15 YEARS | APR 22-24 2014 | SAN ANTONIO, TEXAS

NORIA

NORIA'S 15TH ANNUAL CONFERENCE & EXHIBITION

# RELIABLEPLANT 2014

APRIL 22-24TH · SAN ANTONIO, TEXAS

## SHOW PROGRAM

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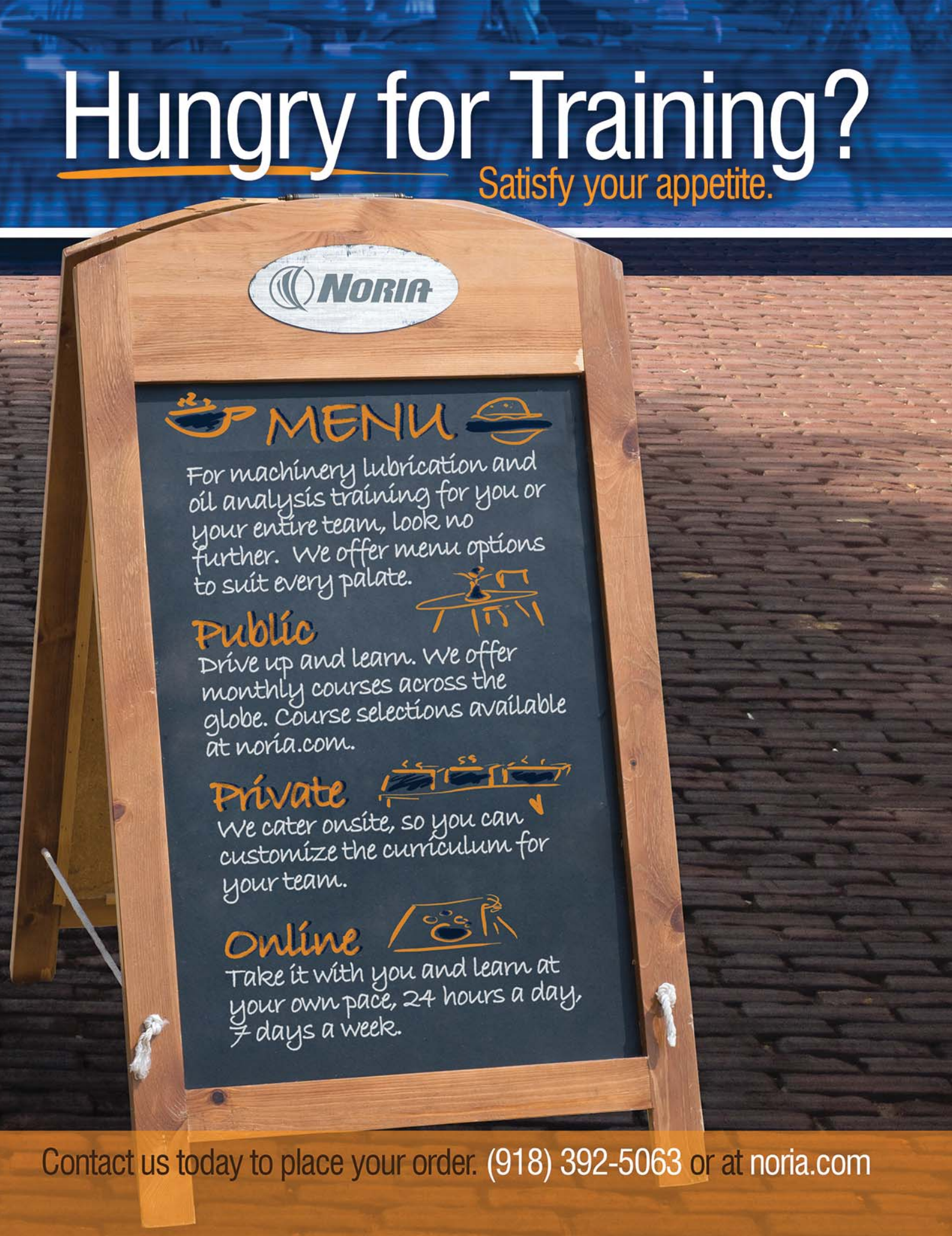


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## Welcome to Reliable Plant 2014!

Greetings industry HEROES and welcome to sunny San Antonio for our 15th installment of the Reliable Plant Conference and Exhibition.

You're about to embark on a great week of learning and networking. With more than 80 sessions and case studies to choose from, you have ample opportunity to gain information and insights for advances in technologies and industry best practices. Keep this show program handy throughout the week to review session titles, speakers and subject matter that will best fit your needs. You can also use this guide to identify exhibitors and booth locations in the hall – more than 100 exhibitors will be showcasing their products and services.

We're kicking off this year's conference on Tuesday morning with an exciting opening general session featuring a keynote address from baseball hero Jim Morris, the inspiration for Disney's "The Rookie." We'll also have a "state of the industry" presentation, multiple awards to present and a hearty acknowledgement of our sponsors and partners.

You'll want to join us both Tuesday and Wednesday evenings for end-of-day receptions. Tuesday night, we'll gather in the Lonesome Dove/Grotto area to enjoy a "taste of Tex Mex" with some exciting entertainment. On Wednesday, we'll conclude the day with refreshments, entertainment and camaraderie – a chance to make new acquaintances and network with peers.

Please allow me to personally recognize the contributions of the many individuals and organizations who have worked diligently on logistics and deliverables for this year's conference. Thanks to our HEROES….the exhibitors, sponsors, licensed partners and attendees – both domestic and international – who have traveled to Texas and made the commitment to participate in our event.

We're pleased to deliver to you and your organization all the benefits from this information-packed conference and exhibition to enhance your takeaway experience and ensure your return on investment. If we can do anything to make your experience a more pleasant and profitable one, please let our Noria staff know. You'll recognize them by their smiling faces!

Best wishes for a productive week in San Antonio,

Sincerely,

J. C. Fitch

Jim Fitch
CEO, Noria Corporation

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### MONDAY, APRIL 21

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5:30 p.m. – 7:00 p.m. . . . . Association for Maintenance Professionals (AMP) Exam
5:30 p.m. – 8:30 p.m. . . . . ICML Certification Testing

### TUESDAY, APRIL 22

**9:30 a.m. – 5:30 p.m. . . . Exhibition Hours**
7:00 a.m. – 5:00 p.m. . . . . Registration Open
7:30 a.m. – 8:00 a.m. . . . . Continental Breakfast
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9:30 a.m. – 10:50 a.m. . . . . Exhibit Hall Grand Opening
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### WEDNESDAY, APRIL 23

**9:30 a.m. – 6:30 p.m. . . . Exhibition Hours**
7:00 a.m. – 5:30 p.m. . . . . Registration Open
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5:30 p.m. – 6:30 p.m. . . . . Networking Reception
6:30 p.m. – 8:00 p.m . . . . Association for Maintenance Professionals (AMP) Exam
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### THURSDAY, APRIL 24

**8:50 a.m. – 12:00 p.m. . . . Exhibition Hours**
7:00 a.m. – 11:00 a.m . . . . Registration Open
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# SESSIONS AT A GLANCE

## Tuesday, April 22

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| **9:30 AM – 10:50 AM** | **Exhibit Hall Grand Opening** | | | |
| **9:30 AM – 5:30 PM** | **Exhibit Hall Hours** | | | |
| | **SESSION** | **CASE STUDIES** | **SPEAKER** | **ROOM** |
| **11:00 AM – 11:50 AM** | Root Cause Analysis: Is it Always the Lubricant's Fault? | CS | Ted Melencheck, Cargill | 213A |
| | Taming the "Paper Tiger" in Preventive Maintenance | CS | Michael Mazur, Schwan's Global Supply Chain | 213B |
| | Using Online Particle Counting as a Condition-based Maintenance Tool | | Steffen Nyman, C.C. Jensen | 214A |
| | Case Study: Achieving a World-class Lube Room | CS | Mike Horton, Domtar | 214B |
| | Secrets to Attaining Lubrication Excellence | | Jeremy Wright, Noria Corporation | 214C |
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| | Making Quick Changeovers for Maintenance, Repair and Overhaul Jobs | | Robert Crotty, Luminant Power | 214B |
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## Wednesday, April 23

| | | | | |
|---|---|---|---|---|
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# SESSIONS AT A GLANCE

## Wednesday, April 23 continued

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| | A New Approach for Changing the Lubrication Culture | | Marcello Gracia, Confialub | 213B |
| | Hydraulic Particle Counter Sample Preparation | | Bill Bars, Beckman Coulter | 214A |
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| | Value Delivery Through Reliability Leadership | | Terrence O'Hanlon, Reliabilityweb.com | 217B |
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| THURSDAY, APRIL 24 | | | | |
|---|---|---|---|---|
| **8:50 AM – 12:00 PM** | **Exhibit Hall Hours** | | | |
| | **SESSION** | **CASE STUDIES** | **SPEAKER** | **ROOM** |
| **8:00 AM – 8:50 AM** | Lubricant Storage and Handling Do's and Don'ts | | Rick James and Michael Brown, Noria Corporation | 213A |
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| | The Petrochemical Processing Instrumentation Crisis | | Jason Deane, WIKA Instrumentation | 214A |
| | Beat the Leak: Essential Practices for Connector and Conductor Professionals | | Donna Pollander, International Fluid Power Society | 214B |
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| | Understanding Filter Debris Analysis | | Scott Shoemaker, Analysts Inc. | 214A |
| | The Importance of Performing an Asset Criticality Ranking | | Quinton GoForth, Genesis Solutions | 214B |
| | Tricks, Tips and Traps of Oil Sampling | | Bernie Hall, Checkfluid | 214C |
| | Eliminating Maintenance Inefficiencies with Remote Wireless Monitoring | | Joe Van Dyke, Azima DLI | 217A |

# CRAFTSMAN® MEGA GARAGE TOOL-SET GIVEAWAY

**TWO RELIABLE PLANT 2014 ATTENDEES WILL WIN AN EXTREME GARAGE TOOL KIT INCLUDING**

- 40-INCH, 19-DRAWER, PREMIUM HEAVY-DUTY 2-PC COMBO - BLACK
- 66-INCH, GLADIATOR TALL GEARLOCKER® CABINET
- 34 1/2-INCH, 5-DRAWER, GLADIATOR MODULAR GEARDRAWER CABINET
- CRAFTSMAN CHROME/VINYL HYDRAULIC STOOL
- 96-INCH, GLADIATOR WORKBENCH POWERSTRIP
- CRAFTSMAN RED PVC MULTI-PURPOSE RAISED COIN GARAGE FLOORING
- CRAFTSMAN FLOORING TRIM KIT

Giveaway prizes may be different from what is depicted in the photo. Prizes will be purchased in advance and provided by a dealer of Noria's choice. Winning entrants are responsible for all applicable taxes (whether local, state, federal or international), surcharges, tariffs, duties, transport shipping and handling charges, and all other charges associated with taking possession of the prizes onsite in San Antonio, Texas.


## WHEN & WHERE?

A random drawing will take place at 11:15 a.m. on Thursday, April 24, 2014, at the Noria show-prize giveaway booth. Participation in the drawing is open to full-conference delegates and qualified guest entrants. **Your odds of winning are great, but you must be present to win.** Yet, just one more great reason to attend Reliable Plant 2014 in San Antonio

## HOW?

Check out the latest products and services from sponsoring companies in the exhibit hall – just stop by each sponsoring company's booth during the show, get your entry card stamped and turn in your completed card by 11 a.m. on Thursday, April 24 2014.

**GIVEAWAY SPONSORED BY:**

Air Sentry, ALS Tribology, Analysts, Inc., Argo-Hytos, Inc., Azima DLI, C.C. Jensen, CheckFluid, Inc., Emerson Process Management, Esco Products, Inc., FEI, Fluidall, Fluitec International, Harvard Corporation, HYDAC/Schroeder Industries, Hy-Pro Filtration, ICML, Indiana Bottle Company, Inpro/Seal, Intertek, Liquidynamics, Lubrication Engineers, Inc., Ludeca, Inc., MP Filtri USA, Nexus Global Business Solutions Inc., Noria Corporation, Oil Filtration Systems LLC, Pall Corporation, PerkinElmer, Inc., POLARIS Laboratories, RelaDyne, Royal Manufacturing, SD Meyers, Inc., SGS Herguth Laboratories, Inc., Shell Lubricants (Sopus Products US), SKF Lubrication, Inc.,Specialty Manufacturing, Inc., SPM Instrument, Total Lubrication Management/Colfax Fluid Handling, Ultralube, Y2K Fluid Power

# ATTENDEE INFORMATION

## Exhibit Hall Hours

Tuesday, April 22, 2014 . . . . . 9:30 AM – 5:30 PM

Wednesday, April 23, 2014 . . . . . 9:30 AM – 6:30 PM

Thursday, April 24, 2014 . . . . . 8:50 AM – 12:00 PM

## Onsite Registration Hours

Monday, April 21, 2014 . . . . . 7:00 AM – 6:00 PM

Tuesday, April 22, 2014 . . . . . 7:00 AM – 5:00 PM

Wednesday, April 23, 2014 . . . . . 7:00 AM – 5:30 PM

Thursday, April 24, 2014 . . . . . 7:00 AM – 11:00 AM

## Certification

For those who have registered for ICML and AMP certification, exams will take place on Monday, April 21 beginning at 5:30 PM and on Wednesday, April 23 beginning at 6:30 PM as follows: ICML in Room 208 and AMP in Room 210A

## Networking Opportunities

RELIABLE PLANT Conference and Exhibition provides attendees a myriad of networking opportunities designed to help maximize your experience, including the Opening General Session, Meet and Greet Reception and Networking Reception. For more information, see below.

# NETWORKING OPPORTUNITIES

### OPENING GENERAL SESSION

Sponsored By

Date: Tuesday, April 22, 2014

Time: 8:00 AM – 9:20 AM

Join us as we kick off the 15th annual RELIABLE PLANT Conference and Exhibition in the Lila Cockrell Theatre of the Henry B. Gonzalez Convention Center. Open to all attendees.

### MEET AND GREET RECEPTION

Sponsored By

HY-PRO FILTRATION

Date: Tuesday, April 22, 2014

Time: 5:30 PM – 7:30 PM

We'll wrap up day one with a reception in the Lonesome Dove/Grotto. Attendees will enjoy entertainment, hors d'oeuvres and drinks while networking with colleagues and exhibitors. Drink ticket provided in your badge holder.

### NETWORKING RECEPTION

Date: Wednesday, April 23, 2014

Time: 5:30 PM – 6:30 PM

This end-of-day reception held in the Exhibit Hall will allow attendees to network in a social setting and visit exhibitors while enjoying food and drinks. Drink ticket provided in your badge holder.

Sponsored By

ANALYSTS, INC.

# OPENING GENERAL SESSION FEATURED KEYNOTE

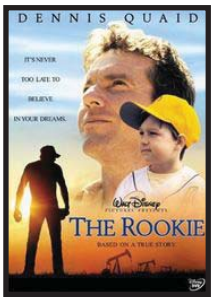
# Jim Morris

The Cinderella story of Jim Morris serves as testimony to the power of dreams and their ability to inspire and transform human life. Morris' meteoric rise from 35-year-old high-school teacher to flame-throwing major-league pitcher in three months made cinematic history with the release of "The Rookie" starring Dennis Quaid. This heartwarming and unforgettable Disney blockbuster about chasing your dreams and keeping your promises won the ESPY award for "Sports Film of the Year." Sports Illustrated magazine also voted "The Rookie" one of the "five greatest baseball films ever made."

Originally drafted in the first round in 1984, Morris had always dreamed of becoming a major-league baseball player, but his career was derailed by a series of debilitating arm injuries before he got out of the minor leagues in 1988. Instead, Morris got married, raised a family and earned his college degree before becoming a high-school science teacher and baseball coach in West Texas.

Eleven years after retiring from minor-league baseball, Morris was giving a speech to his high-school team about the importance of dreams and hard work when his high-school players challenged him to pursue his own dream of pitching in the major leagues. Morris made the following bet with his high-school team: if they won the district championship, he would try out for the majors.

Morris' team fulfilled their end of the bargain, which committed him to a big-league tryout, where he threw 12 consecutive pitches at 98 mph. Inspired by his family and students, Morris immediately signed a professional baseball contract. His rise from obscurity became the feel-good story of 1999. After pitching for the Tampa Bay Devil Rays in 2000, Morris signed with the Los Angeles Dodgers and retired from baseball in 2001.




Meet Jim in person directly following the keynote address - Shell booth #201


# 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 transferable 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 25, 2014, and April 24, 2015, or online courses purchased prior to April 25, 2015. 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.*

# PRE-CONFERENCE WORKSHOPS

**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.**

## Managing the Implementation Stage of a World-Class Lubrication Program

{ Alejandro Meza – Noria Corporation }{ Monday, April 21, 1:00 p.m. – 4:30 p.m. }

Many organizations struggle when implementing a lubrication program because they have a limited vision of the program's scope or because they have no formal change-management procedures. This workshop will explain the three key factors for implementation of a world-class lubrication program: knowledge/competency for all involved personnel in the organization, technology (lubrication hardware and software), and proper methodology or procedures. Attendees will learn the importance of defining the optimum reference state (ORS), how to design an effective program with a systematic view and how an appropriate change-management strategy can help you achieve your goals.

**With Full-Conference Registration { $225 }{ Workshop Only - $295 }**

## Interpreting Oil Analysis Reports

{ Bob Scott – LubeWorks }{ Monday, April 21, 1:00 p.m. – 4:30 p.m. }

Oil analysis is a key component in reliability programs worldwide. What isn't as readily evident is the ability to fully understand what oil analysis reports tell us. This workshop not only will discuss some of the most critical oil analysis program factors but will also offer an in-depth review of several oil analysis reports. The presentation will walk slowly and systematically through numerous reports from a variety of labs, allowing the different formats to be viewed as well as the different types of equipment. Attendees are encouraged to bring a few of their own unique reports to share with the group.

**With Full-Conference Registration { $225 }{ Workshop Only - $295 }**

## Lubrication Excellence – Manager's Summit

{ Jim Fitch – Noria Corporation }{ Monday, April 21, 1:00 p.m. – 4:30 p.m. }

There's a revolution occurring. Managers who once desired equipment 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

**With Full-Conference Registration { $225 }{ Workshop Only - $295 }**

## Fundamentals for Designing & Procuring Equipment to Increase Reliability

{ Jerry Putt – Noria Corporation }{ Monday, April 21, 1:00 p.m. – 4:30 p.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 }**

# LEARNING SESSIONS

## TUESDAY, APRIL 22
## 11 A.M.

### Root Cause Analysis: Is it Always the Lubricant's Fault?

CASE STUDY

*Ted Melencheck, Cargill*

**Room 213A**

When a failure occurs, your first instinct is to blame the lubricant, but is this really the issue? Root cause analysis can shed light on the underlying causes of the failure and lead to defect elimination. This presentation will provide case studies that illustrate how employing various root cause analysis methodologies can result in improved processes and defect elimination. Attendees will learn how using root cause analysis for equipment issues can also offer the value-added benefit of team development and improved engagement.

### Taming the "Paper Tiger" in Preventive Maintenance

CASE STUDY

*Michael Mazur, Schwan's Global Supply Chain*

**Room 213B**

Compared to the actual benefit of performing maintenance on machinery, the high administrative workload of a maintenance program can create a culture of robo-signing, poor quality, little value and outright falsification of PM completion. These are known as "paper tigers." This learning session will discuss how the maintenance group can create an added administrative burden over time with little effect to the actual need of maintaining machinery. Attendees will learn to take a critical look at the administration of their maintenance programs and identify "paper tigers."

### Using Online Particle Counting as a Condition-based Maintenance Tool

*Steffen Nyman, C.C. Jensen*

**Room 214A**

Particle counting is a valuable condition-based maintenance tool, but can the information be trusted? Errors can occur when performing manual oil sampling with bottles and sampling valves. Most of these

uncertainties are addressed when monitoring particles continuously by means of a stationary online particle counter. In this presentation, several case studies will demonstrate how online particle counting can reduce operation and maintenance costs associated with downtime, component wear and oil replacement. Real-life examples will be included from power generation, wind and marine lubrication systems where online particle monitoring was used to foresee machine wear, avoiding large breakdowns.

## Case Study: Achieving a World-class Lube Room

*Mike Horton, Domtar*

**CASE STUDY**

**Room 214B**

Domtar needed a world-class lube room to improve the cleanliness of its lubrication program and prevent unplanned downtime. Several designs were tried and many problems were encountered, but eventually the company overcame all the obstacles on its journey to excellence. This case study will describe the process Domtar implemented to eliminate contamination, improve ISO levels for incoming oil and enhance the ergonomics and housekeeping of its lube room. Discover how the company maintains proper inventories, utilizes best practices that include standard operating procedures and visuals, and uses barcoding within the lube/grease process.

## Secrets to Attaining Lubrication Excellence

*Jeremy Wright, Noria Corporation*

**Room 214C**

Have you ever wondered what industry leaders are doing and what makes them 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.

## How to Introduce a Reliability Program

*Paul Bonorden, INVISTA*

**CASE STUDY**

**Room 217A**

What does a company need to consider before implementing a new reliability program? There are many justifications and benefits that can be used to sell a program other than the data you get from your computerized maintenance management system (CMMS). Changing the organization's culture is a key component that is often not addressed and is a primary reason for a program not taking permanent root. This session will detail the important elements that must be addressed early in the development of a new program.

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# LEARNING SESSIONS

Learn how INVISTA implemented a reliability program that has been going strong for five years and how it spawned additional reliability endeavors.

## Should I Change My Oil?

*Dave Wooton, Wooton Consulting*

**Room 217B**

When deciding whether to change your oil, there will be many questions that you will need to answer. These include how and when you should change your oil, as well as questions about alternative approaches such as top-up or bleed-and-feed methods and fluid remediation. The real question is what do you need to know for the change-out itself. This involves issues like flushing, oil selection, lube oil assessments, compatibility and testing requirements. After the oil change has been completed, you must then consider what is needed to determine its success. This session will offer guidance for these important operation questions.

## 1:30 P.M.

## Automated Wear Debris Analysis Case Studies

*Sue Benes, FEI*

**CASE STUDY**

**Room 213A**

Until recently, only limited insight into what might be taking place inside an engine, turbine or gearbox was available. Exact particle-by-particle sizing with related chemical composition has traditionally been out of reach. However, a new automated particle analysis technique vastly improves the sheer number of particles that can be analyzed while offering reproducibility. This new approach to wear debris monitoring can help predict future failures, leading to increased cost savings. In this session, distinct differences in particle trending will be demonstrated, as well as sensitivity to elemental detection or individual particle chemistries.

## Using ISO Standards for the Selection and Application of Hydraulic Filters

*Eric Krause, Pall Corporation*

**Room 213B**

Many end users do not know which hydraulic filter to choose based on their application. This session will explain how to use ISO standards to select the proper filtration for hydraulic systems. Among the topics discussed will be the ISO cleanliness coding system, filter-sizing criteria, how to determine a system's required cleanliness level and the minimum recommended filter rating based on various environmental factors.

## How to Develop a Winning Relationship with Your Oil Analysis Lab

*Cary Forgeron, Analysts Inc.*

**Room 214A**

A surprising number of oil analysis practitioners rarely develop a working relationship with their oil analysis lab of choice. This leaves a large void in the lubrication program, which results in missed opportunities and prevents the program from truly becoming world class. When users express frustration with their oil analysis program, it is often due to a lack of understanding and communication between the user and their lab. This session will address how to avoid this trap and give attendees insight into how commercial oil labs operate so they can get the most out of the relationship.

## Making Quick Changeovers for Maintenance, Repair and Overhaul Jobs

*Robert Crotty, Luminant Power Services*

**Room 214B**

Successful application of quick changeovers to maintenance, repair and overhaul (MRO) jobs can result in improved safety, reduced job costs, decreased equipment downtime and enhanced job quality. This presentation will illustrate how to manage work sequences and team resources for events ranging from production process changeovers, preventive maintenance routines, equipment repairs, overhauls and whole plant maintenance shutdowns. Attendees will learn how to apply lean manufacturing principles, systems and tools as well as how lean setups and changeovers support the improvement of operational efficiency.

## Employee Engagement: Driving Your Own Success

*Thomas Hiatt, Covance Inc., Diane Closser, Closser Lubrication Services*

**CASE STUDY**

**Room 214C**

Employee engagement is critical to the success of any business, but how can employees become engaged to better their career as well as the company's bottom line? This session will present the steps employees should take to become actively engaged in their company, including how to talk with management about career expectations, how to get yourself engaged in your current job, how to mentor others to become more engaged and what the payoff is for becoming engaged.

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# LEARNING SESSIONS

## Causes and Consequences of Contamination in Diesel Engines

*Diego Navarro, John Deere Construction and Forestry*

**Room 217A**

Modern diesel engines are much more prone to become contaminated through internal leaks than ever before. The tolerances for mistakes in operation and maintenance are also narrower than in the past. This session will discuss 15 levels of engine contamination and seven recognized metal generators, along with their causes, remedies and how to prevent them. Attendees will discover how engines become contaminated, how engine systems contribute to different types of contamination, and how to identify internally produced contamination and its impact on component life.

## Improving Equipment Reliability Through Root Cause Failure Analysis

CASE STUDY

*Allan Andreycak, W.R. Grace, Chris Nowlen, Lubrication Engineers*

**Room 217B**

Many plants experience premature bearing failures on machines due to corrosion and lubricant contamination. This presentation will show how root cause failure analysis and modern technologies such as specialized bearing construction and automatic lubrication can help reduce these bearing failures. Attendees will learn not only how this approach can be applied to the challenges they face with their equipment but also how selection of the appropriate construction materials can have a positive impact on machinery reliability.

## 2:30 P.M.

## Lubrication Case Studies: 30 Years of Real-world Experiences

CASE STUDY

*Jorge Alarcon, IK4-Tekniker*

**Room 213A**

These amazing case studies will allow attendees to see lubrication from many different points of view and in a variety of industries. Real-world situations will be presented where proper lubrication was the key to greater success and improved results. From lubrication fundamentals to proposed solutions, learn practical and theoretical lessons from each case study while discovering the effects and economic impact of a good lubrication program.

## Best Practices for Electrical System Reliability

*Alan Ross, SD Myers*

**Room 213B**

A significant and growing risk for unplanned outages and lost production has been on the increase over the past decade due to critical power transformer failures. This session will examine the root causes of these increasing failures and describe how proper testing, maintaining and monitoring of critical transformers can lead to a more reliable, low-cost electrical system for reduced downtime and better asset management. Attendees will learn best practices for transformer oil testing, how to maximize the cost-effective life of an electrical system and how to avoid unplanned outages.

## A More Cost-effective Alternative for Flushing Turbine Oil Systems

CASE STUDY

*Greg Livingstone, Fluitec, Dave Wooton, Wooton Consulting*

**Room 214A**

An effective technique for flushing deposits out of turbine oil systems employs the use of a detergent/ dispersant cleaning solution. The downside of this method is that the cleaning agent is incompatible with the turbine oil, destroying its water and air separation characteristics. This presentation will describe the less expensive option of using a compatible cleaner to remove oil degradation products from a turbine oil system. Case studies will show when this method is appropriate and which system problems should be matched with other oil flushing techniques.

## Grease Sampling of Wind Turbines: Results from Two Years of Grease Analysis Research

*Rich Wurzbach, MRG Labs*

**Room 214B**

Because of its limited flow and movement in equipment, grease is a more difficult material to sample than oil. Analysis options are typically limited due to the larger volume requirements for traditional analysis techniques. Offshore wind turbines present a particular challenge with high costs of repair, limited access and extreme conditions. However, recent efforts in northern Europe have been made to develop reliable tools and methods for obtaining representative, small-volume grease samples for diagnostic analysis. This session will review the development of these sampling methods and the studies that demonstrate the value and accuracy of analyses made using this approach.

## Lessons Learned in Developing a Maintenance Program

*Jay Edwards, MillerCoors*

CASE STUDY

**Room 214C**

From concept through continuous improvement, see the different steps MillerCoors went through when developing its maintenance program for a new brewery, including what went right, what went

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# LEARNING SESSIONS

wrong and how the organization grew from the lessons it learned. Find out how to evaluate current maintenance systems, the major processes that must be defined in order to build a maintenance system, what is required from engineering and OEM partners in the project, and the importance of standardization for equipment, training, PMs and schedules.

## Simple Yet Powerful Root Cause Analysis

*Tor Idhammar, IDCON Inc.*

**Room 217A**

Root cause problem elimination (RCPE) is a powerful process that must be kept simple in order to work through tough and complicated problems. It focuses on critical and creative thinking and a simple cause-and-effect documentation method. Problems can be tough and tricky to solve, but if you follow this simple, yet powerful process, you can achieve great results. Attendees will gain insight into how to better solve problems in their plants, how to correct behavior and how to document RCPE with a pen and sticky notes.

## How to Calculate Viscosity Requirements for Rolling-element Bearings

*Wes Cash, Noria Corporation*

**Room 217B**

Viscosity is the most important physical property of a lubricant, but how does it really protect bearings and how much viscosity is enough? Errors in viscosity selection can translate into huge wear and energy losses over time. This session will explore the science behind viscosity as well as what influences it and how to calculate the viscosity needs of a rolling-element bearing.

# 4:30 P.M.

## What to Consider Before Changing Your Vehicle's Oil and Filter

*Jerry Putt, Noria Corporation*

**Room 213A**

This presentation will explain what you should consider in order to select the appropriate lubricant and filter for your vehicle, as well as what drives the timing for an oil change. There are many misconceptions about this basic task that is performed on one of our most valuable possessions. While this session will focus on vehicle maintenance, much of what will be covered will be relevant to a wide range of machinery lubrication applications. Among the topics discussed will include how various lubricant types influence engine life, whether OEM filters are the best choice, how to read an oil can, what additives do in oil and how they are impacted by extended oil change intervals.

## Methods for Evaluating Oil Filter Performance

*Eric Krause, Pall Corporation*

**Room 213B**

Understanding the performance characteristics of filters is essential for providing the best protection for fluid power and lubrication systems. The multi-pass test (ISO 16889) is the most widely used filter performance test method. Due to its limited scope, this test method does not capture some of the key filter characteristics that are important in modern systems, such as removal efficiency under cyclic flow conditions. This presentation will describe the multi-pass test and a relatively new test method (SAE ARP 4205) that is designed to examine filter performance under cyclic flow conditions.

## Foaming and Air-release Characteristics of Industrial Gear Oils

*Rüdiger Krethe, OilDoc*

**Room 214A**

The formation of foam or finely dispersed air bubbles is one of the most frequently discussed phenomena occurring in gearbox operation. Excessive foam can lead to serious operational problems as well as safety and environmental hazards. This session will explain the various causes of in-service lubricant foaming, particularly in wind turbine gearboxes, as well as how to prevent foaming and finely dispersed air bubbles in gearbox lubrication. Attendees will also learn about the different standardized test procedures available for determining the foaming and air-release characteristics of lubricating oils.

## Taking Predictive Maintenance to the Next Level

*Mark Latino, Reliability Center Inc.*

**Room 214B**

This presentation explores how a technician/analyst can identify a failure mechanism from a fractured component's surface. Find out how failures occur as well as the surface features that distinguish the physical mechanism. Attendees will learn the differences between primary and secondary failures, how long different components should last, how poor installation practices affect component life and how to recognize fatigue failures, overload failures, corrosion failures and erosion failures.

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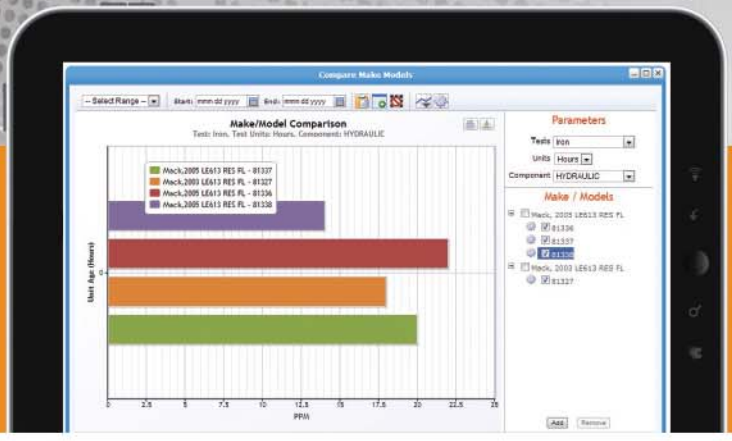


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# LEARNING SESSIONS

## WEDNESDAY, APRIL 23
## 8 A.M.

### Solutions for Baby Boomer Retirement and the New Workforce

*Bruce Wesner, Life Cycle Engineering*

**Room 214C**

Concerned about your operation and the impending wave of Baby Boomer retirees? Troubled by the millennial generation and their perspective on tenure and job shifting? You're not alone. Your workforce is changing, and your ability to meet production and profit targets will be taxed as employees-for-life transition to employees with differing perspectives on tenure. A reliance on tribal knowledge and informal work practices will no longer suffice. This presentation will help managers address solutions to standardize operating procedures and maintenance processes. It will also include change management strategies for transferring knowledge and data in order to create an operating culture better designed to thrive during higher turnover.

### Analytical Ferrography and Patch Analysis: A Case Study Review

**CASE STUDY**

*Aaron Black, POLARIS Laboratories*

**Room 217A**

This presentation will discuss the use of microscopic analysis for fluid analysis purposes and review multiple applications of the technology through individual submitted samples. Attendees will be able to see real-world application of the technology and some of its capabilities as well as learn why you might request a microscopic analysis and why a given microscopic analysis type is selected.

### How to Develop a Lubrication Program and Achieve a Change in Culture

**CASE STUDY**

*Jon McNees, Sinclair Wyoming Refining Co.*

**Room 217B**

To develop a good lubrication program, there must be a culture change. Buy-in from all aspects of the organization will be required. Ultimately, it must start at the top, which typically is the hardest sell. To change the culture, personnel must be aware of the changes that will take place. The greatest resistance to changing the culture will come from those who are not informed or misinformed. This presentation will explain the steps and processes Sinclair used in developing its lubrication program and how the culture at its refinery was changed successfully.

### PM Optimization: An EAM Best-practice Overview

*Mike Greenholtz, GenesisSolutions*

**Room 213A**

Following asset criticality ranking, a preventive maintenance optimization (PMO) effort is the next step in achieving world-class reliability standards for a successful enterprise asset management program. The purpose of PMO is to refine maintenance tasks and frequencies in supporting a particular physical asset. In simple terms, PMO is performing the right work at the right frequency in the right way. Although there are a number of benefits of PMO, increasing your mean time between failures is one that will have a tremendous impact on the entire operation. This presentation will provide an overview of the PMO process, the expected outcome and the advantages of a successfully executed PM optimization effort.

### Root Cause Analysis: From Detection to Implementation

**CASE STUDY**

*John Martinez, Tate & Lyle*

**Room 213B**

Follow the struggles Tate and Lyle's manufacturing plant experienced when addressing its root cause problems and see how it overcame the roadblocks. This case-study presentation will show how to create a root cause analysis program, including how to detect and track problems, gather information, write reports, conduct meetings and implement changes. Attendees will also learn how to obtain buy-in for changes, how to get more people involved in the solution process, how to avoid finger-pointing and how to determine when to consider a failure a root cause problem.

### Using Multiple PdM Technologies to Identify Bearing Faults

**CASE STUDY**

*Don Jones, Citizens Energy Group*

**Room 214A**

This case-study presentation will describe how using more than one predictive maintenance (PdM) technology to identify a bearing fault and its severity on a vertical pump motor provided substantial savings and reduced the potential for significant downtime. When operations noticed an unusual noise coming from a particular vertical pump motor, vibration analysis was performed to determine the severity and cause of the reported noise. However, another technology was needed to confirm the fault. Attendees will see the advantages of using multiple technologies to support original fault analysis and how this can provide management with the necessary information for timely and decisive action.


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# LEARNING SESSIONS

## Lubrication Excellence Case Study: Increasing Wind Turbine Availability with an Effective Lubrication Program

**CASE STUDY**

*William Berger, Duke Energy*

**Room 214B**

Wind energy is a unique market segment that is just beginning to achieve a reliability mindset. Having a lubrication excellence program can help make wind more competitive with other forms of energy. This case study details how a lubrication excellence program was employed to increase and maintain wind turbine availability, lessons learned along the way and the program's current status. Attendees will discover the reliability challenges associated with wind energy, key elements of a lubrication excellence program, and equipment improvements and upgrades that can reduce risk.

## Increase Asset Reliability Through Effective Planning and Scheduling

*Kris Bagadia, PEAK Industrial Solutions*

**Room 214C**

Many maintenance operations are struggling with a huge backlog, lack of sufficient resources, constant work interruptions, not having parts when needed, recurring failures, etc. With proper planning and scheduling, a reactive maintenance operation can be converted into a proactive one. In these lean times, when more is expected from fewer resources, having a highly efficient maintenance program with thoughtful planning (coupled with appropriate technology) is the key to success. This session will help attendees improve their maintenance operations efficiency, lower maintenance costs, reduce emergencies and improve asset reliability.

## Friction's Nemesis: Proper Lubrication

*Bennett Fitch, Noria Corporation*

**Room 217A**

Friction is a double agent for good and evil. Without friction, you wouldn't be able to perform critical tasks like slowing down a car or striking a match. However, friction also plays an antagonistic role in making it challenging to operate machines smoothly without any wear from contacting surfaces. In such instances, lubrication comes to the rescue. This session will cover the core basics of what friction is and why lubrication is so important.

## Vibration Analysis for Improved Maintenance and Profitability

*Dennis Shreve, GE-Bently*

**Room 217B**

Various predictive maintenance tools and technologies will be discussed in this presentation, with special emphasis on data collection for vibration analysis as a leading indicator of potential machinery health problems. Best practices for obtaining the tools and training to get a predictive maintenance program up and running will be covered along with how to classify and select equipment for inclusion in the program. Key steps in problem detection, analysis, correction and verification for achieving a "zero breakdown" performance record will also be included.

# 9 A.M.

## 3 Reliability Keys for Electric Motor Testing

*Noah Bethel, PdMA Corporation*

**Room 213A**

This session will focus on the three reliability keys for electric motor testing and how they should be applied to drastically improve your return on investment. Among the topics that will be discussed include electric motor fault zone analysis, quality control testing of new/refurbished motors and the distribution systems that supply power to them, the importance of trending electric motor test data, the recommended testing frequency, and end-of-life troubleshooting strategies and approaches.

## How Vibration Can Trick You

*Karl Hoffower and Jack Staudt, Condition Monitoring Solutions Inc.*

**Room 213B**

Vibration analysis is an excellent tool for monitoring the condition of rotating equipment. However, an improper configuration setting can hide the true condition of your machine. This presentation will review the basic rules for optimum vibration data collection to reveal the possible fault frequencies a machine can exhibit. A case study analyzing both vibration spectrum and time waveform will also be presented demonstrating how incorrect vibration configuration settings failed to show what was truly happening with a critical pump. Learn key points about data-collection settings and how to diagnose a bad bearing, mechanical looseness and rotor rub.

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# LEARNING SESSIONS

## Babbitt: The Other Bearing Lubrication

*Mark Tarbet, Luminant Power*

**CASE STUDY**

**Room 214A**

For those who understand lubrication but perhaps not the actual mechanical and chemical properties of a sleeve bearing, this presentation will discuss how babbitt works with and without lubrication to protect the shaft of an operating machine. Two case studies will show what can happen when there is a loss of lubrication, including the resulting damage. Attendees will learn what babbitt is and how it works as well as other bearing damage mechanisms.

## How to Build a Comprehensive PM/PdM Program

*Terry Taylor, IDCON*

**Room 214B**

In many organizations, no preventive maintenance (PM)/predictive maintenance (PdM) program exists for assets, or if one does exist, it is not very effective. This session will show how to build a PM/PdM program for new equipment and how to improve an existing program. Attendees will leave with a simple plan for creating and/or modifying a comprehensive PM/PdM program for any asset they have in order to improve asset reliability and lower maintenance costs.

## Wear Debris Mode Classification and Pre-emptive Root Cause Diagnosis

*Violet Leavers, V4L Particles*

**Room 214C**

Wear debris mode classification can often diagnose the root cause of an equipment health problem without further testing. Sample preparation is relatively quick and simple, and the analysis typically takes only a few minutes to complete. However, the level of skill and expertise required is significant and thus costly in terms of staffing resources. This presentation will discuss a new user-friendly method that can replicate the expertise needed for proficient wear debris mode classification and root cause diagnosis while offering guidance and support at each stage of the analysis and diagnosis.

## Making the Most of Your Oil Analysis Data

*Gene Wagenseller, Analysts Inc.*

**Room 217A**

Many organizations performing oil analysis don't utilize the data as effectively as possible. This session will review case studies on how trending oil analysis data can identify root causes and will explain how to optimize oil drain intervals using oil analysis. Attendees who are currently performing oil analysis will gain an understanding of how to better use the data they already have, while those not performing oil analysis will discover its benefits.

## How to Establish Best-practice Lubrication Procedures

*Wes Cash, Noria Corporation*

**Room 217B**

Equipment manufacturers provide literature depicting how to maintain equipment, but they are often very generic and leave much to be desired in terms of ease of use. An effective lubrication procedure offers a step-by-step guideline that directs the user through a specific lubrication task and creates the framework for standardizing best practice. In this session, attendees will learn what elements a best-practice procedure contains as well as how to assemble procedures for real equipment.

# 11 A.M.

## Engaging Manufacturing Operators in Predictive Maintenance

**CASE STUDY**

*Jay Edwards, MillerCoors*

**Room 213A**

A new way of thinking about predictive maintenance (PdM) increases the involvement and engagement of operations and improves the overall equipment reliability levels in plants. This session will cover some historical methods of implementing PdM and show how it is now feasible to put it into the hands of operators for a better first line of defense on equipment problems. Learn the methods for engaging operations in the value and benefits of PdM, using operator PdM to flag the need for higher level analysis and examples of PdM tasks that operators can perform.

## The Importance of Precision Machine Alignment

*Steve Lochard, Ludeca Inc.*

**Room 213B**

Precision machine alignment can benefit an organization in four areas: energy savings, machine life, product quality and maintenance savings – all of which are essential toward achieving plant reliability and efficiency. This session will discuss the fundamentals of alignment as well as machine installation, soft foot conditions and developing true alignment targets. Learn how precision machinery alignment resolves premature failure and provides an important ingredient in reliability efforts for rotating equipment.

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# LEARNING SESSIONS

## Grease Selection, Application and Maintenance Practices

*Frank Hayes, Petro-Canada*

**Room 214A**

While it is important to select and place an appropriate grease into service, it is just as important to know how to assess and resolve grease-related problems when they occur. A better understanding of grease and grease applications will enable operators to troubleshoot grease-related problems with confidence. This presentation will cover grease formulations, performance and application issues as well as address the major considerations when selecting and placing lubricating greases into service. Attendees will discover how to address specific grease distribution and service problems, and how to optimize the life and operation of their greased components.

## Achieving Lubrication Excellence with a Six Sigma Approach

*Leon Reed, GenesisSolutions*

**Room 214B**

Many organizations are mired in old cultures and legacy practices when it comes to machinery lubrication and reliability. In fact, it is estimated that 40 to 60 percent of all equipment failures can be attributed to improper lubrication. Today's modern equipment requires precision lubrication with specific lubricants administered through best practices to sustain reliability, maximize life cycles and generate profits. This presentation will detail how to use a Six Sigma approach to identify your lubrication program's current state, measure progress to a desired state, properly develop your program and transition your organization to an award-winning lubrication excellence facility.

## Natural Gas Engine Oils: Applications in Oil and Natural Gas Production

*Bob Scott, Noria Corporation*

**Room 214C**

Within the crude oil and natural gas production industry, several applications require unique lubrication solutions. In this presentation, stationary natural gas engines and their lubrication will be discussed, including air/fuel ratios (lean burn engines), oil oxidation and nitration, oil change intervals, OEM requirements for viscosity and ash levels, oil cleanliness and filtration requirements, as well as used oil analysis.

## What a Maintenance Reliability Program Should Look Like

**CASE STUDY**

*David Kintner Jr., Leprino Foods*

**Room 217A**

Maintenance personnel at Leprino Foods were good at fixing things after they broke but never gave much thought to correcting the problems before they occurred. The company soon realized that if the technicians didn't become more efficient in making their current repairs, they would never free up enough time to work on proactive projects. This session will detail the steps Leprino Foods took to improve its maintenance reliability program, including the awareness training that was implemented and the condition monitoring techniques that were employed. Attendees will get to see what a blue-collar maintenance reliability program looks like.

## Advanced Oil Analysis Data Interpretation

*Evan Zabawski, Fluid Life*

**Room 217B**

Oil analysis data can be confusing, but it can be deciphered if you have the right information and tools. This session will discuss the various types of alarm limits, how they are applied and how to derive better ones. It will also explain how better alarm limits can enable deeper interpretation such as identifying patterns and trends, isolating bad actors and erroneous data. Attendees will learn about the inadequacies of the present reporting format of most used oil analysis reports and be shown an example of a much more efficient format that allows for easy data interpretation.

# 1:30 P.M.

## Innovative Predictive Maintenance Techniques for Reciprocating Compressors

*Michael Boken, Reciprocating Network Solutions*

**Room 213A**

This presentation will address the issue of data analysis and failure modes of large reciprocating compressors operating in pipelines, refineries and chemical facilities. The various methods used to detect deterioration in reciprocating compressors will be explained, as well as how to apply specific condition monitoring techniques to reciprocating compressors while considering both the mechanical condition and performance. Attendees will learn about valve dynamics and failure modes, how to interpret pressure volume and pressure time curves, basic condition monitoring analysis for compressors and new cloud-based data networks for third-party diagnostics.

# LEARNING SESSIONS

## Building the Business Case for Maintenance Planners and Storeroom Operations

*Andrew Gager, Nexus Global*

**Room 213B**

A good maintenance system that includes planning and materials management can have a significant impact on the bottom line, yet many companies don't pay adequate attention to these roles. This presentation will highlight the importance of proper maintenance planning and scheduling that is supported by an effective and efficient materials storeroom operation, along with the financial impact of both groups on the organization. Attendees will discover many opportunities for improvement and how there is significant money being left on the table from inefficiencies and ineffective systems.

## Fill-for-life Turbine Oil: Fantasy or Reality?

*Greg Livingstone, Fluitec, Dave Wooton, Wooton Consulting*

**Room 214A**

Turbine oils generally fail for one of three reasons – they degrade and form deposits (also known as sludge and varnish), they become contaminated, or they fail due to additive depletion. However, if all of the bad chemistries are removed from the turbine oil and the good chemistries are replenished, is it possible for turbine oil to last indefinitely? This session will detail the benefits and risks of additive replenishment and when to consider this approach.

## Strategic vs. Tactile Reliability

*Jay Shellogg, Consultant/Civil Engineer*

**Room 214B**

Reliability is not driven by software or technology but rather by people who know that the principles of reliability-centered maintenance accurately model how assets behave. Indeed, there must be a change in focus from implementing software and technology to educating your team on the principles of reliability that should govern their decision-making. This session will discuss the battle between strategic application of reliability principles and the application of tactical fixes centered on process-driven changes without first establishing the foundational principles of reliability.

## What You Should Know About Food-grade Lubricants

*Loren Green, Noria Corporation*

**Room 214C**

There are few certainties in life, but one of them is that lubricants leak. Regardless of how much effort is taken to guard against leakage, it still occurs. In many industries, this isn't necessarily an issue. In food-related industries, it is more of a concern, as lubricant cross-contamination in food would be a bad thing. For this reason, a special category of lubricants has been developed – food-grade lubricants. Currently, there is a large volume of conflicting and confusing information about these lubricants. This presentation will help to dispel a few of these myths and clear up some of the confusion.

## Moisture Analysis of Lubricants Using Relative Humidity Sensor Technology

*Christopher Altamirano, Arizona Instrument*

**Room 217A**

For oil-based lubricants, the presence of water is a significant concern, as it can decrease the lubricant's efficiency and cause premature wear. For these reasons, the water content in lubricants must be monitored. This presentation will describe a unique method for lubricant analysis that can help prevent machine breakdowns and reduce downtime, maintenance costs and throughput times for manufactured or processed goods. Discover the advantages of using relative humidity sensor instrumentation to monitor and measure moisture content in lubricants.

## Benefits of Simulating Contamination Effects on Grease Using New Laboratory Tests

*Wade Flemming, Lubrication Engineers*

**Room 217B**

Contamination can and does cause grease to flow, pump and perform differently in application. This session will explain how using new tests to analyze the effects of contamination on grease in the laboratory can result in a better understanding of how grease will perform in similar conditions in the field. Attendees will learn why it is important to consider the application environment and possible contaminants when selecting grease, as well as alternative analysis techniques to evaluate in-service grease.

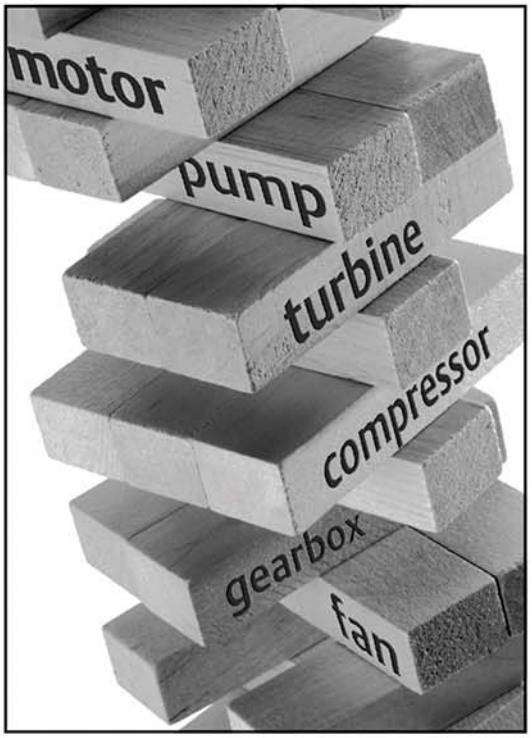
# 2:30 P.M.

## Creating a World-class Organization

*Christopher Ahoy, Performance Management Consulting*

**Room 213A**

What is world class? Why is it important to become a world-class organization? How can you achieve world-class status? How do you raise the bar in an organization to create high-level performance?

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# LEARNING SESSIONS

This session will answer these questions as well as detail the benefits an organization can realize through lean and Six Sigma methodologies. Attendees will learn how implementing these processes will remove waste and why zero variance is important in developing products and services.

## Steps to Audit and Benchmark Your Maintenance Planning and Scheduling Culture

*Jeff Shiver, People and Processes Inc.*

**Room 213B**

All too often organizations staff the maintenance planning and scheduling role without providing expectations. They also typically fail to train the rest of the organization on these roles and the required interaction for success. Remember, planning is about eliminating avoidable delays and driving craft efficiencies, while scheduling is all about setting an expectation of activities to be completed in the next schedule period. Both work together to drive equipment reliability. How effective is your organization in achieving these concepts? This presentation will describe an in-depth process to benchmark the maintenance planning and scheduling function within your organization.

## Techniques for Improving Machinery Reliability

*Ian McKinnon, Reliability Solutions*

**Room 214A**

How is it that we fail to recognize the value of further asset improvements to gain reliability, production enhancement, manufacturing cost and energy conservation with correct application of on-the-floor skill sets? We need to consider how "mechanical" failures can be much more than just mechanical craft issues and how these failures also include electrical, instrumentation, production, engineering, purchasing and other groups. This session takes a brief glimpse into how maintenance and reliability professionals continue to concentrate on technologies to find failures with little or no emphasis on real and measurable asset improvement.

## Demystifying Varnish Analysis

*Axel Wegner, C.C. Jensen*

**Room 214B**

For more than a decade, much work has been done to study, interpret and explain varnish problems and their remedies. This presentation cuts through the fog of overwhelming information with a proven hands-on, real-life approach. In addition to the tools needed to evaluate, plan and execute oil conditioning programs, attendees will learn how to interpret lab reports, shorten planned outages, minimize unplanned outages, choose a good oil analysis provider and the right oil conditioner, as well as validate the benefits of a clean oil system for their machines.

## Preventive Maintenance Optimization Through FMEA

*Greg Folts, Marshall Institute*

**Room 214C**

Would you invest 16 hours of effort to reduce an asset's downtime by 50 percent? Most organizations have preventive maintenance (PM) programs, but many PM strategies are generic. This session will focus on the use of failure modes and effects analysis (FMEA) methods to find and apply the best maintenance strategies to the top 20 failures causing significant equipment downtime. Attendees will discover practical ways to improve existing PMs using data, history and the experience of people familiar with the equipment.

## Custom Classification of Wear Particles Using Image Analysis

*Peter Bouza, Vision Analytical, Inc.*

**Room 217A**

Classification of wear particles smaller than 20 microns can be difficult. Traditional ferrography tends to classify specific wear particles based on one or two basic parameters. Given the broad spectrum of materials being used for machinery, wear particles of all shapes are presented, resulting in the need for customizable classification. This session will describe a technique that is able to perform classification of wear particles down to 3 microns and that can be customized for different wear particles. Sample results of wear particles in lubricating oil will be shown along with how to set classification parameters for specific wear particles.

## A New Look at Criticality Analysis for Lubrication-enabled Machine Reliability

*Jeremy Wright, Noria Corporation*

**Room 217B**

How critical is your machine's reliability? What would be the consequences if it failed suddenly and catastrophically? Criticality is the logical starting point for all reliability initiatives. Once you understand machine criticality and a machine's risk profile, you can work smarter to customize improvements. This presentation will discuss the basics of lubrication-enabled machine reliability, the optimum reference state, the reliability-risk connection, associated calculations and how to de-risk a plant.

# LEARNING SESSIONS

## 4:30 P.M.

### Roll-off Cleanliness: An Important Factor to Control Cost
*Dan Zoller, Schroeder/HYDAC*

**Room 213A**

Contamination control is an important part of the manufacturing and assembly process. Fluid cleanliness has a direct influence on system efficiency, warranty and operating costs. This session will outline strategies to improve fluid and hydraulic system condition in order to achieve lower costs and extend the life expectancy of fluid and equipment. Discover how to identify contamination levels in hydraulic fluids and the sources of contamination during manufacturing and assembly, as well as how to effectively control contamination.

### A New Approach for Changing the Lubrication Culture
*Marcello Gracia, Confialub*

**Room 213B**

Changing the lubrication culture of an organization is never an easy task. Technical knowledge alone is not enough to guarantee results and behavioral changes. The way you choose to promote the changes has a significant impact on the results. See how a successful initiative was carried out by Confialub in one of the world's largest iron mines. This unique experience clearly demonstrated the power of generating interest and getting people involved, thus facilitating the path to understanding as well as promoting commitment of all lube team members.

### Hydraulic Particle Counter Sample Preparation
*Bill Bars, Beckman Coulter*

**Room 214A**

Inaccurate or inconsistent results during particle counting analysis are most often related to sample handling. These results can falsely indicate contamination levels that are either too low or too high. This presentation will provide several examples of incorrect sample preparation and subsequent solutions that will help remove variability and errors from the reported results. Walk through the fundamental elements of a petroleum-based fluid sample preparation and see some of the common mistakes made while collecting fluid samples.

### Oil Analysis Case Studies: Overcoming Common Problems and Challenges with Lube Oil Condition Monitoring
**CASE STUDY**

*Saeed Asiri, Saudi Aramco*

**Room 214B**

Based on Saudi Aramco's experiences over the past few decades, these interesting case studies show the importance of oil analysis as a proactive and predictive maintenance tool. Discover the benefits of lube oil condition monitoring, the types of oil and equipment to monitor, and how to overcome common oil analysis challenges. This session will also cover equipment selection criteria, making continuous improvement, how to manage data to ensure all remedial actions are taken in a timely manner and the usefulness of oil analysis in detecting equipment operating problems.

### Qualifying Your Lubricant Supplier
*Doug Sackett, Total Specialties USA*

**Room 214C**

Most end users base their lubricant purchasing decisions on price alone and do not qualify distributors to ensure they know the proper procedures that can prevent cross-contamination. This presentation will explain how to evaluate lubricant distributors in regard to their knowledge of the products and delivery process to assure product integrity. Attendees will learn the right questions to ask and how to balance between the distributor and producer of the lubricants.

### Implementing a Training Plan to Support a World-class Lubrication Program
*Alejandro Meza, Noria Corporation*

**Room 217A**

When creating a training plan for a world-class lubrication program, the required practices and behaviors for all personnel involved in the program must be considered. New knowledge/competencies will be necessary, from top management to field operators, as well as across the organization. The process should begin with the lubrication program design and continue through purchasing, engineering, maintenance functions, etc. This presentation will describe how to implement an effective training plan to support your lubrication project.

### Value Delivery Through Reliability Leadership
*Terrence O'Hanlon, Reliabilityweb.com*

**Room 217B**

Reliability is an important part of an asset management plan and a key enabler of effective value delivery from assets. For more than 30 years, most of the modern approaches to reliability and effective maintenance service delivery have been well-documented, yet most organizations fail to achieve sustainable value delivery from these activities. Many stakeholders may not fully appreciate how their work

fits into asset reliability and what role their work plays in supporting the aim of the organization in the context of its asset management activities. This session will provide a holistic system for reliability and a new way of thinking about delivering value from assets.

## THURSDAY, APRIL 24
## 8 A.M.

### Lubricant Storage and Handling Do's and Don'ts
*Rick James and Michael Brown, Noria Corporation*

**Room 213A**

Did you know that new oils and lubricants may already be contaminated? That is why it's so important to know the do's and don'ts of storage and handling. From receiving oils to their application on the shop floor and everything in between, there is a chance that your lubricants are being contaminated. Storage and handling of lubricants is seldom done well. While everyone believes their practices are world class, few actually are. This session will explore the proper way to receive, decontaminate and dispense lubricants, as well as some of the potential pitfalls and shortcomings that most facilities fail to address.

### Reporting Downtime: Foundation for a World-class Reliability Engineering Program
*Eduardo Neira, ATCO I-Tek*

**Room 213B**

Reliability engineering departments are placing more focus on improving plant reliability and maintainability in an effort to improve return on investment (ROI). This presentation will provide real business analysis and demonstrate a world-class method of reporting and recording downtime for key equipment. It will also discuss how establishing a downtime reporting program enables the reliability engineering team to properly record failure events, determine key performance indicators and monitor equipment conditions in the plant.

### The Petrochemical Processing Instrumentation Crisis
*Jason Deane, WIKA Instrumentation*

**Room 214A**

As early alarm devices, gauges are highly important in detecting hazardous situations before they erupt. Failure or misapplication inhibits danger detection and turns the gauges into ticking time bombs, making accident prevention difficult. Due to decades of replacement with electronic sensors, most processing plants have lost knowledge on properly applying and maintaining mechanical gauges, leading to a dangerous situation where the readings have become unreliable. This presentation will explain the direct impact failing gauges have on productivity and safety, how and why mechanical gauges fail, dangers of inexperienced technicians conducting instrumentation maintenance, and the role of gauges in disaster prevention.

### Beat the Leak: Essential Practices for Connector and Conductor Professionals
*Donna Pollander, International Fluid Power Society*

**Room 214B**

The success or failure of any fluid power system depends on four factors: design, installation, start-up (commissioning) and maintenance. Hose and tube assemblies are a vital consideration in each of these factors along with system and operating personnel safety. This session will discuss fundamentals in connector and conductor assemblies including safety procedures, proper product identification, assembly component selection, assembly procedures and operation, and proper documentation.

### How Gearbox Condition Monitoring Demonstrates Reliability and Continued Cost Savings **CASE STUDY**
*David Tiffany, Pioneer Engineering*

**Room 214C**

This case-study presentation will encourage and inspire attendees to look closely at their industrial equipment, focusing on predictive and proactive maintenance strategies even when their equipment is not conventional. Follow the innovative, methodical thought process used to overcome unconventional obstacles related to planetary gearbox design. Attendees will learn how to start a basic oil analysis program from scratch, the differences between various maintenance strategies, what to look for in an oil analysis report and the importance of lubricant specifications.

### Why Today's Regulations Demand a Comprehensive Fuel Filtration Approach
*Kristine Mikulan, HYDAC*

**Room 217A**

Reducing particle and water contamination in diesel fuels is essential to fulfill the latest EPA standards and ensure uninterrupted, cost-effective operation. Today's high-pressure common-rail diesel engines have been designed specifically to meet Tier 4 emission levels and demand complete particulate and water removal. This session will show how filter systems can achieve the required low diesel fuel contaminating levels, why fuel filtration is needed, how to remove particles and water from diesel fuel, and strategies for an effective diesel fuel conditioning process.

# LEARNING SESSIONS

## 9:20 A.M.

### Minimize Downtime and Improve Safety by Preparing for Incidental Spills

*Karen Hamel, New Pig*

**Room 213A**

Incidental spills cause unplanned and unexpected downtime that alters production schedules and can lead to unsafe working conditions. Recognizing problem areas, training employees and stocking absorbents in key spill-prone areas will enable employees to respond to spills quickly, safely and effectively. In addition to offering good housekeeping practices that take less than five minutes a day, this presentation will explain the difference between incidental and emergency spills, why planning for incidental spill response is just as important as planning for worst-case spills, and how to train employees to respond to incidental spills safely and efficiently.

### Using Membrane Dehydrators for Water Contamination Control in Lubricating and Hydraulic Fluids

*Dr. Sudip Majumdar, Compact Membrane Systems*

**Room 213B**

Ingression of water or ambient moisture over time into industrial lubrication and hydraulic fluid systems can cause major operational and maintenance problems. Industry studies show gear/bearing life can be increased fivefold by reducing dissolved water concentration to a very low level. New membrane dehydrator systems have been introduced recently to dewater lubricating and hydraulic fluids in real time. With lube oil circulated on one side of the membrane module and a vacuum with ambient sweep air on the other side, these devices can remove free, dispersed and dissolved water to extend the reliability and life of gearboxes, reduce maintenance costs and increase uptime.

### Designing Effective Lubricant Storage

*Terry Harris, Reliable Process Solutions*

**Room 214A**

Oil storage is a critical aspect of a lubrication program that is often overlooked. In this session, 20 steps for creating a strategy to properly receive, filter and store lubricants will be discussed. Among the topics that will be covered include how to develop procedures for receiving and storing all lube products, the importance of proper lubricant receiving, fundamentals of lube consolidation, requirements of lube filtration and storage, and safety considerations when storing lubricants.

### Autonomous Maintenance for Better Plant Reliability

*Pruet Kampee, PTT Public Co.*

**CASE STUDY**

**Room 214B**

When autonomous maintenance was implemented at the PTT gas separation plant, the goal was to eliminate the root causes of equipment failure by improving the skills of operations personnel. The success of the 10-year project was attributed to the continuous improvement and culture change that occurred at the plant, which resulted in greater reliability. Learn the tricks and traps that PTT discovered along the way as well as the recommended practices for developing total productive maintenance.

### Choosing the Right Chain Oil for Elevated Temperatures

*Toby Porter, Kluber Lubrication*

**Room 214C**

Temperature is an important factor that must be taken into account when selecting the proper lubrication for a component. Certain machinery operates at higher temperatures, which can significantly reduce the life of a chain if it is not adequately protected. Choosing an improper lubricant for a chain operating in high temperatures can result in higher maintenance costs as well as a decrease in manufacturing output due to downtime. Understanding how a lubricant reacts to varying temperatures will help you select the appropriate chemistry for a chain application.

### Determining the Best-practice Oil Sampling Location and Procedure

*Bennett Fitch, Noria Corporation*

**Room 217A**

This presentation will explain what you should consider when taking an oil sample. Among the topics to be discussed include where and when samples should be taken based on the type of machine and operating conditions, as well as the proper way to obtain an oil sample so you can get the most value for your money without wasting time.

## 10:20 A.M.

### Who Should Test and Evaluate Oil Samples?

*Michael Hooper, Noria Corporation*

**Room 213A**

Traditionally, oil analysis was handled by the original equipment manufacturer (OEM) or an independent commercial laboratory. Oil companies also offered the service, using either their own laboratory or a contracted commercial lab. Recently, portable, hand-held instruments have been developed for the military that are now affordable to industry. This presentation will describe the main options available for an oil analysis program, including the advantages and disadvantages for each choice.

## Understanding Filter Debris Analysis

*Scott Shoemaker, Analysts Inc.*

**Room 214A**

Wear metals and contaminants are sometimes overlooked in routine oil analysis due to the size and source of material. Many people are not aware of the options offered by filter analysis for identifying larger debris that is not detected through routine spectroscopy. This session will discuss the history of filter debris analysis, how to identify contaminants and sources of filter debris, and how to choose the right test procedure based on detection limits.

## The Importance of Performing an Asset Criticality Ranking

*Quinton GoForth, GenesisSolutions*

**Room 214B**

The philosophy of improving the performance of critical assets is common knowledge when it comes to asset management. However, many organizations fail to fully understand the methodology behind formally ranking an asset as critical. Through proper development of an asset criticality ranking model, reliability engineering concepts can be applied to determine at what level each asset should be managed based on criticality. This is why asset criticality ranking is a key component to achieving enterprise asset management, as it is the primary mechanism needed to prioritize improvement activities when time and resource availability are limited.

## Tricks, Tips and Traps of Oil Sampling

*Bernie Hall, Checkfluid*

**Room 214C**

Why should you use an oil sampling valve? Sampling valves allow you to sample oil anytime as well as more consistently, economically and conveniently. They also offer a faster, safer and cleaner method. This session will review the challenges of different oil sampling approaches and describe how using sampling valves can offer an opportunity for enhanced results. Attendees will also learn how data-rich samples deliver more reliable sample reports.

## Eliminating Maintenance Inefficiencies with Remote Wireless Monitoring

*Joe Van Dyke, Azima DLI*

**Room 217A**

Plant managers often find themselves searching for more efficient and effective ways of providing reliable monitoring systems to their facility. Difficult work conditions and large facilities can make establishing these systems expensive and laborious if not executed correctly. Fortunately, industry is moving toward new technologies, such as remote wireless monitoring, that take maintenance employees out of harm's way when collecting machinery health data while increasing productivity and reducing downtime. This session will address how the integration of remote wireless monitoring can help improve the overall success of maintenance operations within your plant.

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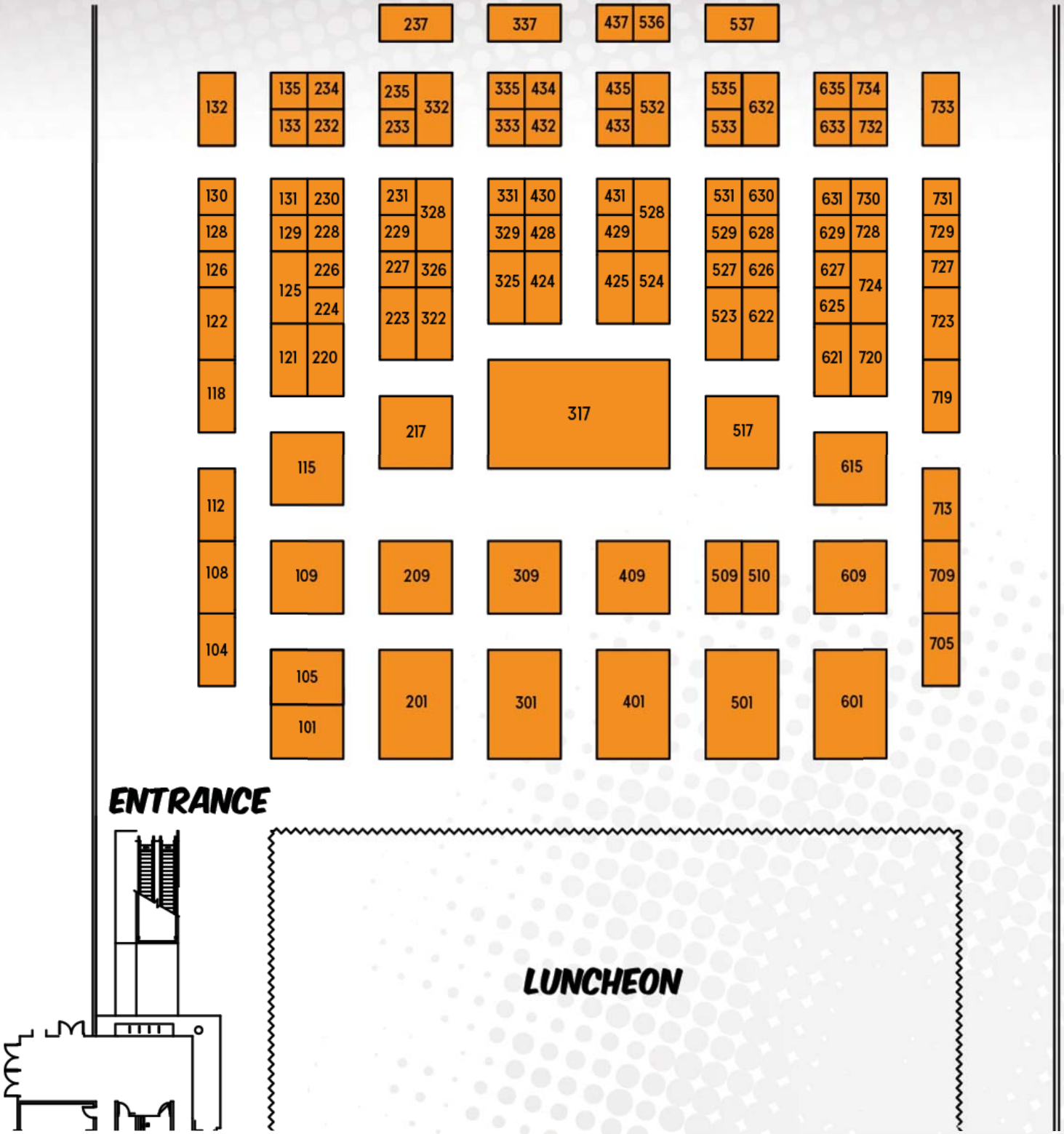


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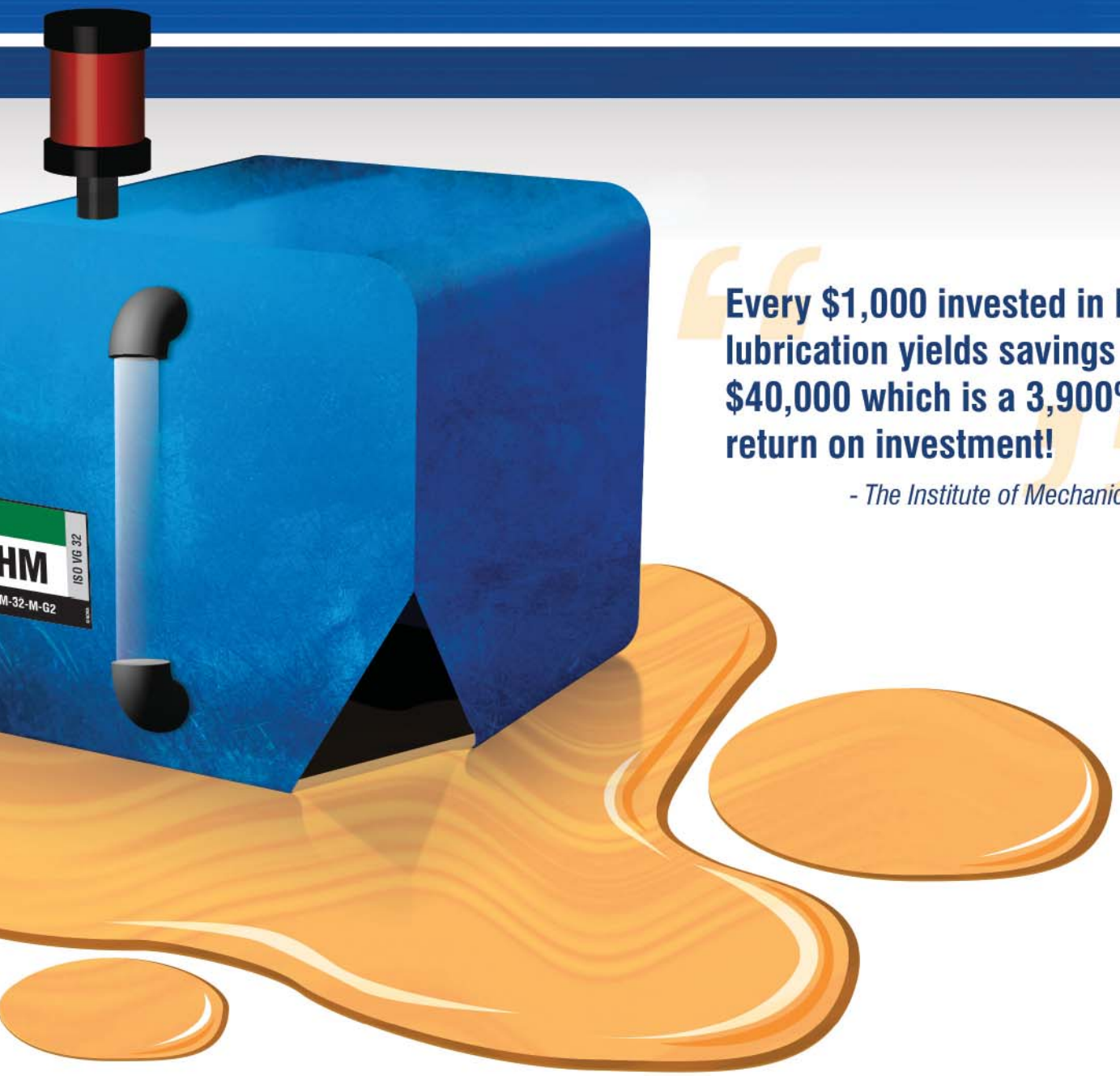


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