achieve the goal of reduced downtime for their plant as well as explain the process to improve the maintenance storeroom, how to apply predictive maintenance tools and why 7S is important.

Integrating Operations and PdM into a Comprehensive Reliability Strategy

Jeff Evans, Maintenance Strategies Inc

Many organizations have numerous programs and processes for managing assets, including the use of various predictive maintenance (PdM) technologies, operational inspections, equipment testing, etc. With all of this data, companies often struggle with how to integrate this information into a comprehensive plan that is focused on improving reliability and optimizing asset performance. This session will outline strategies used to improve operations at a large utility, how mobile devices were introduced and how operational activities were integrated with other PdM activities to create an integrated asset health approach.

iPads in the Workplace

Tim Chaten, GTI Spindle Technology Inc.

Apple's iPad is an incredible multi-touch computer with uses that most people overlook, including as a productive tool in the predictive maintenance workplace. This session will discuss various apps, accessories and workflows for using the iPad at work. Attendees will become empowered to use something they already have access to while learning ways to protect their iPad in the workplace, accessories and apps that allow vibration analysis to be done on an iPad, and methods of balancing spindles using apps alone.

Lube Manuals Should be more than Catalog Cut Sheets

Jerry Putt, Noria Corporation

The lube manual should be a key document that provides a roadmap to achieving the optimum level of lubrication for equipment. The designer can use the manual to convey key information that may not be obvious once the equipment is installed. This session will discuss what the designer should include and how it might be implemented by the equipment maintainers.

Lubricant Deposit Characterization

Dave Wootan, Wootan-Consulting

A growing performance problem with in-service lubricants is their generation of deposits. In most cases, lubricant deposits are referred to as varnish and are thought to all be the same. In reality, deposits have a wide range of different chemistries depending upon the formulation of the lubricant, the application, the mode of degradation and interaction with contaminants. This presentation will discuss the current state of varnish deposit characterization and how this can be the root cause determination pathway.



FROM THE TRENCHES

"Overall, this conference provides practical training and knowledge to allow users to return to their companies to provide value added changes to lower costs and increase revenue. Everyone must attend."

*Richard Woolley,
North American Construction Group*



LEARNING SESSIONS

CONTINUED

See a comprehensive list of sessions at Conference.Reliableplant.com

Lubricant Deposit Characterization Case Studies

Greg Livingstone, Fluitec, and Bryan Johnson, Arizona Public Services

Properly characterizing a lubricant deposit can provide insight into the cause of a problem and allow plants to make corrective actions, resulting in tremendous savings. This presentation will present a multitude of real-world case studies where this practice of deposit characterization has been used in the field. Attendees will learn how a unique deposit that is not detectable through normal varnish testing caused a million-dollar shutdown at a nuclear facility, about the creation of tar balls in a sensitive gas turbine, how black goo was generated in a critical gas compressor, among others.

Lubrication: An Exercise in Continuous Improvement

Ted Melencheck, Cargill Deicing Technology

When lubrication moves from being a program to a process, significant gains in cost reduction and reliability can be achieved. This case study presentation will demonstrate the value of establishing a fundamentally sound lubrication initiative that will serve as a foundation to build improvements through incremental steps. In addition to integrating data evaluation and interpretation, the use of root cause analysis will show how problems can be reduced or eliminated through a continuing improvement processes. This will be illustrated with case studies from real-world situations that can be easily related to many industries. Attendees will learn how to develop and manage lubrication initiatives, the importance of oil analysis and the use of reference samples, as well as how improvements can be made one step at a time through technology, employee engagement and commitment.

Maintenance Key Performance Indicators: You Can't Manage What You Can't Measure

Darrin Clark, ArcelorMittal USA

Reliability improvement initiatives often struggle to sustain progress. However, key performance indicators (KPIs) are quite effective at maintaining focus on the needed activities to drive improvement to a maintenance organization's performance. In this session, attendees will learn the importance of aligning KPIs to the business process, the difference and link between leading and lagging indicators, and how to deploy KPIs both vertically and horizontally in a large organization.

Managing Risk from Transformer Failures

Alan Ross, SD Myers

The reliability of a system is only as good as its weakest link. In recent years, the transformer, considered the heart of the electrical system, has increasingly become that weak link. Many production systems rely on transformers that have far exceeded their planned useful life. So what is a reliability expert supposed to do when an essential part of his system is for all intents and purposes beyond practical life expectancy? This presentation will examine the common mistakes organizations make when it comes to transformer management, including case studies and expert insight.

Monitoring Cleanliness Levels in Hydraulic Systems with the Mesh Blockage Method

Eric Krause, Pall Corporation

Monitoring hydraulic system cleanliness levels through particulate contaminant analysis is fundamental to achieving system reliability. However, automatic particle counting using light extinction technology is sensitive to optical interference caused by conditions such as non-homogenous fluids, free water in the system and air bubbles. These conditions can yield erroneous data and result in incorrect conclusions and excessive maintenance costs. Fortunately, a mesh blockage monitor can provide significant advantages over the light extinction method. This session will explain the differences between light extinction and mesh blockage for evaluating fluid cleanliness levels in hydraulic systems, as well as how to use the mesh blockage method in field applications.

Monitoring Low RPM Bearings

Larry Goodenow, SPM Instrument

Monitoring low RPM bearings with traditional techniques is difficult at best, and some would say next to impossible. This presentation will detail a groundbreaking solution to the problems involving condition measurement on low-speed machinery. The new technology has been used successfully on all types of machinery operating from 1 to 20,000 RPM and sets a new standard for modern condition monitoring. Attendees will learn how slow-speed bearing failures catch most users by surprise and that many of these bearings are large bore types and not stock items, resulting in long lead times. The new technology is designed to reduce this lead time.

FROM THE TRENCHES

"I've learned a lot of tips and techniques with working with our operators to help with lubrication on our various equipment. Definitely at the vendor section some new products we can possibly use to help out."

::Steve Baczuk, Corhart::

Motivating the Troops: How to Increase Employee Engagement

Diane Closser, Closser Lubrication Services, and Tom Hiatt, Covance

Employees in workplaces where overall engagement is high are more satisfied with the kind of work they are doing, experience higher levels of teamwork, feel more valued and recognized, and are less likely to be searching for a higher paycheck. This session will discuss where to start and how to get the best return on investment in making your company one of the better places to work. Attendees will be able to take ideas from this presentation and develop their own employee engagement team to address these issues at their plants.

Oil Analysis Case Studies: When Routine Tests are not Enough

Gary Forgeron, Analysts Inc.

Many people are lured into a false sense of security when their oil analysis report tells them everything is "normal." However, what they fail to understand is that some harmful condition may exist that was not included in the testing. This presentation highlights case studies where abnormal machinery /lubrication conditions existed but were not originally detected, as the proper analysis was not being performed. Learn the limitations of routine tests, how to identify advanced testing, and when and why to request advanced tests.

Oil Analysis Report Interpretation

Matthew McMahon, Insight Services

An oil analysis report is a vital tool for a smooth-running operation. Without a solid grasp of the underlying principles of reading and understanding these reports, the inexperienced reader is likely to become frustrated with trying to make sense of the seemingly unintelligible test data. This presentation will explore report interpretation, explain how to read test reports, describe some of the most common tests run on industrial equipment, discuss marginal and critical reports, and detail how to decipher various alarms.

Oil Analysis Results from Primary Contamination Types

Aaron Black, Polaris Laboratories

The primary source of lost revenue due to equipment downtime is commonly a direct result of some type of contamination, be it dirt, water, product, incorrect lubricant or a combination of these. Oil analysis testing can identify these contaminants, but unless you are aware of the actual problems that can arise from them, it is difficult to take the correct action. This session will review the primary contamination types and explain why they cause such problems, as well as delve into what these look like from an oil analysis perspective when they are in your system.

Oil Monitoring as a Tool to Optimize Hydraulic/Lubrication System Performance

Mrinal Mahapatra, Pall Corporation

The presence of water in hydraulic/lubrication systems can lead to a reduction in the service life of hydraulic/lube fluids and also be detrimental to various system components including valves, bearings, gears, pumps, etc. This session will discuss the benefits of an oil condition monitoring program on fluid cleanliness and system operation and reliability, as well as how vacuum dehydrators function to remove water from oils.

Optimizing Your Most Critical Asset

Nick Goebel, Rockwell Automation

As automation technology constantly evolves to meet productivity demands, so must the workforce-readiness programs designed to train employees how to operate innovative technology. Without a highly trained and knowledgeable workforce, manufacturers can't expect to truly optimize the production environment, maximize profitability and retain the highest quality employees. In this session, the importance of investing in "people assets" will be discussed as well as strategies and real-world best practices for improving employee performance, productivity and engagement. Attendees will learn about the benefits of workforce assessments, why they should make training a component of their business strategy, how to implement the right training and tips for driving continuous improvement.

Don't Miss Case Studies from These Industry Leaders





LEARNING SESSIONS

CONTINUED

See a comprehensive list of sessions at Conference.Reliableplant.com

Planning and Scheduling: A Best Practices Overview

Matt Midas, GenesisSolutions

What is the true purpose of your maintenance technicians? What do they spend the majority of their time on? You may be surprised. Often it's not true maintenance activities, i.e., wrench time. Eliminating non-value-add time (searching for parts, getting approvals, looking for procedures and job plans, etc.) from a maintenance technician's daily tasks is a strategic goal that can lead to improvements in efficiency, reduced downtime, improved safety and maintenance excellence. This session will describe elements of an effective planning and scheduling program, basic building blocks to establish a planning and scheduling function, how to gain executive sponsorship/endorsement and achievable benefit examples as a result of a successful program.

Preventing Ingress Contamination with Bearing Cavity Pressurization

Henry Dambraski, Air-Tight LLC

For anyone who has bearing contamination issues and has tried everything to resolve them, this presentation will discuss alternative methods for preventing ingress contamination. Attendees will discover how to stop bearing cavity ingress contamination by means of hermetically sealing the bearing cavity, pressurizing the cavity with low air or nitrogen pressure, controlling the pressure in the cavity 24/7, and obtaining a visual indication of the amount of pressure and of the bearing cavity integrity.

Process Analysis: Your Path to System Knowledge

Noah Bethel, PdMA Corporation

How well do you know your system processes? Can you identify the process behind every load variation on each motor in your system? This presentation will explain how to utilize process analysis to achieve motor and system reliability. Attendees will learn detailed analysis techniques for circulating water pumps and motor-operated valves as well as how to apply electrical fault zone analysis principles.

Process Performance Optimization: Combining Reliability, Lean and Change Management

Bruce Wesner, Life Cycle Engineering

Today, leaders of organizations are stretched to do more with less. They are asked to cover more areas with fewer resources, less time and smaller budgets. Given these constraints, how can you continue to drive improvement and achieve success? Focused improvement efforts can provide significant bottom-line impact. This presentation will show how reliability, lean and change-management best practices can be leveraged together in order to increase process performance.

Protecting Your Machine Surfaces from Chemical Attacks

Wes Cash, Noria Corporation

It is a well-known fact that particle contamination damages machine components, but what about other forms of degradation? If not properly monitored, lubricants can cause corrosive damage to these surfaces in a variety of ways. During this session, you will learn what to look for and understand how to make sure your oil isn't harming the equipment to which you are adding it.

Put New Life in Your Oil Analysis Program

Bob Scott, Noria Corporation

Walk through the components of an oil analysis program and gain some ideas on how to update and improve your existing program. This presentation will discuss selecting equipment based on criticality, choosing a laboratory, gaining awareness of how your laboratory bills you, understanding alarms and limits, test selection, data handling, sampling, reporting, interpreting data and program performance tracking.

Rapid Analyses for Fuel and Antifreeze in Used Engine Oil

Timothy Ruppel, PerkinElmer

If left unchecked, the presence of fuel and ethylene glycol in used engine oil will cause premature engine failure and loss of engine productivity. Routine analysis for these contaminants can predict engine problems, allowing for preventative maintenance before engine failure causes more costly consequences. High throughput automated analysis takes less than 2 minutes per sample, while older methods require 45 to 60 minutes per sample. This session will describe two separate analyses for the determination of contaminants in used engine oil that are more sensitive, accurate and faster than other methods currently used.

Reliability Analysis: Adding Value to a Predictive Maintenance Program

John Pucillo, Predictive Service, and Scott Sutfin, Kamin Industrial Technologies Corp.

Most predictive maintenance programs function fairly well with regards to identifying impending issues and addressing them with corrective measures. However, many programs fail to identify trends that would help reduce or eliminate problems from reoccurring. The majority of these issues are created or amplified from a lack of precision in the maintenance effort. This session not only will describe how to identify failure modes, but also how to capture and trend them for periodic analysis. Through this Pareto analysis method, item-affecting production, quality and availability can be identified and strategies put in place for improvements.

Reliability as a Service: How Cloud Computing has Moved into Predictive Maintenance

Tim Kelley, Azima DLI

Cloud computing continues to sweep through many industries. Condition monitoring and predictive maintenance are no different. It's clear that cloud computing is here to stay, and companies within the manufacturing and energy industries are well positioned to reap the business benefits such as cost savings, increased operational efficiency and improved quality of service. This presentation will discuss the advantages of investing in cloud-based condition-monitoring programs and walk attendees through the necessary steps for deployment.

Secrets to Achieving Lubrication Excellence

Jeremy Wright, Noria Corporation

Have you ever wondered what industry leaders are doing and what makes them the leaders? In this presentation, the five main attributes of world-class organizations will be revealed. You will also learn what many companies do wrong when trying to transform to lubrication excellence so you can be sure to avoid the same mistakes and reap the benefits of becoming a top performer in the lubrication field.

Simple Ways to Monitor Lubricant Condition

Bennett Fitch, Noria Corporation

While oil analysis is the preferred method for lubricant condition monitoring, some issues can still go unnoticed or aren't caught quickly enough. Lubricants and the machines in which they are used can provide subtle clues. Technicians who are frequently around their machines sometimes have gut feelings when something is wrong. With a few simple techniques and your five senses, learn how to catch faults quickly when all else fails.

The Benefits of Proactive Lubrication

Dale Jones, Allegheny Wah Chang

Learn how to start applying lubrication best practices and enforce these concepts to get a significant payback. This session will feature real-time case studies with filter-patch images, particle counts, documented cleanliness improvements and real-life cost breakdowns that show the financial benefits of these activities. Understanding the value of a proactive approach to contamination control will allow you to attach a dollar amount to improvements and present them to management in a way that is sure to get favorable attention.

Tools for Successful Reliability Partnerships

Ward Bond, Covance Inc.

Selecting the right reliability services vendor can make or break a successful reliability program. When considering the options available to those with reliability needs, a tool for evaluating the application and fulfillment of potential vendor qualities can improve the fit of the vendor to the service desired. This presentation will provide unbiased information that will aid attendees in selecting the best vendor for their individual needs, including examples of real-world applications of vendor selection and evaluation matrixes, as well as how the use of these tools can lead to successful reliability vendor partnerships.

Transforming Lubrication Procedures to Best Practices

Daniel Rader, Oklahoma Gas and Electric

This case-study presentation will detail how a power plant in Oklahoma went from standard operating procedure for oil lubrication to world class. Attendees will learn how a lack of lubrication standards, higher incidence of equipment failure and minimally trained maintenance personnel can be transformed to best practices in lubrication with fewer equipment breakdowns and an empowered maintenance staff. This session will also highlight the importance of vibration technology, oil sampling for predictive maintenance, proper lubricant storage and handling, and expert training.

Using a Team Approach to Achieve Maintenance Excellence

Ray Ardahji, Toyota Boshoku America

This session will explain how a collaborative approach between operators, technicians and engineers can empower production staff to conduct minor maintenance activities. With the Autonomous Care (AC) process, operators become an integral part of machine reliability and maintain their own equipment through daily inspections, lubrications, detecting abnormalities and quality checks. The result is fully restored equipment conditioned to its ideal state, along with the establishment of basic conditions for maintaining it and preventing equipment deterioration. Properly implemented AC reduces the causes of 30 to 50 percent of unplanned downtime, freeing skilled trades for higher level specialized activities.



LEARNING SESSIONS

CONTINUED

See a comprehensive list of sessions at Conference.Reliableplant.com

Using Root Cause Analysis as a Proactive Tool

Bob Latino, Reliability Center Inc.

Why do you have to wait for bad things to happen to use root cause analysis (RCA)? Why can't you do RCA on unacceptable risks or chronic failures that do not rise to the severity of a regulatory event? This session will explore how to use failure modes and effects analysis (FMEA) and opportunity analysis to quantifiably measure the impact of failure over time and determine the significant few (the 20 percent of the events costing you 80 percent of your risk and/or dollar losses). In this fashion, you are using RCA proactively to provide an actual, measurable return on investment (ROI) that will quickly and dramatically improve operational reliability.

Using Surface Technology to Extend Equipment Lifecycles

Ricardo Hein, Canexo

The mechanical component lifecycle is affected by wear and damage processes in acting surfaces. Prematurely failing components not only have a far-reaching economic impact on operators but also a consumptive impact on the environment. This greater need for resources affects the sustainability of the operation. However, by utilizing nano-tribological metal treatment, you can extend component lifecycles through a reduction in surface roughness and friction. This provides an opportunity to change predictive maintenance as we know it and turn it proactive to avoid machine stops and make equipment repairs without downtime.

Using Thermal Imaging to Diagnose Machinery Lubrication Problems

Leith Hitchcock, RAM-C

Diagnosing machinery lubrication-related issues with thermal imaging is a technique that is not widely understood or used in conjunction with lubrication management, despite being an extremely powerful method when used as part of an overall program. This session will cover the principles of thermography, including applications and limitations of the technique, as well as its ability for integration with other condition monitoring techniques and its use as part of a lubrication management program. Extensive case histories of thermography applications for diagnosis of lubrication problems will be provided.

Using Ultrasound-Assisted Lubrication

Adrian Messer, UE Systems, Inc.

Most premature bearing failures are the result of lubrication-related problems, and the majority of plants and facilities struggle with these types of issues. By using ultrasound, you can help to reduce over- or under-lubrication of bearings. The trend is toward more condition-based lubrication rather than time-based lubrication. In this session, you will learn how ultrasound technology can be utilized to assist current lubrication practices, including data collection and analysis, as well as hear sound examples of bearings in the process of being lubricated.

Viscosity Selection Using Viscosity-Temperature Graphs

Bob Scott, Noria Corporation

After particles and water, the wrong viscosity is a leading cause of equipment failures. Viscosity-temperature graphs illustrate the change in viscosity as the temperature changes and can be very useful for selecting oils. This session will explain how to create viscosity-temperature graphs, as well as how to read them and utilize this information to choose the proper ISO grade of oil.

What You Should Know About Lubrication and Seal Compatibility

Greg Kayes, Kluber Lubrication North America L.P.

The way sealing rings and lubricants interact is critically important in the function and life expectancy of any drive unit. A major factor in the durability of a seal is the combination of the sealing material and the lubricant used, which so far has received little attention in the design of gears. To keep friction and wear to a minimum, the radial shaft seal and the lubricant must form a functional unit. The lubricant should form a separating film in the bearing, the teeth and at the sealing tip. This reduces friction, increases the gears' efficiency, improves the dissipation of heat and protects the components against corrosion. This session will explain how the reliability of machines and drive units can be significantly improved and their lifetime extended by considering lubrication and seal compatibility.

When Are Mineral Oils Superior to Synthetics?

Bennett Fitch, Noria Corporation

It is common knowledge that synthetic lubricants have advantages over mineral oil lubricants. However, this may not always be the case. Understanding the key differences between synthetics and mineral oils can provide clues as to when each should be used in order to get the most out of your lubricant. This session will discuss the important characteristics of synthetics and mineral oils as well as how to utilize this knowledge for optimal solutions within various applications.

Why Maintainability Should not be an Afterthought

Jerry Putt, Noria Corporation

Equipment will require maintenance, so why make it more difficult than necessary? Whether you employ run-to-failure or condition-based maintenance strategies, you should strive to make all tasks as maintenance friendly as possible. This session will explore first principles of maintainability as well as ways to convert many inspections into effective runtime tasks.

:: See a comprehensive list of sessions at Conference.Reliableplant.com ::

:MOTTS MILITARY MUSEUM:

MONDAY, APRIL 15 — 9:00 a.m. – 11:30 a.m.

Need an uplifting furlough before the conference kicks off? Gather your troops and make plans to attend a one-of-a-kind tour at Motts Military Museum, just south of Columbus.

Founded in 1987 by Warren E. Motts, its mission is to “educate the public on the importance of America’s military past through documentation, collection, interpretation and preservation of tangible artifacts and personal stories of the men and women who served and are serving in the United States Armed Forces.” Originally established in the Motts family’s 1870 residence, the museum moved in 1999 to a more modern 5,100 square foot facility on four acres of land. Over the next several years, donations poured in from veterans and their families and the museum grew to accommodate military vehicles and aircraft. In 2001, the museum broke ground for a new wing measuring 5,200 square feet and featuring the nation’s second largest collection of Holocaust memorabilia, and also a large collection of artifacts from 9/11 – both the World Trade Center in New York City and the Pentagon. **This brand new wing is not yet open to the public; HOWEVER, attendees of this special RELIABLE PLANT offsite tour will be given proprietary “sneak peek” access on April 15th only!**

Tour attendees will depart via bus from the designated entrance of the Greater Columbus Convention Center on Monday, April 15 at 9:00 a.m. and return around 11:30 a.m. Cost is \$40 per person inclusive.

Space is limited, so register today at Conference.Reliableplant.com - click on the registration tab. Registration cut-off is Friday, March 29, 2013. No day-of registrations accepted.

THIS UNIQUE EXCURSION INCLUDES:

- Round trip transportation to/from the Greater Columbus Convention Center (approximately 15 minutes each way)
- Admission to Motts Military Museum
- 90-minute guided tour
 - > Including a medal gallery, POW exhibit, NASA, 9/11 artifacts, and an outdoor military memorial brick garden
 - > And special exhibits for Medal of Honor Recipient Ronald E. Rosser, General Paul Tibbets, Captain Eddie Rickenbacker, and The Tuskegee Airmen
- Snacks and beverages
- Commemorative Reliable Plant 2013 souvenir



Reserve Your Room Today!

RELIABLE PLANT 2013 will be held at the Greater Columbus Convention Center in Columbus, Ohio. Specially rated blocks of rooms are reserved at the **NEW** Hilton Columbus Downtown. You can take advantage of these discounted rates by booking your room(s) directly with the Hilton using the group name "RELIABLE PLANT 2013" at the time of reservation. Availability is limited, and you are encouraged to make reservations early.

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Reserve Your Room by March 26, 2013
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BOOK YOUR BARRACKS!

- Call the hotel at 1-855-380-9591
- Be sure to provide the group code: RELIABLE PLANT 2013
- Make all hotel reservation changes or cancellations directly with the Hilton
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**All room rates exclusive of state and local taxes, applicable service or hotel-specific fees in effect at the time of the meeting. Hotel tax rates are subject to change without notice. Reservation requests received after the March 26, 2013, cut-off date will be based on availability at the hotel's prevailing rates.*

RALLY POINT

ABOUT COLUMBUS

Named for explorer Christopher Columbus, Ohio's capital was founded in 1812, and is the 15th largest city in the U.S. Featuring a diverse economy centered around various industries, Columbus has emerged as a technologically sophisticated city. Just outside the Greater Columbus Convention Center, conference attendees can enjoy a wealth of signature shops, galleries, dining venues, historic theaters and green spaces. Columbus is also home to the No. 1 zoo, science center and newest baseball park in America.

If you're a sports enthusiast, Columbus hosts the Columbus Blue Jackets at Nationwide Arena and the Columbus Clippers at Huntington Park. Of course, Ohio State University's Buckeyes call our nation's largest campus their home.

What truly sets Columbus apart from other cities is the High Five, a collaborative effort linking the five most distinct districts along five miles of historic High Street: University, Short North, Arena District, Downtown and German Village. The High Five includes more than 150 restaurants, 200 shops, 40 art galleries and 50 event venues. It is one of the only locations in the nation in which such a distinct variety of neighborhoods can be found in such a close vicinity.

With temperatures ranging in the mid-to-upper 60s during the day and upper 40s at night, Columbus presents an comfortable, ideal climate during the April timeframe. With a convenient geographic location, technological synergy, pleasant climate and array of cultural and entertainment options, Columbus promotes the perfect mix of business and pleasure.

Hotel & Venue



AIRLINE AND CAR RENTAL

Air Travel | AMERICAN AIRLINES

American Airlines is offering a 5% discount on fares for attendees of RELIABLE PLANT 2013. Some restrictions may apply for airline tickets, and discounts may not be available on all fares. For reservations and ticketing information, call American's Meeting Services Desk at 1-800-433-1790 from anywhere in the U.S. or Canada and reference authorization number: 9243DA.

Discount fares are valid for round-trip travel on American Airlines and American Eagle, and can be booked online at www.aa.com/group without a ticketing charge. Valid group travel dates are April 10 - 25, 2013.

Car Rental | HERTZ

Discounted group car rental rates are available from April 8-25, 2013. Reservations can be made by calling 1-800-654-2240 or online at www.hertz.com and reference discount code: CV#04NZ0003.

NEED A VISA?

Noria welcomes international attendees to the RELIABLE PLANT Conference and Exhibition. Please note that Noria has no influence over the issuance of a Visa. When visiting the U.S., we suggest that you carry a copy of your planned itinerary, including your visit to the conference city for Noria's events and any business or vacation that follows. The Immigration and Naturalization Officer at your port of entry will approve the duration of your visit to the United States. To receive an invitation letter to the RELIABLE PLANT Conference and Exhibition, please e-mail registrations@noria.com.

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Monday through Friday
8:00 a.m. to 5:00 p.m. (CST)

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with payment or purchase order to:

Noria Corporation
1328 E. 43rd Ct.
Tulsa, OK 74105 U.S.A.

ON-SITE:

Monday, April 15 7:00 a.m. – 6:00 p.m.
Tuesday, April 16 7:00 a.m. – 6:00 p.m.
Wednesday, April 17... 7:00 a.m. – 6:00 p.m.
Thursday, April 18 7:30 a.m. – 11:00 a.m.

REGISTER NOW AND SAVE!

Full-Conference Registration

On or before February 14, 2013 \$795

On or before March 14, 2013 \$895

After March 14, 2013 \$995

Full-Conference Registration includes:

- Admission to all conference sessions (Tuesday-Thursday, April 16-18)
- Conference proceedings in CD-ROM format
- Opening General Session and keynote address (April 16)
- Exhibition hall access (Tuesday-Thursday, April 16-18)
- Lunches in the exhibit hall (Tuesday-Wednesday, April 16-18)
- Daily refreshment breaks (Tuesday-Thursday, April 16-18)
- Daily continental breakfasts (Tuesday-Thursday, April 16-18)
- Networking receptions (Tuesday-Wednesday, April 16-17)
- FREE Noria training coupon, valued at \$1,195

One-Day Conference Registration \$395

- Admission to one day of break-out conference sessions (choose from Tuesday, Wednesday or Thursday)
- Opening General Session (Tuesday only, April 16)
- Exhibition hall access for one day (choose from Tuesday, Wednesday or Thursday)
- Lunch in the exhibition hall for one day (Tuesday or Wednesday)
- Day's refreshment breaks
- Day's continental breakfast
- Day's reception (Tuesday and Wednesday)

Exhibition Only Registration

Advance earlybird by March 14 (all 3 days) \$35
Onsite (all 3 days) \$50

Pre-Conference Workshops

Monday, April 15
Half-day workshop (with full-conference registration) \$225
Half-day (workshop only) \$295
Full-day workshop (with full-conference registration) \$425
Full-day (workshop only) \$495

Workshop registration includes:

- Course materials
- Refreshment breaks
- Opening General Session (Tuesday only, April 16)
- Exhibition hall access (Tuesday only, April 16)

Spouse/Family Registration \$135

- Opening General Session (Tuesday only, April 16)
- Exhibition hall access
- Daily lunches in the exhibition hall (Tuesday-Wednesday, April 16-17)
- Daily continental breakfasts (Tuesday-Thursday, April 16-18)
- Receptions in the exhibition hall (Tuesday-Wednesday, April 16-17)

Group Discounts

3 to 9 attendees: Send three or more full-conference registrations for only \$550 each, plus a 20% discount on all pre-conference workshop fees.

10 or more attendees: Send 10 or more full-conference registrations for only \$350 each, plus a 20% discount on all pre-conference workshop fees.

Motts Military Museum

Monday, April 15 \$40

Cancellations must be in writing and postmarked by March 15, 2013. All cancellations received after this date are subject to a \$75 administrative fee, but you will also receive a \$75 coupon good for use against the cost of a Noria training or conference. If you don't cancel and you don't attend, you will be charged the full registration fee. However, a company may substitute one attendee for another, without penalty. Written notice prior to the event is required for substitute attendees.



RELIABLE PLANT 2013 REGISTRATION FORM :: APRIL 16th-18th :: GREATER COLUMBUS CONVENTION CENTER :: COLUMBUS, OHIO

REGISTRANT INFORMATION

Please print your name clearly. Your name and company will appear on your badge.
PLEASE photocopy this form for an additional registrant.

First Name _____

Last Name _____

First Name for Badge _____

Title _____

Company _____

Address 1 _____

Address 2 _____

City _____ State/Province _____

Zip/Postal Code _____ Country _____

E-mail (required) _____

Phone Number (required) _____

CONFERENCE FEES

Individual Full Conference

- ☐ 2/15/13 – 3/14/13\$895
☐ After 3/14/13\$995

Guest

- ☐ Guest-Spouse/Family \$135
(Must accompany paid attendee)

Individual 1-Day

- ☐ Individual 1-Day\$395
☐ Exhibition Hall Only\$35

Endorsing Organization Member

- ☐ 2/15/13 – 3/14/13\$845
☐ After 3/14/13\$945

Write-in Organization

BEST VALUE! Group Discounts

3 to 9 full-conference registrations for only \$550 each, **10 or more** \$350 each. Group discounts include a 30% discount on pre-conference workshop fees. Group registrations must be purchased at the same time. Call 800-597-5460 to take advantage of this offer.

Cancellations/Substitutions: Cancellations must be in writing and postmarked by March 15, 2013. All cancellations received after this date are subject to a \$75 administrative fee, but you will also receive a \$75 coupon good for use against the cost of a Noria training or conference. If you don't cancel and you don't attend, you will be charged the full registration fee. However, a company may substitute one attendee for another, without penalty. Written notice prior to the event is required for substitute attendees.

PRE-CONFERENCE WORKSHOPS

Monday, April 15th

SAVE with Full
Registration

- ☐ Basics of Lubricants \$295 \$225
☐ Fundamentals for Designing and Procuring
Equipment to Increase Reliability \$295 \$225
☐ How to Interpret Oil Analysis Reports
and Set Effective Limits \$295 \$225
☐ Lubrication Excellence Managers Summit \$295 \$225

MOTTS MILITARY MUSEUM

- ☐ Monday, April 15th \$40

CONFERENCE PROCEEDINGS ON CD

- ☐ With full-conference registration Included
☐ Purchase without registration \$99

TOTAL PAYMENT DUE: \$

Payment due upon receipt of invoice and prior to conference. No registration materials will be distributed without full payment. Customers outside the U.S.: We accept checks drawn on U.S. banks in U.S. dollars.

METHOD OF PAYMENT

Payment must be received prior to the conference.

- ☐ Check # _____ is enclosed or will be mailed

Please make check payable to: Noria Corporation

- ☐ Charge my: ☐ Visa ☐ MasterCard ☐ AmEx ☐ Discover

Noria Corporation is authorized to charge the credit card below for my conference registration fees in the amount indicated on this form.

Card Number _____

Expiration Date ____ / ____

Name on Card _____

Cardholder's Signature _____

- ☐ Bill Me/My Company - Purchase Order No. _____

4 WAYS TO REGISTER

ONLINE: Conference.Reliableplant.com

BY FAX:

Fax your completed
registration form to:
918-746-0925

BY PHONE:

Mon - Fri, 8am - 5pm (CST)
800-597-5460 or
918-749-1400

BY MAIL:

Send this form and payment:
c/o Noria Corporation
1328 E. 43rd Ct.
Tulsa, OK 74105 U.S.A.

Set Yourself Apart as a Leader Among Peers & EARN YOUR STRIPES!



The International Council for Machinery Lubrication (ICML) will offer certification exam opportunities during RELIABLE PLANT 2013. Advance registration is required. All exams will be conducted at the Greater Columbus Convention Center on Monday, April 15, from 5:30 p.m. to 8:30 p.m. and on Wednesday, April 18, from 6:00 p.m. to 9:00 p.m.

To learn more about the certification types, registration fees and exam preparation, visit the ICML website at www.LubeCouncil.org.



The Society for Maintenance & Reliability Professionals (SMRP) will offer onsite certification exam opportunities on Monday, April 15, from 5:30 p.m. to 8:30 p.m. and on Wednesday, April 18, from 6:00 p.m. to 9:00 p.m. at the Greater Columbus Convention Center. Advance registration is required.

Please visit the SMRP website at www.smrp.org or call 1-800-950-7354 to select your certification and ensure your seat in one of the testing sessions.

QUESTIONS?

Attendee Information and Registration

Elissa Ackerman
Toll Free: 1-800-597-5460
or 1-918-392-5038
registrations@noria.com

Exhibitor Space Sales

Tim Davidson
Toll Free: 1-800-597-5460
or 1-918-392-5052
tdavidson@noria.com

Marketing Support

Gina Godfrey
Toll Free: 1-800-597-5460
or 1-918-392-5035
ggodfrey@noria.com

Speaker Support

Jason Sowards
Toll Free: 1-800-597-5460
or 1-918-392-5045
jsowards@noria.com

2013 ADVISORY COUNCIL

The RELIABLE PLANT Advisory Council is comprised of industry experts who share their knowledge, experience, opinions and time to assure that the annual conference exceeds attendee and exhibitor expectations. These individuals convene to advise, share fresh perspectives, gauge future trends, evaluate and debate issues, and arrive at a mutual consensus for enhanced programs and strategic approaches. The advisory council is integral to the continued success of the 2013 RELIABLE PLANT conference and exhibition.

Jim Fitch, CEO	Noria Corporation
Jeremy Wright, Vice President of Technical Services	Noria Corporation
Jason Sowards, Editor-in-Chief	Noria Corporation
Scott Dunbar, General Manager	Air Sentry
Thomas Hiatt, Regional Engineer	Covance, Inc.
Jay Hurt, President	The Hurt Company
Suzy Jamieson, Executive Director	ICML
Greg Livingstone, Executive Vice President	Fluitec
Bill Lyons, Maintenance Optimization Manager	Holcim
Javier Navarro, Senior Manager Engineering Support	Corn Products International
Steffen Nyman, Corporate Trainer	C.C. Jensen
Jerry Putt, Technical Consultant	Contractor
Rendela Wenzel, Consultant Engineer	Eli Lilly
Jacqueline White, Industrial Marketing Manager	Shell Lubricants (Sopu Products U.S.)
Dave Wooton, Consultant Engineer	Wooton Consulting

