

October 8 - 12, 2012 • Anaheim, CA

# EMERSON GLOBAL USERS EXCHANGE

OFFICIAL CONFERENCE REPORT FOR  
INDUSTRIAL AUTOMATION USERS

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EXCHANGE

## FEATURING THE FOLLOWING COVERAGE:

*Asset Optimization* | *Maintenance & Reliability* | *Control System Modernization*  
*Instrumentation Applications* | *Process Optimization* | *Wireless Applications*  
*Valve Applications* | *Industrial Busses and Intelligent Instrumentation*  
*Virtualization in Process Control*

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# Connect In

Jay Colclazier, Chairman - Board of Directors

Welcome to the 2012 Emerson Exchange. The 2012 Exchange is shaping up to be one of our best ever. Current registration levels are exceeding all expectations. Over 350 Workshops and Short Courses are on the schedule. These informative and diverse presentations, coupled with the opportunity to “**Connect In**” to the experience and expertise of your automation peers, sets the Emerson Exchange apart from other conferences.

In addition to the workshops and short courses, a variety of Industry and Technology Forums give you an opportunity to learn about the latest industry and technology trends. Our Meet the Experts sessions provide a unique opportunity to meet and interact with a variety of technology, product, and industry experts.

You can prepare for the Exchange using the Personal Scheduler, an online tool to help plan your week in Anaheim. The Emerson Exchange Mobile App is also available to help you navigate the conference and stay connected with other attendees. You can also visit the Emerson Exchange 365 website for some valuable tips on getting the most out of the Exchange provided by the Exchange Board Members.

The 2012 Emerson Exchange is a unique opportunity to “**Connect In**” and deliver immediate improvements to your company’s bottom line.

## Keynote Speakers Deliver Insight, Information and Inspiration

The lineup of keynote sessions scheduled to kick off the 2012 Emerson Global Users Exchange is designed to deliver insight into where your industries are headed, how Emerson is aligning itself to deliver the technologies and support your industry needs, and even some intriguing food for thought about the critical decisions that lead to success.



Guest keynote speaker **Andy Andrews**, author of the New York Times bestselling “The Traveler’s Gift,” “The Noticer,” and “How Do You Kill 11 Million People?” has impacted millions with his creative writing and speaking. After losing both parents at a young age and becoming homeless, Andy gave serious thought to the question: “Is life just a lottery ticket or are there choices one can make to direct his future?” His research into hundreds of great men and women enables him to offer special insight into the common denominators of their extraordinary achievements.



**Jay Colclazier** is Chairman of Emerson Global Users Exchange and is the Senior Automation Engineer at the CHS Refinery in Laurel, MT. In this role he is responsible for DeltaV migration projects and refinery process improvements through automation. Prior to joining CHS, Jay spent several years as the Automation Group Lead at Biosource America, a

Montana based company focused on the design, construction and operation of biodiesel refineries. He also spent over 15 years within Emerson Process Management and the Local Business Partner organization.



**Steve Sonnenberg** is Executive Vice President of Emerson and Business Leader for Emerson Process Management. He joined Emerson in 1979 as a marketing analyst with its Brooks Instrument division. In

2000, Sonnenberg was appointed president of Emerson Process Management Asia Pacific and, in 2002, he was appointed president of Emerson’s Rosemount division. During his tenure, he has been responsible for several Emerson acquisitions including: Rosemount TankRadar (formerly Saab Marine), Mobrey, Damcos, and Metran.



**Peter Zornio** is Chief Strategic Officer for Emerson Process Management where he has responsibility for group-level coordination of technology programs such as PlantWeb and Smart Wireless, as well as the group-level marketing team. He also

has direct responsibility for the product definition and development organizations for DeltaV, Ovation, and AMS Suite. He has been at Emerson for five years. Prior to that, he spent 21 years at Honeywell.

To view the complete articles that you see here, plus additional coverage of the Emerson Global Users Exchange, visit [www.EmersonExchange2012.com](http://www.EmersonExchange2012.com)

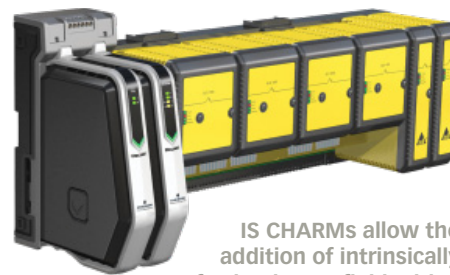


## User Feedback Drives DeltaV Enhancements

Continuing Emerson Process Management’s focus on human-centered design, a number of significant upgrades have been made to the newest version (v12) of DeltaV, many of which stem directly from end-user input.

Chief among the newest group of enhancements are DeltaV SIS with Electronic Marshalling, AMS Device Manager, and Batch Analytics.

The v12 DeltaV SIS CHARMs Smart Logic Solver (CSLS) uses electronic marshalling concepts to deliver unparalleled flexibility in deploying DeltaV SIS to support any safety instrumented system (SIS) installation requirements. Built on the success of DeltaV SIS modular logic solver concepts, the CSLS will support a wide array of I/O types. Later releases are planned to support other I/O types including intrinsically safe I/O, eliminating the need for external barriers for safety.



IS CHARMs allow the addition of intrinsically safe circuitry to field wiring in hazardous areas.

With reduced engineering and faster project execution, v12 DeltaV SIS with Electronic Marshalling simplifies safety system design, engineering, and ultimately project execution.

AMS Device Manager in v12 extends asset support to easily include more and varied assets such as fire and gas detectors. The addition of PROFIBUS PA provides a complete PROFIBUS solution with the DeltaV control system and the new DTM (Device Type Manager) Launcher allows users to access expanded functionality in HART and Foundation Fieldbus devices. In addition, AMS Device Manager now integrates with Beamex’s CMX calibration software to enhance the calibration functionality already available in AMS Device Manager. An automated backup and recovery feature ensures continuous retention of data and integration with Guardian keeps all DD files updated on the latest revisions.

Addressing the issues of batch variation and associated costs for loss and rework, the Batch **DeltaV continued on p. 3 »**

Check out the latest in simulation eLearning at Booth 28

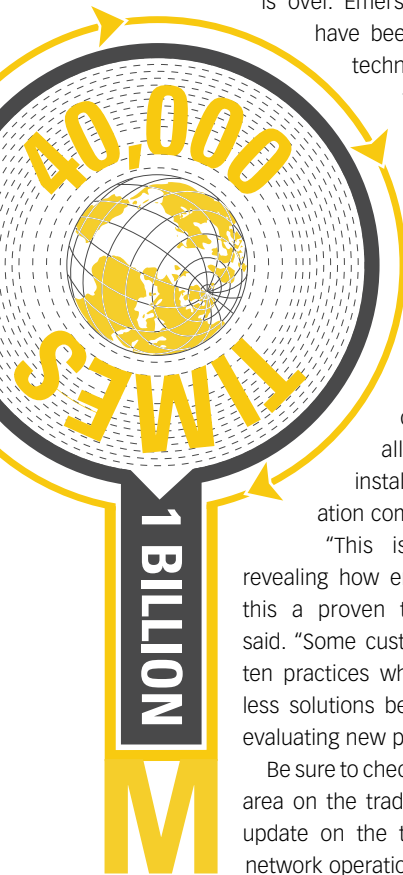
## Wireless Networking in Process Automation Now a Mature Technology

You'd have to circle the globe 40,000 times to reach 1 billion miles. A billion hours ago (114,000 years) the last Ice Age began. Emerson Process Smart Wireless networks based on WirelessHART have now achieved 1 billion hours of operating experience across more than 10,000 wireless networks.

Remember the wireless sensor networking wars from five or six years ago? Well, the shooting is over. Emerson Process customers have been rapidly adopting the technology at such a rate that it is now measured by the number of gateways installed. Bob Karschnia, vice president of the Wireless business unit for Emerson Process Management, said that the total number of hours was calculated conservatively, allowing for customer installation time before operation commenced.

"This is a milestone event revealing how engineers now consider this a proven technology," Karschnia said. "Some customers have even written practices where they look at wireless solutions before wired ones when evaluating new projects."

Be sure to check out the SmartWireless area on the trade show floor to get an update on the total hours of wireless network operation.



## Raising the Bar for Temperature Transmitters

Extensive customer feedback and a focus on application flexibility have driven Emerson to significantly enhance its Rosemount 644 HART temperature transmitter.

For 12 years, the 644 has served the market as a high quality, cost effective Rosemount temperature product, but changes in customer needs and industry norms have altered the landscape of what a head mount product should be. A desire for advanced features in the head mount form factor, and a need for improved ease of use, have driven the market to speak up and Rosemount to answer. They have enriched their core temperature product with more of the advanced features available in the market today, packaged in the most user friendly way possible.

Continual improvement has been key to Rosemount's success in the temperature transmitter industry and every improvement designed into the enhanced 644 was a result of real customer feedback gathered over the transmitter's lifetime. According to Rebecca Kopke, global temperature marketing engineer for Emerson Process Management, the enhancements to the Rosemount 644 temperature transmitter driven by customer feedback include the following:

**Transmitter Wiring.** The placement and clarity of the sensor terminal screws and sensor wiring diagram improve overall ease of installation. Kopke notes that many users think of head mount temperature transmitters as difficult to wire due to the small device size and space constraints. "We have placed the sensor terminal screws in an arc across the top of the device to make them more easily accessible," she says. "This change means that there is more room for fingers and wires during the installation and commissioning stage." The sensor wiring diagram has also been enlarged and clarified to ensure correct wiring the first time.

**Power terminal placement.** Now positioned at the lower

right of the device, power and communication terminals are easily accessible without requiring removal of the LCD. This feature enables easier and faster troubleshooting or configuration changes to the device.

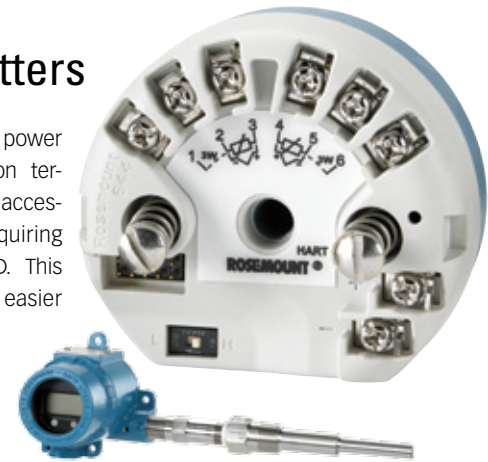
**Industry first Integral transient protection.**

The 644 also introduces the release of the Integral Transient Protector. The industry first compact feature is designed to be an elegant solution for a head mount style transmitter as it effortlessly slides onto the transmitter and fits integral to the enclosure.

**Enhanced display with local operator interface.** The final ease of use improvement comes in the form of an enhanced local operator interface display that promotes an increase in characters displayed and an interactive and intuitive configuration menu accessible by push buttons on the display face.

Customer suggestion also influenced Rosemount to add many new advanced features to the 644 offering. These product enhancements include dual sensor inputs, SIS SIL 2 Safety Certification to IEC 61508, diagnostics including hot back up, Sensor Drift alert, thermocouple degradation and minimum/maximum tracking, integral transient protection and enhanced accuracy and stability.

The next generation of temperature transmitters has arrived.



Customer feedback helped design the Rosemount 644, which includes screws placed in an arc for easier access.

### DeltaV continued from p. 2

Analytics feature in DeltaV v12 captures historical information on the best batches, and uses that data to generate models, make end-of-batch quality predictions, and alert operators of deviations. Operators learn immedi-

ately from an easy-to-understand interface when any aspect of the batch is deviating from spec, as well as why it is deviating. With this information, operators are better equipped to understand their process and make real-time decisions impacting the quality of the batch.

## The 2012 Board of Directors

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**Tracy Waller** – Vice Chairman, Savannah River Nuclear Solutions    **Bruce Johnson** – Secretary/Treasurer, Emerson Process Management

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## Just Released: Advanced Control Foundation Book and Website

How about using the best of the written word along with the best of the web? The book "Advanced Control Foundation—Tools, Techniques, and Applications" co-authored by Willy Wojsznis, Mark Nixon and Terry Blevins, will be on display and available for purchase in the ISA booth at Emerson Exchange 2012. This is the second book in a series of "Foundation" books we have written. The first book in the series, "Control Loops Foundation," was co-authored by Nixon and Blevins and received the Raymond D. Molloy Award for being the best-selling book published by ISA in 2010.

One of the unique features of the book is that there is a web site ([www.advancedcontrolfoundation.com](http://www.advancedcontrolfoundation.com)) that goes with it. Accessible on this web site under the Workshops tab are exercises from the book. Tabs lead you to workshop directions (1), information on the simulated process (2) and a YouTube video that shows the expected results (3). There are no restrictions on the web site, so anyone can access the book's workshop exercises and solution videos using a web browser.

The book itself is written to be non-commercial and applicable to any control system. Blevins says that the book is approachable for anyone; it assumes basic control knowledge and builds on it for those who may not have had time to explore advanced control. Each chapter's first part shows how the technology is used. For those who wish



to dig deeper, the second part delves into the math behind the concepts. Importantly, one chapter focuses on economic justification of advanced control. As Blevins put it, "Hopefully engineers can learn to communicate with management using that chapter."



The last chapter shows integration of advanced control and with a user's present DCS system.

What if there is no native advanced process control tool? Engineers will then have to layer it over. About that section, written primarily by Nixon, Blevins says, "What we've learned the hard way, we've put in to help readers."

You can also purchase a copy of the book from the ISA web site ([modelingandcontrol.com/2012/09/advanced-control-foundation-isa-web-site/](http://modelingandcontrol.com/2012/09/advanced-control-foundation-isa-web-site/)).

## Connect with Peers at EmersonExchange365.com

Launched at last year's Emerson Exchange event, Emerson Process Management's online community—[emersonexchange365.com](http://emersonexchange365.com)—has since grown to nearly 5,000 members and is available in multiple languages.

Created as a way to extend the end-user discussions that occur in the hallways and

**Check the Twitter monitors for info about the EmersonExchange365.com participation contest.**

in Q&A sessions at the Emerson Exchange event, [emersonexchange365.com](http://emersonexchange365.com) is now a well-developed peer-to-peer community of global end users, subject matter experts and Emerson Process Management partners. The community site also features

commentary and posts from process control experts such as Terry Blevins and Greg McMillan.

As an Emerson Exchange attendee, one major benefit of joining the [emersonexchange365.com](http://emersonexchange365.com) community is the ability to access presentations from the conference following the event. This access is available



to event attendees who are also a part of the community.

Attendees on Twitter are encouraged to tweet about the conference using the hashtag #EMREX, and to follow @EmersonProcess.

## Meet the Experts on Friday

**WAIT!** We've saved the best for last! Don't leave until you see the great information being offered during the Meet the Expert sessions. Each session will be offered twice on Friday, October 12: first at 8:00 am – 9:30 am and again from 10:00 am – 11:30 am. The sessions and experts for 2012 include:

- **Advances in HART and IEC 62591 (WirelessHART) Technology**  
Experts: Eric Rotvold – Emerson, Ron Helson, - HART Communication Foundation
- **Human Centered Design Principles for Optimal Operator Performance**  
Experts: Duane Toavs – Emerson, Mark Nixon - Emerson, Dave Bishop - LUMA Institute, Harvey Smallman - Pacific Science & Engineering, Dave Stobhar - Center for Operator Performance, Beville Engineering, Inc., Ian Nimmo - User Center Design Services and ASM Service Provider
- **Maximizing System Performance and Lifecycle**  
Experts: William Robertson - Emerson, Chris Madeira - Emerson, Mosta El-Haw - Emerson, Dave Cline - Emerson, Luther Kemp - Minnesota Power, Kim Minvielle - Shell Motiva, Steve Saltas - Kennecott Utah Copper
- **DeltaV Deep Dive**  
Experts: Gary Law - Emerson, Dave Denison - Emerson, Steve Dienstbier - Emerson, Rusty Shepard - Emerson
- **Process Simulation for Testing and Training**  
Experts: Mark O'Rosky - Emerson, Martin Berutti - MYNAH Technologies, LLC, Rick Kephart – Emerson, Majid Mirshah – GSE Systems
- **Managing the Lifecycle of Safety Instrumented Systems**  
Experts: Keith Bellville – Emerson, Donald Rozette – Meridium, Russell Cockman - Emerson, Bill Goble – Exida
- **A Deep Dive with ValveLink & FIELDVUE Digital Valve Controllers**  
Experts: Rick Osborn – Emerson, Steve Hagen – Emerson, Jeff VonAhnen – Emerson, Saurabh Pathak – Emerson
- **Modernizing Mature Control Systems – When? Why? How?**  
Experts: Laurie Ben – Emerson, John Dolenc – Emerson, Fred Voll – Emerson
- **Cyber Security**  
Experts: Neil Peterson - Emerson, Marty Edwards - U.S. Department of Homeland Security Control Systems Security Program, Jeff Potter - Emerson, Bob Huba - Emerson, Lee Neitzel - Emerson
- **Valve Maintenance Planning for Turnarounds and Outages**  
Experts: Scott Grunwald – Emerson, Zach White – Emerson, Marc Higley - Emerson
- **Advanced Control Foundation – Tools & Techniques**  
Experts: Terry Blevins – Emerson, Willy Wojsznis – Emerson
- **Improving Regulatory Control Performance**  
Experts: James Beall – Emerson, Greg McMillan – CDI Process and Industrial in Austin and MYNAH Technologies in St. Louis
- **Virtualization for DeltaV**  
Experts: Bruce Greenwald – Emerson, John Caldwell – Emerson, Brian Crandall – Emerson, Dirk Thiele – Emerson
- **Syncade Batch Workflow: Best Practices and Industry Approaches**  
Experts: Bob Dvorak – Emerson, Vito Canuso – Emerson, Joshua Kidd – Emerson, Shoyeb Hasanali - Emerson

For detailed information regarding the content of the Meet the Expert sessions, go to [http://www.emersonexchange.org/2012/Meet\\_the\\_Experts.asp](http://www.emersonexchange.org/2012/Meet_the_Experts.asp).



**I have thousands of assets, limited resources, and data everywhere. I need to know we are working on the right things.**

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# Global Community

Jay Colclazier, Chairman – Board of Directors

➔ In his keynote address at the 2012 Emerson Global User Exchange in Anaheim, Calif., Board Chairman Jay Colclazier of CHS Inc. noted that attendance at the event “has roared back” from recession-plagued 2009 and “I’m proud to say we may pass 3,000 attendees this year.” He gave a special welcome to the 720 attendees from 52 countries who travelled from outside the U.S. to attend. That’s despite—or perhaps because of—the first Emerson Exchange Europe conference held in Dusseldorf, Germany in May 2012. That event attracted more than 1,000 attendees and saw the blossoming of EmersonExchange365.com, a peer-to-peer community of end users, subject matter experts and Emerson Process Management partners. Colclazier said more than 2,500 people have joined the community in the past three months. The website acts as an ongoing forum for information exchange, and is a key resource for Anaheim conference attendees: Visit it anytime after you leave to access archived session materials. With more than 350 presentations, workshops and short courses, a full schedule of sessions only allows you to see 10 percent. Online, you can “Connect In” to it all.



Jay Colclazier, Chairman Board of Directors, Emerson Users Exchange

## Zornio Keynote Delivers ‘Technology Tornado’

The Technology Exhibits area is a highlight of the 2012 Emerson User Exchange, housing more than 40 Emerson technology booths and more than 50 Alliance Partner booths. In his keynote address on Monday morning, Emerson Chief Strategic Officer Peter Zornio raced through a plethora of don’t-miss new products—as well as upgrades to existing products—that are on display. Calling his overview “a little technology tornado,” he enumerated wireless innovations, metering firsts and abundant additions found in DeltaV v12.

To help capture the breadth of products and solutions on display, he talked about them falling into two buckets: Integrated Architecture includes both wired and wireless PlantWeb technology, as well as Human Centered Design products and specific industry solutions. Technology Solutions cover products in four subcategories: measure and analyze; operate and manage; control and regulate; and advise and support. Zornio provided some highlights of the technology solutions that attendees should be sure not to miss:

- Platform redesign of the Magnetic Flowmeter,

which makes it suitable for hazardous area use and offers wider control communication capabilities.

- Vortex Flowmeter upgrade, which means that no bypass lines are required and the safety port verifies process contaminants for sensor maintenance.

■ The world’s first in-situ, 8-path ultrasonic meter for LNG custody transfer.

■ The 370XA compact gas chromatograph. Based on user input, this new unit is lighter (45 lbs.), has integrated handles built into a new protective housing around the piping attachment area, and features a slanted operator interface to reduce glare in outdoor applications.

■ The world’s first Guided Wave Radar Sensor for Level with integrated WirelessHART.

■ TÜV and Exida-certified intrinsically safe (IS) CHARMs. The IS barrier is embedded in the CHARMs. When integrated with DeltaV, the controller gateway keeps safety communications separate from but integrated with the controller.

- The world’s first wireless on/off control valve. Monitored via WirelessHART, manual valves can now be operated automatically with wireless control signals.

The Technology Exhibits area is open Monday, Tuesday and Wednesday from 4:00 to 8 p.m.



Peter Zornio, Emerson Chief Strategic Officer

## Sonnenberg Keynote Highlights Strategy and Investment

With attendance at the 2012 Emerson Global Users Exchange set to exceed previous record levels, Steve Sonnenberg, president of Emerson Process Management, focused on explaining how Emerson is managing the growth it is experiencing across the globe. He made special note of the fact that North America is now the company’s area of highest growth. North America is our “new emerging market,” he said.

Sonnenberg outlined the changes the company has undergone since its announcement at the 2011 Users Exchange that Emerson Process Management is focused on becoming its customers’ most “trusted advisor.” He cited the addition of 4,300 people to the company’s staff in the last year and said another 3,400 will be added this year.

Sonnenberg also pointed out the development of new facilities in Brazil, Sweden, Saudi Arabia and Russia, as well as strategic supply chain risk mitigation strategies that have been adopted in the wake of floods in Thailand last year. The flooding occurred at the site of the company’s principal supplier of integrated circuit boards, and has resulted in “a redistributed supply chain and built in redundancy, as well as better risk mitigation plans,” he said.



Steve Sonnenberg, President, Emerson Process Management and Executive Vice President, Emerson

4600

Number of project engineering-focused employees. Emerson plans to grow that number by 50 percent in the next few years.

All of these moves are part of Emerson Process Management’s strategic plan to be a problem-solving organization that is easy to work with, Sonnenberg said. To deliver on this, he highlighted four tenets of the company’s strategy:

- 1 Connect to Customers.** “We deepen the connection by solving problems, not just selling products,” he said. “If we’re only known for our products, we aren’t conveying the full value of Emerson to you.”
- 2 Technology Innovation.** Sonnenberg pointed out that new technology is key, but it is “an enabler, not the end game. The end game is to solve the customer’s problem.”
- 3 Project Engineering Resources.** Emerson has 4,600 project engineering-focused employees in place now. The plan is to grow that number by 50 percent in the next few years.
- 4 Services.** “We’re investing in regional centers of expertise,” Sonnenberg said. “We built eight last year and plan to add nine more next year. These centers are designed to deliver the automation skills that provide a business turnaround for customers.”

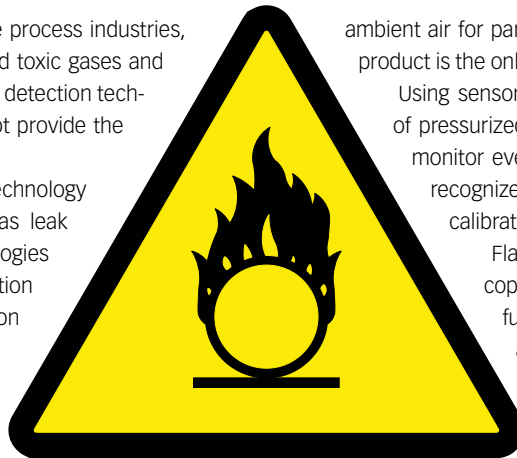
“We are spending hundreds of millions of dollars to make this new strategic plan successful,” Sonnenberg said. Emerson Process Management is able to do that because it has experienced “record double-digit growth in sales and profits” in every geography and industry this past year. North American has seen the highest growth for the company. “The long-term outlook is good. The funnel is full and growing every day,” he added.

## Three-Step Gas/Vapor Safety Method

Safety is the most critical factor in any industrial plant. In the process industries, a number of technologies are used to detect flammable and toxic gases and vapors. The problem in many plants, however, is that the range of detection technologies commonly deployed is difficult to manage, and may not provide the comprehensive detection system needed.

To establish an effective gas/vapor detection system, three technology deployments are recommended: point detectors, ultrasonic gas leak detection, and flame detectors. The reason these three technologies are recommended is because they cover three critical detection defense levels: the immediate leak stage, the gas cloud formation or accumulation stage, and the ignition stage.

Point detectors are used to monitor a specific area for toxic or flammable gas. A key factor in the effective use of point detectors is that they must be carefully placed and calibrated for the type of gas to be detected. One example of a critical use point detector is Net Safety's Millennium Series Airborne Particle Monitor (APM) and Oil Mist Detector. This APM detector is an explosion-proof, infrared detector designed to monitor



ambient air for particulate matter such as smoke, oil mist, carbon, dust or ash. This product is the only detector of its kind that is certified explosion proof Class 1, Div 1. Using sensors to monitor areas for the ultrasound generated by the release of pressurized gas, ultrasonic gas leak detection technologies can be used to monitor even well-ventilated outdoor environments. These sensors are also recognized for their ability to withstand extreme conditions and lack of calibration requirements.

Flame detectors employ ultraviolet (UV) and infrared (IR) spectroscopy to detect the ignition source, as well as the hydrocarbons that fuel the flames. Because flame detectors sense UV and IR energy at specific wavelengths, it is important when selecting a flame detector to consider the type of hazard to be detected, the environment in which it will be placed, the detector's response time, and self-diagnostics.

To learn more about this three-step approach to safety, visit Booth 2100 Safety Monitoring in the Rosemount Analytical Measure and Analyze area of the exhibit hall.

## Simulation Advance Delivers 'DeltaV on a Stick'

In his keynote address, Emerson Process Management Chief Strategic Officer Peter Zornio talked about the many new features in DeltaV v12. One of them involves simulation. "We can now virtualize controllers and I/O, and run it on any computer," he said. The ability to do this means that complete operations simulations can now be hosted on a server and accessed via the Internet.

The video-game-like approach of simulation tools translates into intuitive operator interaction, which typically leads to greater user interest in working with the technology. And although simulation technologies for the process industries have been around quite awhile, such

advances are making it easier for companies of all sizes to take advantage of the benefits.

With the capabilities now available in simulation tools, companies can more effectively screen employees' abilities. New and seasoned operators can be trained to perform operations correctly, on their company's specific systems, 24/7.

Operators can prepare for new installations before the plant is operational. Simulation can also be used to help operators achieve certifications, and to train users for infrequent operational tasks.

You can see the DeltaV "simulation on a stick" in action at the DeltaV booth in the exhibit area.

Smart service connections can bridge the critical gaps between increasing performance demands, people and expertise, geographic expansion concerns, and growing operations complexity.

## Services Adapt to Changing Customer Needs

Worldwide, the reasons driving industry demand for services to deliver engineering expertise, parts, and maintenance to keep operations running vary widely. In the U.S., one of the main reasons is the retirement of large numbers of engineers. In developing parts of the world, the need for specific operations and technology-related expertise is sought after because it is often in shorter supply.

Other reasons leading more companies to seek engineering-related services are ubiquitous across the globe. These factors include: regulations, safety, environmental considerations, and disaster recovery.

The confluence of these factors is why Emerson Process Management has been evolving

**Services continued on p. 8 »**

## Vortex for Steam Flow Measurement

Vortex flowmeters are a common method of measuring steam in process and utility applications. The advantages of vortex technology have been confirmed with over 25 years of installed experience.

Following are facts about Rosemount Vortex Measurement technology:

- Easy installation. For steam measurement, the Rosemount vortex meter is easy to install with standard flange connections. All you have to do is put in your gaskets, bolt in the meter body, and wire up the transmitter. The meter comes factory configured for the application. There are no impulse lines to worry about and no need to zero the flowmeter for installation effects.
- Low maintenance. With no gaskets in the meter body, the Rosemount vortex meter design eliminates the potential for leaks. There is no need to heat-trace impulse lines, which are often required with steam applications, and no need to re-zero the transmitter for head effects. Plus, the Rosemount vortex flow and temperature sensors are isolated from the steam flow and independent of each other. This means that, in the unlikely event of a sensor failure, there is no need to shut down the process and only the failed sensor needs to be replaced.
- Rangeability. Vortex is a linear measurement technology, which lends itself to a wide range of

turndown. The official stated range of turndown is 30:1; at the extreme end of the sensor limits, 60:1 turndown can be achieved. The reducer vortex design can be utilized to measure very low flow rates at times of minimal steam demand.

- Highly accurate. As a direct volumetric flow measurement technology, Rosemount vortex delivers a measurement accuracy of  $\pm 1.0\%$  of rate in steam. In temperature compensated mass flow, accuracy is  $\pm 2.0\%$  in saturated steam.

If you are interested in learning more about vortex measurement and how it can deliver lower total cost of ownership and higher energy efficiencies, take some time to visit with Brad Burton and Scott Hunt in the Rosemount Flow area of the exhibit hall.



**Rosemount Vortex Flowmeter**

## Best-In-Conference Presentations

**32** Thirty-two presentations have been nominated for Emerson Exchange's Best in Conference honors, which will be announced at the Awards Lunch on Thursday. These presentations all focus on core and/or cutting edge applications from which a great deal of valuable information can be gathered. Following is a list of the nominated presentations. Each is given twice during the week, so check the schedule and plan to attend as many as possible.

- » Taking Advantage of Field Device Intelligence Using the Smart SIS
- » Are You Compliant with the New API2350 Overfill Prevention Standard?
- » Complex BMS Made Simple
- » Fisher NPS 18 Control-Disk Maintains Performance & Reduces Maintenance Costs
- » Four Ultra Large Surge Relief Systems for an Asian Crude Oil Pipeline Project
- » Exploring the Critical Relationship Between Actuator and Valve
- » Obtaining Total Wireless Field Network Coverage
- » Wireless Temperature Increases Insight into Rotating Lime Kiln Application at Mondri
- » PEMEX Smart Fields using wireless technology
- » Monsanto's Reliability Recipe: A Cup of Criticality, A Pound of Smart Instrumentation, Simmer with AMS Device Manager, Serve with Work Practices
- » Essential Asset Monitoring Keeps UT-Austin Out of a "Pickle" at PRC
- » Who Has Time to Pick Up a Penny... How About 107 Million Pennies!
- » Streamlining Production Using the DeltaV SOA Gateway
- » MES & ERP: Global Integration Strategy Exposed
- » Universal Quality - The Process of Becoming a Globally Approved Supplier for LyondellBasell
- » DCS System Migration to DeltaV Intrinsically Safe (IS) CHARMs Electronic Marshalling
- » Integration of Siemens PLC with DeltaV for Turbine Control
- » CHARMs - Challenges and Benefits of Being a Technology Early Adopter
- » Interface with Electrical: Hardwired vs. Bussed — CHARMs Provide an Answer
- » Minera Los Pelambres Applies Advanced Process Control with MPC in the Mining Process in Copper Extraction
- » ENI's Arctic Expansion — Adding Offshore Production With DeltaV
- » LyondellBasell Uses Coriolis and Meter Verification to Reduce Risk of Ethylene Loss in Custody Transfer
- » 1930s USA Chemical Plant Competes in the 21st Century
- » Electronic Remote Sensors — LyondellBasell: A Distillation Column Level Measurement Solution, An Ethylene Storage Drum Lessons Learned
- » Adventures in pH Control
- » N2O Analyzer Certification to Allow Carbon Trading From Nitric Acid Plants Under the Kyoto Protocol
- » Putting a Business Justification to Alarm Management
- » DeltaV MPC – Small Project Yields Big Benefits!
- » MPC-Pro Manipulates Field-based PID
- » Why Develop the System Integrators Scope of Work
- » Valve Capacities: Why is the Tendency to Oversize?
- » Forward or Reverse — Which Direction Benefits Your Modernization Project?

### Services continued from p. 7

its long-standing lifecycle and project services offerings. In 2012, the company extended its footprint of 374 global service locations by opening eight full-service facilities staffed by trained, certified personnel. Over the next few years, the company expects to increase the number of service facilities by nine per year. Current staffing levels for project activity top 4,600 employees. The company is adding engineering staff at double-digit growth rates to staff these service locations and expects to keep doing so for at least the next five years.

Lifecycle services operations typically require that experts be available on hand within four hours of notification and that parts can be delivered within a day or less. And with many companies operating multiple facilities all over the world, a globally dispersed lifecycle services operation is required to ensure that customers receive the same service levels for all their plants.

Emerson Process Management's services expansion has concentrated on the development of numerous global service centers. These

geographically dispersed centers are located so that they are close to their customers wherever they may be. As an example of this, Emerson's Certified Repair and Quick Ship product manufacturing and service centers provide machining, manufacturing, fabrication, actuation, instrumentation and quality assurance, and are designed to operate at faster than factory lead-times to the following KPI Responsiveness Standards:

- Service center location less than two hour proximity to customer plant;
- 24-hour replacement parts delivery;
- 24/7 repair availability (on-site and depot) to customer timeline requests; and
- New product delivery in five days (10 days for systems).

By stepping up to the changing dynamics surrounding the regulations, required skills and competition that its customers face, Emerson has designed its global lifecycle services to offer certified skills and technologies so that customers can rely on Emerson as a one-stop shop for parts, repair and people to keep their facilities running.

## Keynote: Andy Andrews Talks of Butterflies and Making a Difference

“If you want someone to tell you to have a good attitude, I'm not your guy. Your mother should have told you that.”

So said Andy Andrews, author, speaker and “coach” to engineers, athletes, business people and presidents. As one of the keynote speakers for the Emerson Global User Exchange, Andrews then proceeded to tell stories about he turned his own attitude around with a few important skills and better ways of thinking.

“I'm the only professional noticer you'll ever meet.” Andrews said. “I notice little things that make a big difference in people's lives.”

The single best skill to develop, he said, is “always smile when you talk. Even if you don't want to, get the corner of your mouth up. It'll change your life. I guarantee it.”

Of course he followed his own advice, and as he combined his folksy message with frenetic movements around the stage, he told stories about growing up in Alabama, reading biographies of great people from history, and

learning to pursue his life's purpose from a man named Jones.

Andrews' main message is that “everything we do or don't do, matters—to everyone at all time—so it's important to be thoughtful about what we do and don't do. He talked about “the butterfly effect” and how it's been proven that small actions can have far-reaching effects.

He also urged everyone to go for more. “If you're doing what everybody else is doing, you're just contributing to the average. Even if it's high average, it's still average.... We all are going to make a difference, but what kind of difference are we gonna make?”

Andrews is the New York Times best-selling author of *How Do You Kill 11 Million People?*, *The Noticer* and *The Traveler's Gift*. Exchange attendees interested in digging deeper into Andrews' message can visit <http://AndyAndrews.com/fishrosemont> in the next 15 days for exclusive deals on books, audio programs and DVDs.

**Emerson Process Management Chief Blogger and social media guru Jim Cahill stands beside one of the many Twitter boards scattered around the Emerson Exchange meeting area. Tweet your comments using #EMREX to join the conversation. New to Twitter? Visit the Cyber Café to learn how.**







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# Pfizer Creates Virtual Lab Across Two Sites with BioNet DeltaV

➔ As the older control system in its bioprocess R&D labs became obsolete, Pfizer sought a replacement in its quest to create the lab of the future. The new system would be used to control bioreactors in the company's labs in St. Louis, Mo. and Andover, Mass.



**Geetanjali Sondhi, Scientist, BioTherapeutics Pharmaceutical Sciences, Bioprocess R&D, Pfizer**

"We wanted to streamline data acquisition and introduce auto sampling for integrated off-line and in-line process analytics," said Geetanjali Sondhi, a scientist with BioTherapeutics Pharmaceutical

Sciences, Bioprocess R&D at Pfizer. "We also wanted to do remote control of the reactors from home and share data across sites. Plus, we wanted the new control system to be OPC compatible."

After gathering responses from the stakeholder groups involved in the process, Pfizer was able to narrow its search for a new control system down to five vendors. The vendors gave Pfizer loaner units to test for three months at its St. Louis site. Testing involved a single experiment design to test hardware and software looking at single cell line cultivation in a variety of tests, including temperature and pH control. Pfizer's existing control system ran as a control unit for the tests.

BioNet DeltaV ranked highest of the five systems tested in terms of performance. "But we also considered the maturity of the technologies tested, flexibility, remote control capability, and company stability," said Sondhi.

Now being phased in at the two Pfizer sites over a five-year timeline, BioNet DeltaV will be used to control more than 100 bioreactors by 2013.

"With the BioNet DeltaV system now nearly in place across both sites, we have advanced PID control and loop tuning

**BioNet DeltaV continued on p. 12 »**

## DON'T MISS LUNCH TODAY!

In addition to the delicious food Exchange personnel have planned, today's lunch promises a bit of respite from all the serious technology analyzing and industry issues networking going on in the Anaheim Convention Center and Hilton meeting rooms. Corporate comedian Greg Schwem will be on hand to provide some laughs. Schwem's latest book, "Text Me If You're Breathing: Observations, Frustrations and Life Lessons From a Low-Tech Dad," was called by *Everybody Loves Raymond* star Ray Romano "a hilarious take on dealing with the frustrations of parenting in this age of technology."



**Greg Schwem, Wednesday lunch speaker, 12:00- 1:15 p.m., Hilton California Ballroom**

## DeltaV V12: Security, Virtualization, Web Server

At this point in the 2012 Emerson Exchange, you're bound to have heard quite a bit about the newest version of DeltaV (v12). While you may have heard all about electronic marshalling with integrated safety and batch analytics, there are three other key features you should also be aware of.

Available in April 2013, the new DeltaV virtualization capabilities via the DeltaV Virtual Studio lets users create and manage virtual DeltaV systems. "A virtual machine is just a file – an encapsulation



**Virtualization makes it easier to develop, implement and manage multiple systems with multiple software releases.**

of an application and the operating system it's running on," said Emerson Process Management Chief Strategic Officer Peter Zornio. One of the advantages, he said, is that "it lets you more fully utilize the CPU on a machine, and still startup and shut down applications individually." It also extends software life by enabling hardware upgrades independent of application software.

Using the pre-built templates in the Virtual Studio, engineers can add additional DeltaV workstations to their system with a click of a button. "If you were looking at setting up virtualizations, you need to set up the virtualization environment first. We've taken that IT effort out of the equation," said Zornio.

Beyond the ability to extend the DeltaV reach in your facility with a minimal number of computers, users also can create virtual CHARM I/O cards along with virtual controllers, which enables the offline testing of concepts. Plus, users can create a stand-alone DeltaV system on a USB stick to access on a computer that does not have DeltaV installed. This new virtualization capability is great for testing, training and simulation, and supports DeltaV v10 and v11.

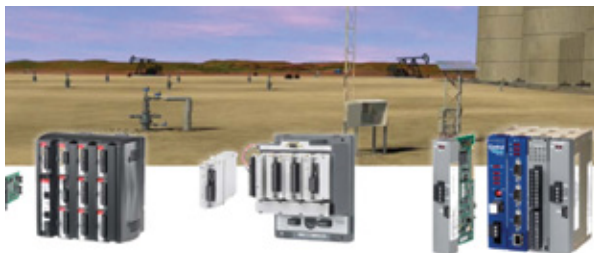
Another way Emerson has taken the IT effort out of the systems equation is with its Smart Firewall addition to DeltaV. This functionality creates a secure perimeter around the control system by allowing only user-selected Web services to connect to it. Services are selected from a drop-down list, so "unapproved" services are not allowed. The Smart Firewall can be implemented by plant floor personnel who are not IT experts, said Zornio.

Because totally denying control system access from outside devices is no longer a realistic option, DeltaV v12's Next Generation Web Server allows for real-time DeltaV graphics to be viewed on any Web browser. Using the Web Server, approved personnel can securely access historical data from the DeltaV Event Chronicle, Continuous Historian, PI or other OPC historians and have the information displayed as trends, bar graphs, X-Y charts and/or tables. In addition, personalized dashboards can be developed to display user-specific information. Installing it on a DeltaV node or plant LAN can further increase security.

## WirelessHART Interface Links RTUs

The demand for oil and gas is leading producers to apply new methods of extracting hydrocarbon liquids. To facilitate this industry trend, Emerson Process Management has released an IEC62591-compliant WirelessHART interface for use with its remote terminal units (RTUs).

This native interface integrates Smart Wireless networks with Emerson's family of remote terminal units and flow computers including ROC800, FloBoss, and ControlWave RTUs. With the interface installed, the RTU auto-detects the WirelessHART device



**The native interface saves commissioning and startup time since no external gateways, Modbus or data mapping are required.**

es by sensing them as they are on or added to the network. This means that no site survey required, making it easy and fast to set up the wireless field instrumentation — saving time and money.

Wireless field devices on the Smart Wireless mesh network can automatically find alternate communications paths, thereby avoiding networking obstacles during setup. Network encryption, authentication, verification, anti-jamming and key management methods to ensure secure data transmissions. In addition, IEC62591 mesh communications yields greater than 99 percent communications reliability.

The native interface saves commissioning and startup time since no external gateways, Modbus or data mapping are required. The interfaces have I/O communication modules for RTUs and a Smart Wireless field link to provide a weather-proof, explosion-proof wireless interface for outdoor mast mounting. This installation allows physical and environmental mounting flexibility so that users are not limited to a specific location during device setup.

## Oil & Gas Industry Forum: Managing MACs and I/O Count

With 40 percent of Emerson Process Management's business coming from the oil & gas sector, it often leads the way in technology implementation and in delivering best practices for other industries to follow.

Some of the biggest project challenges facing the oil & gas industry today include a retiring workforce, rapid depletion rates of existing oil and gas resources, increasingly complex projects, fewer available specialists, and ever-larger capital expenditure projects.

"We've long since found the easy oil and gas," said Larry Irving, vice president of Oil & gas for Emerson Process Management. "Finding new sources requires longer, more complex projects."

To address these challenges, the clear trend across the oil & gas industry is toward the use of MACs (main automation contractors). The key to successful engagement with MACs is to engage with them early in project development to create optimum automation designs and reduce costs. Doing this, however, does not entirely mitigate the tendency for project I/O count to grow substantially during deployment, which can cause delays in construction drawings and delivery of automation systems.

A major technology advance that is helping address the issues of growing I/O count and project changes is Emerson Process Management's CHARMS (a CHARM is a single-channel component with an A/D converter and signal characterizer inserted onto the terminal block where field wires are landed.

Each device can be landed anywhere on the strip regardless of its signal type.)

In a benchmark test done with a global provider of engineering, procurement and construction (EPC) services, CHARMS saved \$375,000 in re-engineering and scheduling delay costs, as well as \$100,000 in cabinet modification costs.

Another project done on an oil & gas project in the Gulf of Mexico called for use of 20,000 instruments and 60,000 connections. Use of CHARMS reduced connection requirements by 65 percent (about 42,000 connections). CHARMS' electronic marshalling approach uses pre-designed, pre-tested, non-custom equipment instead of custom cabinets typical of large projects like this.



**Presenters at the Emerson Global Users Exchange Oil & Gas Forum (left to right): Larry Irving, Vice President, Oil & Gas, Emerson Process Management; Frank (Sandy) Vasser, Instrument and Electrical Manager, ExxonMobil Development Company; Mark Howard, Vice President of Projects North America; and Andrew Dennant, Director, Oil and Gas, Emerson Process Management, Middle East and Africa.**

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## 'Knowledge Leak' in Refining an Industry Concern

The Refining Industry Forum on Monday afternoon of the Emerson Global Users Exchange drew a standing-room-only audience numbering more than 160 people. Those there participated with panelists in a discussion on the problem of a "knowledge leak" in the industry. Some of the proposed solutions for staunching the leak and increasing your own knowledge included:



Attendees packed the Industry Forum on Refining.

- Coach others, and maybe make it a full-time job for some
- Develop a succession plan
- Develop best practices communities
- Use a business social network, like EmersonExchange365.com, for sharing knowledge
- Develop and publish case studies
- Use IT
- Use forums and events to learn and share knowledge.

### BioNet DeltaV continued from p. 10

capabilities; precise control and measurement of gas and mixed-gas delivery; and can save control strategy and experiment templates for re-use and rapid experiment setup," said Sondhi. "DeltaV platform-based process development lab automation delivers unmatched ROI and productivity gains. We now have a virtual lab running across two sites 1,000 miles apart."

Pfizer worked with Broadly James (a manufacturer of sensors and bioreactors) to customize its implementation of the DeltaV system to include glucose feedback control, automatic pH standardization, data strategy/storage, and advanced process control for high-end pH control, control of variable speed pumps and zone control.

Sondhi noted that using the DeltaV system with auto-sampling has "changed how our scientists do day-to-day activities. They don't have to spend time with hardware changes or timing parameter setpoint changes. This means that they can spend more time on data analysis and process development."

## Life Science Industry Forum: Process Robustness

Both John Berra, retired chairman of Emerson Process Management, and Peter Zornio, chief technology officer, introduced the Life Sciences Industry Panel at the Emerson Global Users Exchange—a fact that reflects how important this industry is to Emerson. "Not only important to Emerson," said Berra, "but to the world."

Berra reinforced his message that automation is a noble profession, and that automation engineers often toil in obscurity. "Life sciences is especially challenging," he continued, "with a whole layer of documentation and regulatory requirements" to consider.

Discussing his work at a children's hospital back home, Berra referred to "the butterfly effect" related to the notion that everything matters, as mentioned by keynote speaker Andy Andrews. Berra told the packed room that "your butterfly wings are echoing through the halls" of the hospital, reflecting "goodness that can be traced back to your efforts as automation professionals."

Panelists included Scott Bradley of Bradley-James, Lars Petersen of Roche, Ian Allen of Infinity Automation, and Francis Sidnam of Briston-Myers Squibb. Overall, panelists said that the Life Sciences industry has done a good job of automating in a fundamentally vertical way—labs are automated top to bottom, as are clinical trials and full-scale production. The new task is to save money and shorten the development timeline by automating in a horizontal way, so more efficient technology transfer can take place to speed up full-scale production.

A problem is, in many pharmaceutical and biologic companies, no one person sees the drug through the process, from initial lab tests to clinical trials and eventually

## Remote Sensors for Differential Pressure Measurement

Distillation uses enormous amounts of energy, consuming up to 50 percent of a refinery's operating costs due to intense heating and cooling cycles. Proper distillation tower operation can reduce energy consumption, but plant personnel need the right information in order to improve operation.

Problems can occur when operators and engineers have insufficient information about operating conditions. Failing to properly monitor and control process variables can result in decreased product quality and throughput, increased energy costs, and unsafe operations that put employees and capital equipment at risk.

Many distillation processes use impulse piping to measure differential pressure (DP) across sections of the tower or column. In an impulse piping configuration, the reference leg (low pressure side) is filled with either a column of liquid (wet leg), or a suitable non-reactive gas (dry leg). But impulse piping can be problematic when used on distillation towers. For example, when impulse piping plugs or a wet leg freezes, the pressure measurement is lost. Many process plants have installed complicated flushing systems onto impulse piping systems to clear plugged lines. These flushing systems can be expensive, and often require a control system to operate correctly.

Electronic remote sensor technology solves many of the problems in making a DP measurement. Rather than using a single DP transmitter with mechanical impulse piping or capillary technology, an electronic remote sensor system uses two direct-mount gage or absolute pressure transmitters connected with a single electrical wire.

One of the two transmitters calculates the DP using internal software, and transmits the DP measurement back to the control system using a standard 4-20mA HART signal. Alternately, two transmitters can communicate independently to the control system using the Foundation Fieldbus digital protocol. In this implementation, the DP is calculated within the control system.

The electronic remote sensor system does not require heat tracing, never plugs, and is immune to temperature-induced drifting. This means that plant personnel will be able to get accurate pressure measurements over a large range of ambient temperatures. An electronic remote sensor system also provides process information that can be used for optimized control, such as pressure measurements from each pressure sensor and a scaled variable output that can be used to calculate level or volume.



An electronic remote sensor system uses two direct mount pressure sensors connected with a single electrical wire.

**"Getting the medicine to the patient faster. That's the ultimate challenge. That's what we are trying to accomplish."**

into full-scale production. This cultural problem has yet to be solved, said panelists.

Better control of experiments at the process development level can increase efficiencies by performing more runs with less data variance, using the same or fewer staff. One speaker used Delta V and realized a three-fold increase in the number of experiments.

The challenge is to provide real-time monitoring of variances, which can result in sometimes very simple steps being taken to "save" a batch. The information must be presented in a way chemists can understand it, one panelist said.

Lars Petersen mentioned a successful tech transfer from pilot plant to phase one clinical trials in as little as 8 weeks, compared to the old timeline of more than 5 months. Petersen also mentioned they discovered, through their process development platform, that 90% of all parameters stay the same. From a validation point of view, this is critical, he said.

"That results in getting the medicine to the patient faster. That's the ultimate challenge. That's what we are trying to accomplish," Petersen said.

Berra encouraged all those in the room to "give back" to the profession. Not everyone can afford to establish a scholarship, but you can donate time, he said. "Or you can lobby your company to provide equipment and labs so the 'toys' we play with are readily available on campuses," he added. Berra paid homage to the robotics industry, giving them credit for sponsoring contests and exposing students to robots early in the education. "Let's create an awareness that not only are we noble," Berra said, "but that we are cool."

## Monsanto: 'Simulation Is Ideal for Adult Learning'



**Chad Wood, Training Program Manager, Monsanto**

➔ Imagine you're in charge of training at a plant with 375 employees. The average age of those employees is 46. Now, consider that 75 of those employees are eligible for retirement in 2012, and an additional 124 could retire in 2013. On top of that, the product you produce at this plant is combustible when combined with air. It goes without saying that, as training manager at this plant, getting new operators up to speed quickly is essential.

This is the scenario faced by Chad Wood, training program manager at Monsanto's elemental phosphorous plant in Soda Springs, Idaho. The phosphorous processed at this plant is used in everything from toothpaste to lights bulbs, and is also used in the active ingredient in RoundUp, the popular weed killer.

To replace the retiring workforce and also refresh experienced workers on various failure scenarios, Monsanto wanted to provide a real-world operations environment in a classroom. Using DeltaV Simulate and Mimic, Monsanto has been able to reduce the two- to three-week time period previously required for operator training down to three days.

Dealing with failure scenarios is a primary part of Monsanto's simulation training. The training is done via two methods: an operator-selectable failure page so that operators can run through various scenarios whenever they want; and instructor-directed failure training where the instructor pushes out various failure scenarios to trainees.

**Simulation continued on p. 15 »**

## iOps Center Remote Monitoring: An Expert Is Always Online

The main theater at the back of the Emerson Global Users Exchange Expo Hall featured an "iOps Center." Whether dubbed "Integrated Operations Center" or "Intelligent Operations Center," the demonstration showed how Emerson integrates people, process, and technology to enable advanced decision making for process industry operations personnel.

Multiple, easy-to-read screens paired with advanced video conferencing and collaboration technologies enable advanced decision making, whether the goal is predictive maintenance or energy trading. The iOps Center concept combines real-time remote asset monitoring and access to expertise for equipment at all levels. Emerson demonstrated three scenarios related to process safety, availability, and business agility in the iOps Center.

Process safety metrics are becoming increasingly important after recent industry incidents have revealed that personal safety metrics are not good indicators for process safety risk. In the safety scenario, Emerson demonstrated how wireless, safety, and risk management technologies can be integrated to visualize the real-time safety risks of a running process.

Remote monitoring of critical assets such as turbomachinery can provide the ability to detect pending equipment failures before they happen. When combined with access to Emerson's subject matter expertise, problems can be properly diagnosed remotely without having expertise on-site. In the availability scenario, Emerson showed how their machinery health experts can remotely collaborate with their customers' operations and maintenance organizations to reduce the risk of equipment failure and costly downtime.

## Tonight, Enjoy Some Disney Magic



All you need is your Exchange name badge to enjoy an evening of Disney magic.

Exchange attendees and guests are welcome to relax and enjoy an after-hours visit to Disneyland during tonight's off-site event. You should have received an Evite via e-mail. Respond to the email so your hosts can have a ticket and wristband waiting for you at the gate. Emerson attendees also receive a merchandise voucher for 20 percent off purchases of \$100 or more.

Attendees are welcome to walk to the park or take one of the shuttle buses from the front entrance of the Hilton. Rides and attractions are open 6 – 9 p.m., and dinner will be served. Then enjoy a private showing of the World of Color show at the California Adventure park.



**Mike Boudreaux, director of business development, explains the iOps Center at Emerson Global Users Exchange.**

In the third scenario, Emerson demonstrated how energy traders, production planners, logistics, and operations personnel can collaborate in an iOps Center to make faster and better decisions to take advantage of opportunities that have a short decision window. This kind of business agility is helping process industry companies to make quicker decisions without taking on a higher level of risk.

## Bristol-Myers Squibb Receives Innovative Application Award

Life sciences attendees to the 2012 Emerson Global Users Exchange enjoyed a group dinner and witnessed global biopharmaceutical company Bristol-Myers Squibb (BMS) receive the Recognition Award for Innovative Application of Emerson Technology—Life Sciences. In their presentation entitled, “Manufacturing for the 21st Century,” BMS representatives Chris Stevens and Dave Gleeson shared details on the company’s successful start up of a new biologics plant in Devens, Mass.

The plant is producing Orenzia, a biologic used to treat the symptoms of rheumatoid arthritis and to slow the progression of joint damage. Plans began five years ago and in early 2012 the new facility received FDA approval.

The facility, which is recipe-driven and designed around ISA88 and ISA95 standards, employs Emerson Process Management’s Syncade operations management software and DeltaV digital automation system for paperless manufacturing. This system is integrated with both enterprise and plant-level systems including SAP, LIMS, scheduling and computerized maintenance management systems, as well as OSI PI historians and off-line instruments.

Emerson’s Peter Zornio, who serves as executive sponsor of Life Sciences for Emerson, toured the new plant earlier this year and commented on the scope of the project during the awards portion of the evening. “It’s possible that I’ve seen more Emerson products here at the Exchange, but I have never seen them integrated so well [as in this new plant]—this is the whole package.”

Emerson Process Management President Steve Sonnenberg added, “Emerson needs and appreciates Life Sciences. You stretch us and challenge us. We got our start in batch processing with Life Sciences, and we remember our roots.”



Bristol-Myers Squibb representatives Chris Stevens (left) and Dave Gleeson (far right) receive the award from Steve Sonnenberg.

## Get the ‘Juice’ During Lunch Today

The PlantWeb Excellence Award: Squeezing the juice out of the technology.

Some engineering teams solve problems with the basic features and functionalities found in PlantWeb – all they need is the zest of the orange.

Others need to get a little more out of the PlantWeb architecture – so they pick and choose from the features they need – like picking a few orange wedges off a plate.

But a few engineering teams require much more – so they squeeze PlantWeb until they have all the juice it has to offer.

The Exchange Board wishes to recognize a facility that really gets the juice out of today’s technology, so they’ve designed the PlantWeb Excellence Award. Upon acceptance of an abstract submitted in the PlantWeb Implementation track for a presentation at

Emerson Exchange, users have the opportunity to nominate their facility.

A committee comprised of Emerson Exchange Board members chooses a winner based on the most comprehensive achievement of selection criteria, plus other deciding factors such as scope of project, innovative solution, complexity, ingenuity and vision in deployment.

The winner will be announced at Thursday’s lunch, as will the winners of the Best in Conference competition for best presentation at this year’s event. Don’t miss it.



## Onsite and Engaged: 2012 Technology Exhibits Area

The 2012 Emerson Global Users Exchange in Anaheim, Calif. featured more than 40 Emerson Process Management technology and services exhibits, and more than 50 Alliance Partner booths. Here’s a sampling of what you may have missed. You can also go online at [www.emersonexchange2012.com/multimedia](http://www.emersonexchange2012.com/multimedia) to see videos from various booths.

**Simulation continued from p. 13**

Common failures scenarios presented in simulation training include belts breaking, exceeding bin capacity, and vent failures around interlocks. Wood says the way failure scenarios are addressed in simulation makes correction of the failure a repeatable, step-by-step process, thereby making it easy for operators to retain the information.

"Simulation is ideal for adult learning," says Wood. "It removes fear and promotes confidence, and the operators really like it. They say it's like running a video game."

Wood adds that, by using simulation training, the Monsanto plant has reduced training by thousands of hours per year.

The control system in use at the elemental phosphorous plant, which is simulated for training, is not an overly complex one. According to Carla Koritnik, senior process control engineer at the Monsanto plant, the control system has some 20-25 controllers with around 6,000 I/O points

An added benefit of using DeltaV Simulate and Mimic is that it allows operators to train on the DeltaV control system as well as learn Monsanto's process for dealing with failures, said Koritnik.

Wood and Koritnik work together to regularly update the simulation training system. They currently bring new databases from the live system into the simulation system every 3 months.

Koritnik also noted that Monsanto virtualized its training simulation servers this year, saving about \$60,000 and eliminating the need for seven servers. These savings are on top of the classroom time savings delivered by simulation training, which Koritnik estimates to be about \$50,000 a year.

Future plans for simulation training at Monsanto's elemental phosphorous plant include incorporating more process simulation into the training, streamlining updates to simulation system, and simulating new processes prior to implementation to help train workers.

2013

**Plan Now for Next Year**

**W**ouldn't it be good to have a colleague with you next year?

Now that you know how beneficial time at the Emerson Global User Exchange can be, plan to come next year and bring a colleague. The cross-departmental training and stories of other companies' challenges can be invaluable.

As one attendee put it, "I come here and realize we're all one big company. The things happening in my plant are happening everywhere."

**Next year's Emerson Global Users Exchange will be held September 30 - October 4, 2013 at the Gaylord Texan Hotel & Convention Center in Grapevine, Texas.**

**WirelessHART Security: How It Works and How You Can Help**

**W**irelessHART field networks are purpose-built networks that use secure communications via mesh networks. The gateway for these field devices that connect them to a plant network is not a Wi-Fi access point, so these device communications are very secure. But at the plant-level, where you have human users interacting with the system, the plant gateway is an access point that requires special attention.

In a session at the Emerson Global Users Exchange, Neil Peterson, marketing manager for wireless plant solutions for Emerson Process Management, said that the main reasons for network security failures are the following:

- Human factors;
- Policies (or lack thereof) — Peterson notes that 8-character passwords are weak when it comes to securing critical systems and that 17-character passwords should be used;
- Poor network configuration;
- Bad assumptions about security issues;
- Lack of understanding about security; and
- Failure to stay up-to-date with the latest security measures.

Peterson pointed out that testing has proven wireless networks to be just as secure as wired networks. To ensure this level of security at your plant, it is critical to have someone in the plant whose responsibility it is to make the system secure, he said.

To underscore his point, Peterson mentioned that it is possible for hackers to make antennas using Pringles cans to access wireless networks up to a mile away. "So it's not like they have to be in a van parked just outside your office," he added.

The best way to control access to your wireless network is via authentication, authorization, verification, and encryption. Authentication is the process of proving you are who you say you are via a user name and password, or biometrics. Authorization determines what an authenticated user can do once they are on the system. Verification is done on WirelessHART via message integrity codes, which are generated as part of the device information payload to verify authenticated data. Also, the use of an encrypted nonce (source ID and time stamp) makes the occurrence of



**Neil Peterson, Marketing Manager, Wireless Plant Solutions for Emerson Process Management**

a replay attack more difficult. Peterson noted that encryption is the default mode on WirelessHART. Encryption prevents attackers from changing data. All sensor traffic on a WirelessHART network is encrypted.

WirelessHART also features several security keys to protect against unauthorized use or access. These keys include:

- Join Key—which allows a device on to a network to ensure no rogue devices gain access;
- Network Key—this is for network broadcast messages, because devices constantly communicate in order to synch;
- Session Keys—provide secure end-to-end connection with multiple sessions for each device.

Beyond the establishment of end-to-end wireless security and controlling access to your network, you should also ensure that your wireless clients (laptops, etc.) have "integrity." Essentially, this means that clients need updated antivirus software and should always stay on site. Clients should not be allowed to leave the premises where they could then connect to unknown networks and become contaminated.

**Automate Manual Valves—Cost-Effectively**

**M**ost process plants have thousands of discrete valves that are manually operated. According to a survey of Emerson Process Management customers, 90 percent have had valve alignment issues in the past 12 months, meaning what the position they thought the valve was in, was incorrect. This resulted in spills, lost batches and safety incidents.

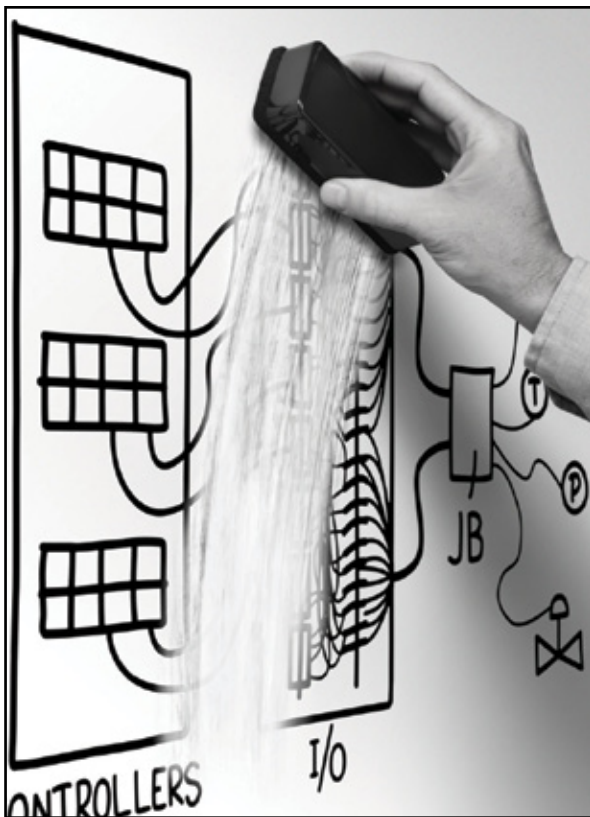
These customers are automating such discrete valves each year; however, the wiring costs of traditional automation prevent many from being converted from manual to automated control. Emerson Process Management has expanded its Smart Wireless solutions family with the release of the Fisher 4320 Wireless Position Monitor with On/Off Control Output Option, reportedly the first and only WirelessHART valve automation solution that includes linkage-less position feedback and discrete valve control.

For simplicity, traditional quarter-turn valves and pneumatic actuators are used—which means only air is needed to automate a valve. The Fisher 4320 provides users "with a cost-effective way to achieve wireless valve control with position feedback for quarter-turn valves," according to Peter Zornio, chief technology officer.

The 4320 "changes the economics of automating discrete valves as an alternative to solenoids and limit switches," said Zornio. "By eliminating the need for wires, the project cost and project time are reduced by minimizing engineering time, materials, control system I/O, and installation labor."



**Fisher 4320 Wireless Position Monitor with On/Off Control Output Option**



Another I/O change? Great.  
So another wiring schedule.  
Another marshalling design.  
And another cabinet...  
Just make it all go away!

# YOU CAN DO THAT



**DELTA V**

**Electronic marshalling eliminates the rework, the redesign and the headaches.**

With DeltaV Electronic Marshalling, Emerson lets you make I/O changes where and when you need them without costly engineering and schedule delays. Our new DeltaV CHARacterization Module (CHARM) completely eliminates the cross-wiring from the marshalling panel to the I/O card—regardless of signal type—so you're no longer held to predefined specifications. All those wires, gone. All that time and engineering, gone. See how easy it can be by scanning the code below or by visiting [IOonDemandCalculator.com](http://IOonDemandCalculator.com)



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# Wireless Shines at Emerson Global User Exchange

➔ The adoption of industrial wireless communication technology has spread to more than 120 countries and more than 10,000 separate wireless systems and today represents more than 1 billion hours of operating time, according to the vice president of Emerson Process Management's wireless business unit.

Emerson Process Management's Smart Wireless networks, which are based on WirelessHART technology, have now achieved 1 billion hours of operating experience across more than 10,000 wireless networks. This was some of the biggest news to come out of the Emerson User Exchange event, held in Anaheim, Calif. in October, and it represents a coming out party of sorts for industrial wireless technology.

"This is a milestone event revealing how engineers now consider this a proven technology," said Bob Karschnia, vice president of the Wireless business unit for Emerson Process Management. "Some customers have even written practices where they look at wireless solutions before wired ones when evaluating new projects." Before end of the calendar year, Emerson expects to have exceeded 100,000 wireless devices installed, he added.

Karschnia said Emerson customers have been adopting the technology at such a rapid rate that installations are now measured by the number of gateways installed and the number of operating hours. The total number of hours was calculated conservatively, he said, allowing for customer installation time before operation commenced.

"You don't get to 2 billion hours without going after a broader set of applications," Karschnia said, "and we have. Many of our customers have challenges that are odd compared to the general IT industry, but wireless communication is proving effective." Among the industries benefiting the most from wireless technology are upstream oil & gas producers, refineries, and chemical facilities.

In addition to multiple refinery/well-head/pipeline applications, Emerson lists dozens of others on its PlantWeb/Smart Wireless application site. These include sugar bin motor monitoring, boiler and heater gas flow, steam flow accounting, blast furnace health, and control network bridging, to name just a few.

"We knew wireless technology offered substantial savings and it is gratifying to see its rapid and widespread adoption," Karschnia added. "Many companies started out with small installations to prove the concept in their operating facilities. Today, those starter systems are rapidly expanding to site-wide facilities." He cited projects in their early stages in which they're installing 4,000 wireless nodes. Another with 6,000 nodes, "and one 15,000 nodes planned," he said. "Not just the number but the scope [of wireless sensor project] is growing pretty dramatically."

So how long before Emerson hits 2 billion operating hours for wireless? "By the time we're here next year, we'll have exceeded 2 billion hours," Karschnia predicted.

## PRODUCTS AND APPLICATIONS

At the Exchange, Emerson was showcasing new wireless communications products and services, including an IEC62591-compliant WirelessHART Interface for use with Emerson Remote Terminal Units (RTUs), a Smart Wireless Gateway with native Ethernet/IP output, and a free online tool to help with WirelessHART network planning, which offers an easy, low risk way to see how to use wireless technology.

"Our gateways are the center of our wireless network," said Karschnia, "and Ethernet/IP enables native communications with PLCs. Power over Ethernet is coming, and it will be an easier way to bring power to the device."

Another product on display was the Fisher 4320 Wireless Position Monitor with On/Off Control Output Option, reportedly the first and only WirelessHART valve automation solution that includes linkage-less position feedback and discrete valve control. "Our customers have used our [wireless] devices for the front end element, then passed [control signals] over a wired network to a valve. This is the first battery operated valve," he explained.



Emerson Smart Wireless milestones were a highlight of the Exchange.

## Mining Site Upgrades to DCS with Integrated Safety

Expansion plans at Areva's remote uranium mining site in Saskatchewan, Canada, calls for an upgrade of the facility's distributed control system (DCS) to one with integrated, intrinsically safe I/O.

Areva Resources Canada is involved in uranium exploration, mining and milling. At its McClean Lake mine and mill site in northern Saskatchewan, Canada, the company produces 10 million pounds of yellowcake annually. With plans in place to expand capacity to produce

up to 24 million pounds each year, Areva had some very specific reasons to upgrade its Provox control system, which had been in place since the facility was built in the mid 1990s. It chose the Emerson Process Management DeltaV system, and is now interested in adding Emerson's intrinsically safe (IS) CHARMS technology.

"The mine site is very remote," said Brian Burkowsky, account manager with Spartan Controls, which provides engineering services to Areva. "The area has no daily FedEx or UPS shipments, so Areva wanted to ensure its technology was reliable." Burkowsky was speaking at the 2012 Emerson Global Users Exchange in Anaheim.

Areva's migration to DeltaV began in steps starting in 2005. The driving idea behind the migration was to implement DeltaV for new areas of the plant as it expanded, while maintaining existing Provox systems until full conversion. Data dumps from the Provox system into DeltaV were conducted to ensure existing tuning values were implemented in the new DeltaV system, so that migration would maintain like-for-like operation.



Chad Sewell, P.E., electrical engineer, Areva Resources Canada

## OVERALL, THE MIGRATION PROJECT HAD FIVE PRINCIPAL GOALS:

- One set of DeltaV controllers for the existing solvent extraction plant as well as a new one, which will be built in the 2013/2014 timeframe. "Having one set of controls for both plants reduced control system hardware costs by 10 percent," said Chad Sewell, P.E., electrical engineer, Areva Resources Canada.
- Maintain or reduce control system footprint. "With CHARMS, we went from needing 10 termination panels to only needing 8 — a 20 percent reduction in space requirements," noted Sewell.
- Increase spare I/O capacity. The Provox system had 16 I/O points, CHARMS has 24, which increases I/O capacity by 50 percent. "There are now seven I/O card slots available for future expansion," Sewell said.
- Reduce downtime associated with system installation. Migration was done terminal by terminal; the back panels stayed in place with just the Provox terminal panels being removed as the DeltaV panels were installed. DeltaV Explorer was used to commission HART I/O using AutoSense to re-connect HART devices. For the 200 I/O points so far migrated, it took 50 percent less time to migrate than was expected. "We budgeted for the process to take 5 days and it only took 2 and a half days," said Sewell.
- Maintain facility's hazardous rating. This was enabled by the IS circuitry built into CHARMS.

Thus far, Areva has achieved a 24 percent costs savings in comparison to total funds approved for the project, according to Burkowsky. Future plans for the migration include using DeltaV CHARMS for field marshalling, upgrading PLCs to CHARMS, and using Ethernet for motor control.

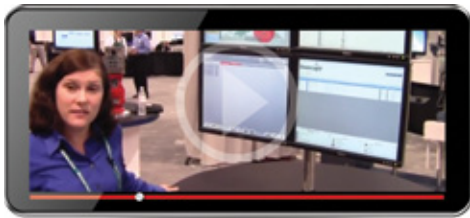
Wireless continued on p. 18 »

# VIDEOS



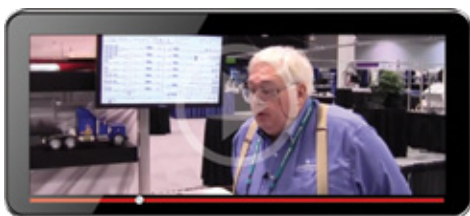
## Remote Monitoring Solutions via iOps

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## Manage Wireless Networks with Smart Wireless Navigator

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## Oil and Gas Processing Trends

<http://bit.ly/emex2012-oil-process-trends>



## 708 Wireless Acoustic Transmitter

<http://bit.ly/emex2012-wireless-acoustic>

## SIS in Field Instrumentation

Over the last 30 years, there has been a clear trend across industry to save money on control systems. But safety is one area in which cost savings tend not to deliver the desired return on investment because of the increased risk of injury and death.

A recent study showed that 44 percent of accidents were due to poor instrument specification, 6 percent of accidents were caused by errors during install and commissioning, and 15 percent occurred due to errors in design and implementation. This means that 65 percent of industrial accidents were ready to happen before operations even began.

"We often prefer to think that accidents are the cause of operator error, but the reality is they are often the result of an instrumentation issue," said Mark Murphy, P.E., Technical Director of Electrical and Control Systems Engineering, Fluor, during a safety instrumented systems (SIS) session at Emerson Process Management's annual user's group meeting.

### ACCORDING TO MURPHY, THERE ARE THREE KEYS TO INSTRUMENT SAFETY:

- Know that SIF (Safety Instrumented Functions) is important for every component in your system, so give equal amounts of attention to each device.
- Understand SIL (Safety Integrity Level) ratings. Part of this understanding means knowing that using a SIL 2 transmitter with a SIL 2 PLC and a SIL 2 valve does not equal a SIL 2 SIF.
- Focus on the lifecycle of the device, not just the implementation of it.

To help attendees better understand what differentiates SIF from SIS from SIL, Murphy said that SIF covers individual devices such as sensors, controllers, and final elements such as valves and actuators; SIS (Safety Instrumented Systems) is collection of SIFs; and SIL is a device's specified integrity level related to SIF requirements.

Paying close attention to the safety aspects of instrumentation is critical because 92 percent of system failures can be traced to the final element (50 percent of failure causes) and sensors (42 percent of failure causes).

"Everyone wants to be involved in designing the logic solver component of a system, but this only accounts for 8 percent of failures," Murphy added. "So [instrumentation] is where the efforts really need to be focused."

Beyond sensors, field devices, and final element considerations, Murphy also pointed to two other system components that can have a direct impact on system operation and, therefore, system safety. These two components are solenoid valves and instrument air supplies.

Solenoid valves tend to be forgotten, but they are the cause of 50 percent of valve failures. Murphy cautions engineers and technicians to be aware of the build-up of particles in the solenoid valve. He adds that the air supply to the solenoid valves should be filtered, monitored, and protected from outside elements.

Instrument air supplies are an external piece of an SIS, and so they tend to be overlooked during plant retrofits when capacity is often increased. As a result, instrument air supply is often not increased along with the plant capacity, which can lead to pressure drops. "As part of your safety preparations, you need to consider what will happen if this air supply system fails," Murphy said.

### Wireless continued from p. 17

In the Technology Exhibits area, where more than 50 Alliance Partners showed their wares, Perpetuum Ltd. announced availability of a vibration-energy-harvesting power module option for Emerson's Rosemount 3051S Smart Wireless transmitters.

Karschnia said the drivers of wireless projects include much lower cost for wiring and the infrastructure associated with wiring. Also, "the biggest risk on projects is time, so it comes down to how adaptable

you are to inevitable changes. Wireless reduces the risk because you are reducing the time needed," he said.

Since its release five years ago, Emerson estimates that the total installed savings resulting from Smart Wireless field devices is more than \$350 million, and reductions in commissioning and installation time total 16 man-years. The adoption of this technology has now spread to more than 120 countries and more than 10,000 separate wireless systems, Karschnia said.



Chad Sewell, P.E., electrical engineer, Areva Resources Canada

## Managing MACs and I/O Count

A major discussion point during the oil and gas forum at Emerson Process Management's annual user group meeting was how to more effectively deal with the seemingly unavoidable growth of I/O count during project implementation.

With 40 percent of Emerson Process Management's business coming from the oil & gas sector, this industry often leads the way in new technology implementation and in delivering best practices for other industries to follow.

Some of the biggest project challenges facing the oil & gas industry today include a retiring workforce, rapid depletion rates of existing oil and gas resources, increasingly complex projects, fewer available specialists, and ever-larger capital expenditure projects.

"We've long since found the easy oil and gas," said Larry Irving, vice president of oil & gas for Emerson Process Management. "Finding new sources requires longer, more complex projects."

To address these challenges, the clear trend across the oil & gas industry is toward the use of MACs (main automation contractors). The key to successful engagement with MACs is to engage with them early in project development to create optimum automation designs and reduce costs. Doing this, however, does not entirely mitigate the tendency for project I/O count to grow substantially during deployment, which can cause delays in construction drawings and delivery of automation systems.

A major technology advance that is helping address the issues of growing I/O count and project changes is Emerson Process Management's CHARMS (a CHARM is a single-channel component with an A/D converter and signal characterizer inserted onto the terminal block where field wires are landed. Each device can be landed anywhere on the strip regardless of its signal type.)

In a benchmark test done with a global provider of engineering, procurement and con-



Presenters at the Emerson Global Users Exchange Oil & Gas Forum (left to right): Larry Irving, Vice President, Oil & Gas, Emerson Process Management; Frank (Sandy) Vasser, Instrument and Electrical Manager, ExxonMobil Development Company; Mark Howard, Vice President of Projects North America; and Andrew Dennant, Director, Oil and Gas, Emerson Process Management, Middle East and Africa.

struction (EPC) services, CHARMS saved \$375,000 in re-engineering and scheduling delay costs, as well as \$100,000 in cabinet modification costs.

Another project done on an oil & gas project in the Gulf of Mexico called for use of 20,000 instruments and 60,000 connections. Use of CHARMS reduced connection requirements by 65 percent (about 42,000 connections). CHARMS' electronic marshalling approach uses pre-designed, pre-tested, non-custom equipment instead of custom cabinets typical of large projects like this.

## Vibration Energy Harvester Powers Rosemount Smart Wireless Transmitter



Rosemount 3051s transmitter gets energy harvesting power module

Perpetuum Ltd. has announced availability of a vibration energy harvester power module option for the Emerson Rosemount 3051S Smart Wireless transmitters.

The Intelligent Power Module offers a compact and technologically advanced power option which has the same form factor as the Emerson battery pack. It will enable the Emerson Rosemount 3051S to be powered by vibration energy harvesters (also known as vibration energy scavengers), thus eliminating the cost and logistics challenges associated

with changing batteries. Perpetuum's Intelligent Power Module has been designed so that it is compatible with other forms of energy harvesting as well, such as thermal energy harvesting, when they become available and qualified for use.

Until now, Automation OEMs and end users have been limited primarily to "battery only" power options for their wireless industrial transmitters. Fast data capture rates or large amounts of collected data can result in unnecessary maintenance tasks--namely, having to change batteries in deployed wireless sensor nodes long before the useful life cycle of the transmitter is achieved. According to a Perpetuum spokesman, "Replacing batteries creates significant losses in productivity, money, time and human resources, as well as un-optimized maintenance logistics associated with scheduling, work order generation, stocking and hazardous material disposal."

By utilizing Perpetuum's vibration energy harvesting power option, end users reportedly can eliminate the need to change batteries for over 10 years. Savings are even greater for "prioritized" assets (those requiring the fastest data capture rates), remote locations and hazardous or safety restricted areas, according to the company.

Perpetuum unveiled its Vibration Harvester Intelligent Power Module at the Emerson Global Users Exchange in Anaheim, Calif. and presented examples of the product's benefits in real deployments.

## Pipe Clamp Sensor for Non-Intrusive Temperature Measurements

The Rosemount 0085 non-intrusive Pipe Clamp Sensor provides a simple, fast solution for adding temperature measurements—and increased process visibility—to areas where intrusive sensors are not possible.

The Rosemount 0085 non-intrusive Pipe Clamp Sensor provides a simple, fast solution for adding temperature measurements—and increased process visibility—to areas where intrusive sensors are not possible. It is an Application and Industry Solution (AIS) sensor for surface measurements in process and oil & gas industry applications such as pipelines and wellheads. It is mounted directly on the pipe surface, with the RTD sensor in direct

contact with pipe surface. It can be used to measure temperatures from -200°C to 300°C (-328°C to 572°F). Pipe Clamp sensors are available with either direct-mount or remote-mounted transmitters.

In a video on Emerson's website, Thomas Wolf explains how the Rosemount Pipeclamp Temperature Sensor is a robust, cost effective solution for pipelines, wellheads and flow lines.



# PotashCorp Wins 2012 PlantWeb Excellence Award



Mike Sharp of Potash accepts the 2012 PlantWeb Excellence Award.

→ The PlantWeb Excellence Award is bestowed upon a company whose PlantWeb strategy includes: digital-capable devices that provide field intelligence using onboard microprocessors, embedded software, and open-standard communications; open communication standards linking field intelligence, systems, and applications in a plant-wide network; DeltaV or Ovation automation systems that make the most of PlantWeb's predictive intelligence; and consolidation of valuable asset information collected using AMS Suite technologies.

Five companies competed as finalists for this year's PlantWeb Excellence Award. The

board of the Emerson Global User's Group conducted committee reviews of the finalists' projects and determined that this year's winner is PotashCorp.

PotashCorp is the world's largest supplier of fertilizer and produces 20 percent of the world's fertilizer. The PlantWeb-related project at PotashCorp's Picadilly, New Brunswick, facility involved expansion of the site's finishing facilities that included \$8 million in DeltaV systems and services and \$3.5 million in field devices. Key aspects of the project included the enabling of mobile workers, delivering process information to operator's and technician's fingertips, and the implementation of CHARMs electronic marshalling.

Mike Sharp of PotashCorp accepted the 2012 PlantWeb Excellence Award during Thursday's award lunch at the Emerson Global Users Exchange.

## Nova Chemicals Tackles Alarm and Turnaround Management

As the device-management tag counts rose, Nova Chemicals saw alerts rise too. Use of AMS Device Manager software let engineers reduce the number of alerts generated, as well reduce overall maintenance costs.

Nova Chemicals' Corunna site in Ontario, Canada is a refinery and petrochemical complex that supplies 30 to 40 percent of Canada's total requirements for petrochemicals. The company initially purchased Emerson Process Management's AMS Device Manager software to manage 100 tags in its control system in 1999. Over the years, the number of tags managed by AMS has increased to 4,000. According to Ralph Whitney, head of instrument/electrical reliability at Nova Chemicals, this tag count will soon increase to 5,000.

Recounting Nova's progressive use of the AMS Device Manager, Whitney says the project started with the Rosemount 848T temperature transmitter connected to DeltaV via Foundation Fieldbus to AMS Device Manager to diagnose thermocouple issues and increase the reliability of a key compressor. In 2005, AMS was integrated with the plant's DCS via a HART multiplexer. That's when the tag count really exploded—and so did the alerts.

"We wanted AMS to deal with all the nuisance alarms operators had to deal with when the system was expanded to 3,000 tags," said Whitney, who added that you have to set alerts on devices correctly



Ralph Whitney, Instrument/Electrical Reliability, Nova Chemicals

to mitigate this issue. "You can't just turn them on in default mode or you'll be overloaded with alarms."

Emerson Process Management Implementation Services helped Nova Chemicals address the abundance of alarms using AMS to categorize the alarms A, B, C and D alarms range from "critical and requiring intervention" to information-only alerts.

"Each device has its own template in AMS and we choose which alerts we need to use for each device," said Blair Fraser, lead process automation specialist for lifecycle services for Lakeside Process Controls, the Emerson Process Management Services provider for Nova Chemicals.

Before Nova Chemicals addressed the issue, the  
**Nova Chemicals continued on p. 21 »**

## VIDEOS



### Power Advisory Diagnostic Capabilities

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### Improve Combustion Controls

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### Wireless Spotlight: Net Safety Flame Detector

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### Fisher Controls - ValveLink Mobile

<http://bit.ly/emex2012-valve-link>

## One-on-One: Sonnenberg and Zornio Talk Trends

Emerson Process Management President Steve Sonnenberg and Chief Strategic Officer Peter Zornio met privately with Automation World Editor in Chief Gary Mintchell during the 2012 Emerson Global Users Exchange to discuss industry directions and trends.

**Mintchell:** You were refreshingly open and transparent about the supply chain struggles the company endured. It sounds like you came out stronger.

**Sonnenberg:** It was helpful to put a face on the problem and just acknowledge the situation and thank our customers for working with us. We really appreciated the loyalty of our customers as our teams worked to prioritize needs to assure that the most critical needs were served first. There was some tremendous working together, such as when some companies realized that they had extra parts and offered to sell or loan them back to help other companies in need.

**Mintchell:** You have made services a major point of the conference this year. In fact, you even did a press conference differently by using Emerson executives to set the context and then had some very articulate customers explain how they were using various services. The point was that they were using Emerson personnel resources—engineers, project managers, program managers. I believe this move of engineering resources from users to suppliers has been going on for some time. Is this a growing and continuing trend?

**Zornio:** Yes, this is a growing trend. Engineers are a scarce resource. This is actually a more efficient use of resources. We can hire engineers and put them in regional areas where they are more readily available to customers. We can cut down airplane time and improve the speed of service. Customers often find it more efficient to hire us as the main automation contractor for many kinds of projects.



One-on-One: Sonnenberg and Zornio Talk Trends

**Mintchell:** One of your customers mentioned yesterday that he was not worried about intellectual property problems, because his company has domain expertise in manufacturing the product and they can rely on your automation expertise.

**Zornio:** That's just one of the efficiencies of allocating engineering resources. Another customer mentioned that he is only one-deep in expertise in many areas within the company. We are an alternative way to enhance his expertise. Even engineering procurement contractors (EPCs) are seeing value in hiring us as the automation designer so that they don't have to develop expertise in that area.

**Mintchell:** Emerson has been strong in oil and gas for many years now, and in fact the industry forum sessions devoted to oil & gas and refining were filled to overflowing. But so was the life sciences session. What's happening there?

**Sonnenberg:** There are a number of things going on in the oil and gas industry. First, there is a lot of consolidation, which is both a challenge and an opportunity as the companies rationalize different automation systems. So far, we have been chosen as the supplier for the combined companies. Specifically in the pharma area, we are working with the companies to do some of the control system design up front—to put DeltaV in the lab, so to speak—so that it shrinks time at the end of the project as they move from trial to production.

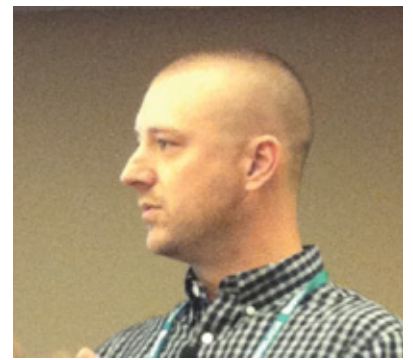
### Nova Chemicals continued from p. 20

3,000 devices on the system were creating 20,000 alerts. "With AMS Device Manager, we now just monitor around 50 alerts from these 3,000 devices," said Whitney. "We narrowed it down to just get notifications on alerts that can cause failure, and that require a technician's response."

Whitney added that, beyond alarm management, AMS has been critical to Nova Chemicals' plant turnaround planning and execution process because it can "tell us what instruments or valves need attention. The alert monitor in AMS is used to identify devices that need repair," he said.

"As part of the most recent turnaround, we scanned for valve signatures and identified that 84 of 88 did not require removal. This saved \$107,000," Whitney said. "We used to take all the valves out to assess them as part of our turnaround process every five years."

Beyond the man-hour and direct cost savings delivered by the AMS valve assessment, the AMS Device Manager is also used by Nova Chemicals to verify and simulate signals to its DCS and PLCs, troubleshoot guided wave radar devices, and verify temperature transmitter failures on interlocks.



Blair Fraser, Lead Process Automation, Lifecycle Services, Lakeside Process Controls (the Emerson Process Management Services presentiaion)

## Good Work Alone is Not Enough, You Need to Sell Your Ideas

How do engineers and technicians get their ideas across and projects funded? Like it or not, they've got to learn how to sell.

Walking around the 2012 Emerson Global Users Exchange, it's pretty easy to conclude that most engineers are fairly introverted, and many certainly would not want to view the need to get their ideas across in a meeting as "sales."

But that is exactly what you need to do, according to consultant Thom Singer, who spoke to a packed session in the Anaheim Convention Center.

In fact, said Singer, you need to sell yourself full time in your organization in order to get your ideas across at that one critical meeting where decisions will be made.

Whether introverted or extroverted, and especially in a technical environment, you need to learn how to network with fellow employees to build your reputation and brand, which will lead to you being more influential. "We are all in sales," said Singer. "You have to sell yourself to your peers everyday," not by words but by actions.

Do you stay late to lend a hand, or do you rush off at closing time? Do you support others when they speak up, or are you consistently negative? Do you smile and say hello when passing in the hall? Extroverted actions, even if you're not an extroverted person, can build relationships with people.

It's called networking. But networking is not a verb, according to Singer. It's a lifestyle. "Go to lunch with your peers. Make an effort to ask questions before you dive in with information all about yourself. [Think about] how can you approach other people to make them feel significant," Singer said.

All this will lead to you not only being noticed. It will make you more influential.

Also, when it comes time for your idea to be considered, prepare in advance and practice. Practice not just the facts and statistics, but know your purpose (what you want to accomplish), and weave a story that gets your point across.

"Humans brains are wired to remember stories," said Singer. You need an emotional connection to your idea, not just data.

Ask yourself, what do I expect from those I'm presenting to? Your boss, the boss's boss and your own team members might have to be presented to differently. You may have a different purpose with every meeting.

The more you present the better you will get. And don't forget, every great sales person "asks for the order." Don't be afraid to say, "This is what I want to happen as a result of this meeting."

Good work alone, sadly enough, is not going to cut it in today's marketplace. Good work is simply your ticket in the door. You need to connect with people and be a team player.

# VIDEOS



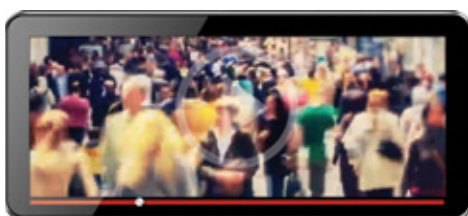
## SmartProcess Distillation Column Optimizer

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## Video: Digital Valve for Harsh Environments

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## Wireless Devices: One Billion is Big

<http://bit.ly/emex2012-wireless>



## Emerson Exchange 365 - Stay Connected!

<http://bit.ly/emex2012-365>

## Are You an Asset or a Cost?

“Approach justifying your automation investment as a sales job to top management,” said John Dolenc, principle engineer at Emerson. Dolenc’s remarks came during a well-attended session at the 2012 Emerson Global Users Exchange.

First, Dolenc said, you need to understand what plant management’s and operations’ attitude about automation: Is what you do thought of as an asset or cost?

Never fail to educate all stakeholders, especially plant staff, on the capabilities of automation, said Dolenc. To make your case for modernization, identify key business and operational issues, usually tied to key performance indicators (KPIs). Note where the standards have been set, and be able to measure actual performance against those standards.

The ROI approach to justification includes a discussion of benefits of modernization to the bottom line. Related questions include: Will we be able to increase capacity or charge a higher price? Can we reduce costs? Are we risking health and safety violations and possible fines by not modernizing our automation?

You must understand the business drivers, review historic KPIs and audit existing processes for poor performance or variability, says Dolenc. Define areas where new automation modernization will improve these KPIs. “You will have to talk and work together with plant management, operations, reliability & maintenance, even marketing and sales to get an idea of new products that might be coming down the line,” he said. Also, meet with accounting to



According to Dolenc, there are two approaches to making your case: one focuses on sustaining plant operations, while the other emphasizes return on investment (ROI). He actually favors a hybrid model incorporating both arguments. Answers to the following questions drive the sustaining-current-operations approach:

- What are your unscheduled downtime incidents due to system failure?
- Is it still cost-effective to support the old system? Is it obsolete? You don’t want to be buying replacement parts on e-Bay.
- Is your legacy system capable of flexibility to respond to new business opportunities?
- Do you lack the ability to increase capacity to drive more sales?
- Is the loss of operational intellectual talent (seasoned professionals retiring) going to affect the legacy system’s efficiency?
- What is the financial risk of a shutdown? This should include hardware replacement and labor to repair and clean up, value of lost production multiplied by the probability of such a failure.
- What is the effect of environment—dirty conditions, extremes in temperature, etc.—on your plant’s hardware life? It can be one of the biggest contributors to a short life span for equipment.

understand revenue generation and the production costs and how these are charged.

Some places to look for poor performance to make your case include:

- Variability—poor control, inconsistent batch operations
- Deteriorating conditions—corrosion, degradation of catalyst
- Manual operations—a good indication where losing seasoned pros is going to hurt
- Plant Availability—unscheduled outages

“Any control system is not infinite. Something will have to be done, eventually. Doing nothing is not an option,” said Dolenc. Consider first using the sustaining-current-operations approach to modernizing the automation infrastructure, then use the proposed new infrastructure as a basis to justify improvements to ROI.

Production and profitability are dependent on working together in unison, and you need complex, advanced controls to “push the envelope,” said Dolenc. But when a company does modernized its automation architecture, it can expect benefits that include: energy savings, reduction of variability, increased capacity, asset management/maintenance improvements, and automation of start up, switch over and shut down sequencing.



Leaking chemicals and gases are harmful to health and the environment. I need to control fugitive emissions with a reliable control valve solution.

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