ASSET OPTIMIZATION THROUGH MAINTENANCE, RELIABILITY, LUBRICATION AND HYDRAULICS — SPECIALTY TRAINING CONFERENCE

22–25 SEPTEMBER 2013 | HYATT REGENCY GREENVILLE, GREENVILLE, S.C., USA

Sponsored by

CLINE DRIVING SOLUTIONS

SUNDAY
22 SEPTEMBER 2013

4 p.m.
Registration

MONDAY
23 SEPTEMBER 2013

7 a.m.
Registration and Continental Breakfast

8 a.m.
Welcome

8:15 a.m.
Conference Overview and Team Setup

9:15 a.m.
2012 Bronze Reliability Achievement Award Presentation
Glenn Aker, Nucor Steel–Berkeley

9:45 a.m.
Break

TRACK 1

10 a.m.
Five Key Components of Task Planning
Tim Kister, Life Cycle Engineering

Task planning includes many factors in order to achieve the anticipated return on investment from the planning function. The planning effort is more than rolling a work request over into a work order and attaching a few spare parts. There is an expectation that the up-front investment in task planning will result in a timely and cost-effective work execution. When those contributing factors are considered, it is found that they fall into five key components. This session will identify those five components and expand their content in creating a thoroughly planned task.

Noon
Lunch

1 p.m.
Building Operator Engagement and Accountability in the Reliability Process
Michael Gehloff, General Physics Corp.

This presentation helps to build an understanding of an often overlooked asset — the operators who interact with assets on a daily basis — and presents an operator care program which produces results and requires more than speeches and big ideas. This discussion will provide insight into specific techniques used to develop ownership and accountability on the shop floor. Case studies from practitioners will be presented, along with the results achieved to date. Improving the contribution of operations personnel will lead to improvement in management of abnormalities, allowing for cost-effective repairs, predictable throughput and minimization of cost.

2 p.m.
Break

2:15 p.m.
Managing Risks from Transformer Failures

3 p.m.
Break

3:15 p.m.
Roundtable Discussion: Producer Initiatives/Strategies in Asset Management (Tracks 1 and 2)

TRACK 2

10 a.m.

Troubleshooting and Forensics of Electric Machines

Noon
Lunch

1 p.m.

Work Roll Bearing Practices

2 p.m.
Break

2:15 p.m.

In Pursuit of 100% Reliability: Learning From NASCAR Race Teams

Robert Williamson, Strategic Work Systems Inc.

Top NASCAR race teams have learned the value of reliable and high-performing equipment through the adage, "If you can't finish, you can't win." Their aggressive pursuit of 100% reliability provides many insights for business and industry. Learn from the presenter's 20 years of behind-the-scenes study of NASCAR race teams and pit crews and the seven principles and methods that equipment-intensive industries can quickly master for improving their own competitive position. These proven methods form the foundation in the quest for lean maintenance and reliability for modern manufacturing.

3 p.m.
Break

3:15 p.m.

Roundtable Discussion: Producer Initiatives/ Strategies in Asset Management (Tracks 1 and 2)

TRACK 3

10 a.m.

Basics of Friction, Lubrication and Wear

John Haspert, Castrol Industrial North America Inc.

This session will provide the foundation on which the rest of the seminar rests. It addresses the basics of the key elements of lubrication: tribology, interactions between interfacing surfaces, lubrication modes, mechanisms of wear and the importance of good lubrication.

Noon
Lunch

1 p.m.

Testing of Oil and Grease/Interpreting Lubrication Reports

Jim Sidow, Fuchs Lubricants, and John Haspert, Castrol Industrial North America Inc.

This presentation will review the different types of greases available and the testing criteria to which they are subjected.

3 p.m.
Break

3:15 p.m.

Fundamentals of Lubrication Systems

Tim Fawcett, HASTEC Rebs Inc., and Jason Craft, DropsA USA Inc.

After a brief review of friction, lubrication and wear, the types of lubricating systems will be presented by fluid and by technology. In addition, the major system components and functions of each will be discussed on a generic level and in more detail with respect to the various systems.

4:15 p.m.
Break

4:30 p.m.

Selection and Application of Lubrication Systems

Tim Fawcett, HASTEC Rebs Inc., and Jason Craft, DropsA USA Inc.

Using the five Rs of lubrication, the systems previously discussed will be evaluated for their strengths and weaknesses. Matching the lubrication system options to the demands of the various applications will be presented with consideration given to how each selection not only meets the five Rs, but also what risks remain.

5:45 p.m.
Welcome Reception

TUESDAY
24 SEPTEMBER 2013

7 a.m.
Continental Breakfast

8 a.m.
2012 Silver Reliability Achievement Award Presentation
Jason Vicari, ArcelorMittal Indiana Harbor
A hot strip mill descale system was modified to reduce water pressure to improve reliability while maintaining quality. Overall cost of operating the system decreased due to reduced maintenance and energy costs.

8:30 a.m.
Keynote Presentation
Jay Alexander, The Timken Co.

TRACK 1

9:15 a.m.
Optimizing Your Equipment Maintenance Program
Sarah Jha and Nizar Amarsi, ArcelorMittal Dofasco Inc.
A hands-on presentation with the aim of improving a maintenance program. This presentation will show how to close the gap on program effectiveness using reliability-centered maintenance (RCM) tools.

10:30 a.m.
Break

10:45 a.m.
Optimizing Your Equipment Maintenance Program (cont.)
Sarah Jha and Nizar Amarsi, ArcelorMittal Dofasco Inc.

Noon
Lunch

1 p.m.
Process Troubleshooting and Optimization Using Computational Simulation and 3D Visualization
Chenn Zhou, Purdue University – Calumet
Many processes in the steel industry take place in extreme environments and in locations that are hard to access. Thus, troubleshooting can be a very difficult task. And with an increasingly more competitive industry, process optimization is crucial. However, process optimization through trial and error is not economical. This presentation will give examples of how computational simulations and 3D visualization are used as tools for troubleshooting and process optimization in the steel industry, resulting in total savings of more than US$30 million. Computational simulation allows engineers to accurately simulate a process/flow, and 3D visualization enables engineers to identify the root cause of the problem and find a solution in a timely fashion. Different designs and operating conditions can be tested in computational simulation before they are implemented in the field. The integration of computational simulation and 3D visualization offers an economical and time-efficient method for process troubleshooting and optimization.

3 p.m.
Break

3:15 p.m.
Installation and Maintenance of Cardan Shafts
Harris Worthington, The Cline Co.
Extending cardan shaft life through effective installation and maintenance. Topics include selection, alignment, lubrication, installation, transport and maintenance.

4 p.m.
Ultrasound-Assisted Lubrication
Adrian Messer, UE Systems
The majority of premature bearing failures are caused by over-lubrication, under-lubrication or using the wrong lubricant for an application. This presentation will show how using ultrasound can prevent over- and under-lubrication of bearings, detect mechanical faults in rotating equipment, and can be used to complement other technologies such as vibration analysis and infrared thermography. Sound examples will also be played to demonstrate what would be heard when using an ultrasound instrument to lubricate bearings.

TRACK 2

9:15 a.m.
Transformer Maintenance: How to Maximize the Value of Your Test Results Using Baseline Testing and Results
Aaron French, Nucor Steel–Utah
Standard transformer procedures, and how their test results relate to the life of a transformer.

10:30 a.m.
Break

10:45 a.m.
Transformer Maintenance: How to Maximize the Value of Your Test Results Using Baseline Testing and Results (cont.)
Aaron French, Nucor Steel–Utah

Noon
Lunch

1 p.m.

Precision Maintenance (Part I)

Ian McKinnon, Reliability Solutions LLC

Attendees will be provided with a set of take-home, "in-the-field" precision observation assignments. Responses to these observations can assist in determining current asset reliability state, assessing need and providing immediate knowledge of just where to begin at a facility. Participants will find the presentation timely, informative and loaded with real and practical tips to improve reliable manufacturing within their facilities. Come prepared to think differently!

3 p.m.

Break

3:15 p.m.

Precision Maintenance (Part II)

Ian McKinnon, Reliability Solutions LLC

TRACK 3:

9:15 a.m.

Hydraulic Systems, Fluid Connector Technology

Greg Rae, Avadal Inc., and Brian Smith, Parker Hannifin Corp.

An introduction to hydraulic/fluid power connector technologies used in the steel industry.

- General tube, pipe and hose technology.
- Connector technology and standards.
- Hose/fitting/piping selection.
- Dry technology practices for leak-free hydraulic systems.
- Connector system advancements.

10:30 a.m.

Break

10:45 a.m.

Hydraulic Systems, Fluid Connector Technology (cont.)

Noon

Lunch

1 p.m.

Hydraulics Troubleshooting and Safety

Greg Rae, Avadal Inc.

This three-part discussion begins with the step-by-step approach that is used in logical troubleshooting. The second part is a troubleshooting exercise on a hydraulic system, and the third section is an open forum to discuss participants' issues.

3 p.m.

Break

3:15 p.m.

Hydraulics — AGC and Roll Bending Systems

Tom Wojtkowski, MORGOIL Bearings, Siemens Industry Inc.

Attendees will learn about the primary system components and general functionality of HAGC/HAWC and bending systems as well as the basics of process and product control of each system. Typical failure modes and symptoms will be reviewed, along with how they would appear to the operations or maintenance personnel. Finally, the equipment condition analyses and rebuild practices to return the equipment to specification will be presented.

4:45 p.m.

Ask the Experts

5:30 p.m.

Reception

WEDNESDAY
25 SEPTEMBER 2013

7 a.m.

Continental Breakfast

8 a.m.

2012 Gold Reliability Achievement Award Presentation

Chuck Copeland, Severstal Dearborn

At Severstal Dearborn, an employee involvement program team was assembled to focus on improving the reliability of blast furnace tuyeres. Drivers for the reliability project were the extent of lost production (tuyere failures were the largest internal cause of delays), increased operating costs (increased fuel, maintenance materials, and conversion costs), and increased environmental and safety concerns.

A practical engineering approach was adopted for the reliability project. The project path followed a simple reliability cycle of monitoring reliability (tuyere life), failure analysis, redesign and monitoring impact of adopted changes on reliability. Each tuyere failure was thoroughly investigated; this information was pieced together with existing in-house knowledge and an extensive literature search, which then allowed the team to eventually develop a hierarchy of failures. Failure analysis indicated two approaches to improving tuyere life, a redesign of the tuyere and a modified operating environment.

To date, the reliability project has been deemed a success. By implementing lessons learned from early failures and willingness to trial new designs — including a coating system that improved resistance to attack by liquid iron by sevenfold — productivity lost to tuyere failures has decreased 95%, resulting in savings in excess of US$5 million.

9 a.m.

Break

9:15 a.m.

Trip Report and Jeopardy

Noon

Boxed Lunch

12:15 p.m.

Plant Tour of The Timken Co.