

# 2015 Plant Automation & Decision Support

Tuesday, October 6

## **Plant Automation Q&A Sessions**

There will be several Q&A forums answering questions on alarm management, decision control systems and advanced process control.

## **Big Data Part I**

Alarm Management for Non-DOT Regulated Facilities

Eric Johnson, The Williams Company

This presentation will discuss the benefits of alarm management and how to use it as a best practice for non-regulated facilities.

Refocus your Advanced Control program to Improve Profitability

Randy Conley, TOTAL Refining & Petrochemical USA

In early 2012 our refinery began a program to renew our APC (Advanced Process Control) applications, which had fallen into disuse. In the 3 years since then, we have successfully implemented several new and rehabilitated existing APC applications. This presentation explains how we have achieved high APC utilization rates and stakeholder acceptance by involving the stakeholders in designing, implementing stewarding and improving the APC applications. This participation was fostered by developing and implementing tools and on-going stakeholder training and reporting for key members of Operations, Technical, Planning & Economics and Maintenance departments. This approach is APC and DCS vendor-independent and can be used by any manufacturing facility that uses APC.

## **Big Data Part II**

Integrating the Supply Chain at Sadara Chemical Company

James Steiner, Sadara Chemical Company

The competitive landscape continues to evolve for refinery and petrochemical companies, as they face tighter profit margins and advancements in engineering and technology. Companies must explore opportunities to improve work processes and system solutions. KBR received such a challenge on a greenfield project to integrate the systems and solutions across the manufacturing chain through automating data exchanges, optimization, and streamlining activities. This presentation describes the integration methodology used to “glue” the applications together and will provide general information on the supply chain solutions and benefits

### Making Sense and Cents from Plant Data

Doug White, Emerson Process Management

How can the value of refinery data be maximized? Extensive developments in the area of predictive analytics have greatly improved the potential quality and accuracy of future plant behavior, including potential production and supply chain alternatives, early detection of potential equipment problems, and product quality issues. In this presentation, actual case studies will be used to illustrate the impact of these new tools on refinery productivity and margins.

### Improving Credit Capture of Modern Predictive Control by Strengthening its Link to Real-time Optimization using Synergizer

Ivan Max Fahrenkopf, William Snow, ExxonMobil Research and Engineering

Model Predictive Control (MPC) and Real-Time Optimization (RTO) are expected to work in concert to continuously drive a process toward economic optimality. Linear MPC is designed using empirical, linear, dynamic models that allow for efficient solution of the optimal control problem. MPC is typically implemented in two steps every minute: first a linear program (LP) is solved to find the steady-state targets; then the dynamic move plan is found to optimally approach those targets. The linear program step limits the scope of the MPC to push against constraints rather than toward a true economic objective. In this presentation, Synergizer, which is a new method to link RTO and MPC, is discussed.

## **Emerging Solutions**

### Optimizing Diesel Hydrotreater Feed Content and ULSD Quality While Respecting Feed Header Hydraulics

Rahul Admuthé, Applied Manufacturing Technologies

How does a refinery, manufacturing diesel-finished product without a blender, ensure that the ultra-low sulfur product remain on-specification, still with optimizing a variety of gasoil-like streams being fed to that process unit? This presentation discusses the diesel hydrotreater technical challenges at the Total Port Arthur refinery, and shows the control and optimization solution deployed during the 2013-2015 period. Specific aspects of the projects are described in this presentation, including dynamic modeling of the hydraulic constraints in the feed header, control of ultra-low sulfur specification at the reactor section, and optimization of jet back-blending with maintaining multiple diesel properties on specification.

### Petrobras' Distillation Blending and Cutpoint Temperature Optimization in Scheduling Operations

Brenno Menezes, Technological Research Institute of São Paulo State

The proposed technique uses monotonic interpolation to blend and cut distillation temperatures and evaporations for petroleum fuel's experimental ASTM collected in the field to allow the distillation curve itself to be adjusted by optimizing its initial (IBP) and final boiling (FBP) points known as cutpoints integrating both optimization of blending distillation curves of streams together with shifting cutpoints of one or more of the stream's IBP and/or FBP in order to manipulate distillation curves in an either offline or online environment.

Evaluating Novel Approaches to LTO Processing through Detailed Process Simulation  
Mel Larson, KBC Advanced Technologies, Inc.

This presentation explores alternate methods of adding LTO to the refinery process but not in a typical or conventional manner. We will discuss adding or feeding LTO to specific units – not starting with the crude unit but by-passing the crude and vacuum processing units, where some of the compatibility issues reside.

## **Wednesday, October 7**

### **Vendor Debate**

Moderated forums featuring vendors speaking on various topics and answering questions from the audience.

### **Big Data, Enterprise Intelligence, and the IoT - Implications, Opportunities, & Challenges**

There is not a day that goes by that one does not hear about “Big Data”, “Enterprise Intelligence”, “The Industrial Internet”, and the “Internet of Things (IoT)”, “Hadoop enabled analytics”. Terms and buzzwords abound as vendors try to differentiate themselves from the competition. The end result is confusion, a search for practical applications, and dilution of a focused strategy and tactical plan for leverage to drive business value.

This panel session will provide leading industry thought leaders the opportunity to summarize their perspectives, offerings, and ideas on the implications, opportunities, and challenges for the PADS stakeholders.

### **The Convergence of IT/OT – Implications, Opportunities, and Challenges**

Technology continues to evolve and blur the traditional distinction between Information Technology (IT) and Operational Technology (OT) with resulting implications, opportunities, and challenges for the PADS stakeholders. Traditional organizational models and associated roles and responsibilities segregated the OT to the Process Control Network and the IT to the business network. Is this the most efficient and effective structure? What are the opportunities, challenges, and best practices regarding IT/OT convergence to optimize the number of parameters from data/cyber security, knowledge management, decision making, collaboration, and skills development? These and other areas will be explored by our group of industry thought leader panelists.

### **Best Practices and Perspectives on Leveraging Technology for Knowledge Management, Collaboration, & Managing the Great Crew Change**

The Plant Automation and Decision Support community continues to be challenged by the “great crew change” and the loss of knowledge, experience and wisdom. This panel session will provide vendor perspectives on what they see with the ability to leverage technology such as cloud enabled outsourcing, capturing and codifying knowledge, and enhancing collaboration both within a company and the extended supply chain. Topics such as: the importance of data normalization and quality assurance, capturing and managing meta-data, “fingertip” information in context will be covered.