Welcome to the spring 2012 edition of What's Watt, the Power Industry Division (POWID) newsletter. POWID membership has grown to over 3,300 and our premier event, the POWID 2011 symposium, was a smashing success featuring high-level keynote speakers and quality technical papers on a variety of automation topics impacting our industry.

The power industry is in a state of flux with the rapid growth of renewable power and a massive shift in fuel supply. These developments place new automation challenges on the existing fleet. The POWID 2012 Symposium organized by our POWID industry volunteers has an outstanding technical program addressing many of these challenges. Gary Cohee (Applied Control Systems) is serving as general chair along with Jim Batug (PPL Generation) and Phil Knobel (Invensys Operations Management) as the program co-chairs, and Terri Graham as the technical review coordinator (Hurst Technologies). The symposium will be held on 3-6 June 2012 at the Renaissance Austin Hotel in Austin, Texas, USA.

The symposium program kicks off Monday morning with keynote addresses from high-level automation industry executives including former ISA president, Leo Staples, and Christopher Guith, vice president for Policy, Institute for 21st Century Energy, US Chamber of Commerce. Then the panel session, “The Tip of the Spear for Economic Recovery?” explores the future of power and automation, hosted by Jason Makansi, president, Pearl Street Inc.; with panelists: Christopher Guith; Dr. Robert Peltier, PE, editor-in-chief of Power Magazine; Leo Staples, Senior Manager, Oklahoma Gas & Electric; and Jeffrey Shroete, managing director, Genova Power Solutions, LLC. The technical sessions run through Wednesday noon and span the critical automation topics in our industry: applications in critical infrastructure protection-cyber security, wireless sensor technology, turbine control solutions, new developments in advanced control technology, progress in nuclear automation, progress in measurement technology, and advances in plant automation.

Rounding out the week, Wednesday afternoon and Thursday morning EPRI hosts an Interest Group Meeting in coordination with DOE National Energy Technology Laboratory (NETL) laying the roadmap for future automation research. Our ISA 67, Nuclear Plant standards committee and ISA 77 Fossil Fuel Power Plant standards committee will meet on Wednesday afternoon and Thursday to further their development of standards for the power automation industry. And ISA has planned four training classes targeting the needs of automation in the power industry to be held Thursday and Friday: Introduction to Boiler Control Systems, Introduction to Management of Alarm Systems, Boiler Burner Management Systems-Meeting NFPA Standards, and Industrial Wireless Systems.


As you can see the POWID 2012 Symposium is a showcase event for Automation in the Power Industry and I invite you to participate; as an author or presenter, as a technical paper reviewer, or as an attendee interacting with the many technology experts. Just one “novel idea” may provide you and your company with significant pay-back and based on the program, there will be a host of novel ideas. Another interpretation of the acronym ISA is “Influence the State of Automation”. The POWID Symposium provides us with this opportunity for the Power industry.
Come Join us at the 2012 ISA Power Industry Division Symposium

By Gary Cohee
2012 Symposium General Chairman

Our POWID Director, Don Labbe, stole a lot of my thunder regarding this year’s symposium in his Director’s Message that follows and that the Advanced Program is also included within this newsletter, so I won’t repeat all that here. I do, however, want to personally invite you to come join us in Austin, Texas, USA for this premier event. This event will provide power generation industry leaders like yourself with information on the latest innovations in instrumentation, automation, security and business systems technologies. Each year this international conference brings together industry professionals in the Power Generation field with a primary focus on instrumentation and controls; the largest single event of its type. We anticipate 50 technical papers/presentations during joint sessions with fossil and nuclear focuses, presented over a 2½ day period.

More details can be found on the Symposium Website—
http://www.isa.org/powersymp

This year’s Austin location has a bit of everything—no matter what your interests may be. A short 20 minute ride (18 miles) north from Austin-Bergstrom International Airport will get you to the symposium hotel. http://www.marriott.com/hotels/maps/travel/aussh-renaissance-austin-hotel/

Please mark your calendar and join us in Austin!

Upcoming ISA and POWID International Conferences

55th Annual ISA POWID Symposium
Renaissance Austin Hotel
Austin, Texas, USA
3-8 June 2012

ISA Automation Week
Technology and Solutions Event
Orange County Convention Center, Orlando, Florida, USA
24-27 September 2012

A Request from the Newsletter Editor

By Dale Evely, PE
POWID Newsletter Editor

The goal that POWID works toward is to publish three newsletters each calendar year; with the basic schedule being publication in March (Spring), August (Summer) and December (Fall). All three of the newsletters are published electronically and the Spring newsletter is also published in paper format and mailed to those of you who live in the USA. Since the newsletter is only as good as its content, I would like to encourage each of you to submit technical articles as well as other articles of broad interest for publication in future newsletters. Technical content that is specific to the automation side of the power industry is what provides the best benefit to our membership so please share with your colleagues any tidbits that have been beneficial to you in your job or in expanding your knowledge base. You can send your articles to dpevely@southernco.com. If the article was not authored by you, please provide us with a statement that you have cleared publication of the material with the author. I look forward to hearing from you.

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Power Industry Division Officers

DIRECTOR
Don Labbe
Invensys Operations Management
33 Commercial St., C42-2A
Foxboro, MA 02035-2099
(508) 549-6554
donald.labbe@invensys.com

DIRECTOR-ELECT
Denny Younie
Case M&I
(970) 443-4098
dyounie@casemi.com
www.casemi.com

PAST DIRECTOR
Cyrus Taft
Taft Engineering, Inc.
136 Old Rockwood Hwy
Harriman, TN 37748
(865) 850-4460
cwtaft@taftengineering.com

NEWSLETTER EDITOR
Dale Evely
Southern Company
P.O. Box 2625 / Bin B463
Birmingham, AL 35202
(205) 992-6649
dpevely@southernco.com

2012 POWID Symposium Committee

GENERAL CHAIR
Gary Cohee
Applied Control Systems
Beaumont, Texas
garyacohee@aol.com

PROGRAM CO-CHAIRS
James Batug
(Fossil and non-Nuclear Program)
PPL Generation, LLC
Allentown, Pennsylvania
jpbatug@pplweb.com

Phil Knobel
(Nuclear Program)
Invensys Operations Management
33 Commercial St., C41-2B
Foxboro, MA 02035-2099
phil.knobel@invensys.com

HONOR & AWARDS CHAIR
Mike Skoncey
First Energy Generation Corp.
W.H. Sammis Plant
PO Box 176, Route 7
Stratton, OH 43961
(740) 537-6324
mskoncey@firstenergycorp.com

PUBLICITY
Joe Vavrek
Sargent & Lundy
55 E. Monroe St. 25W53
Chicago, IL 60603
(312) 269-2270
joseph.m.vavrek@sargentlundy.com

ISA Professional Staff

ISA SENIOR ADMINISTRATOR,
TECHNICAL DIVISIONS/
SYMPOSIUM
Rodney Jones
ISA
P.O. Box 12277
Research Triangle Park,
NC 27709
(919) 990-9418
rjones@isa.org

Book Reviews

By Dale Evely, PE
Southern Company
POWID Newsletter Editor

I have read two books over the last few months that might be of interest to many of you. One of these books has great technical value to power plant controls people and the other is of historic interest.

The technical book was written by Jacques Smuts, the recipient of the ISA POWID 2010 Achievement Award. The book is entitled “Process Control for Practitioners” and is purported to teach “How to Tune PID Controllers and Optimize Control Loops”. I found it to be an excellent textbook on both of those subjects. The book does an excellent job of covering the basics related to control theory as well as the steps needed to step test and tune a controller. He provides workarounds for obtaining reasonable values for step test parameter results and emphasizes the importance of getting good values from those tests. The value in using tuning spreadsheets or software is explained as well as selecting the correct tuning approach for a given application. There is an excellent section on troubleshooting control problems. I agree with Jacques that the best use of the book comes from reading it through and then using it as a reference in the field when tuning or troubleshooting activities are undertaken. The book can be purchased through Jacques company, OptiControls, at $89.95 for hardcover or $69.95 for paperback. A 10% discount is available for purchase quantities of five books or more.

The book of historic interest is entitled “Big Bets” and was written by Dub Taft and Sam Heys. Big bets are pivotal decisions leaders make when the stakes are high — decisions that forge a successful path or retrieve a lost cause at a critical crossroads. Big bets can determine a company’s destiny or reshape its future. The book portrays the 100 year history of the companies that eventually became the Southern Company and how the big bets paid off to make that happen. Even though most of you don’t work for Southern you may find the book of interest because it does detail the attempt of the federal government to take over all power utility companies in the first half of the 20th century. It also helped me better understand the restructuring that our industry has been proceeding through for the last twenty-five years. The book, at 534 pages, might seem a bit overwhelming at first but it includes extensive references, indexing, photographs and a timeline. It is also quite affordable at only $20.00 per copy in hardback at www.amazon.com.

The Second Best Paper from the
2010 ISA POWID Symposium

During the Honors and Awards Luncheon in June 2011, the Second Best Paper from the 2010 ISA POWID Conference in Charlotte, North Carolina was presented to Dale Evely for the paper entitled “Steam Drum Level Measurement Temperature Equalizing column Concerns” This technical paper is provided in its entirety in this newsletter for your reading pleasure. (Turn to page 10.)
Message From the Conference Chair

Sponsored by the ISA Power Industry Division (POWID), the 2012 ISA POWID Symposium will provide power generation industry leaders with information on the latest innovations in instrumentation, automation, security and business systems technologies. Each year this international conference brings together industry professionals in the power generation field with a primary focus on instrumentation and controls; the largest single event of its type. We anticipate 50 technical papers/presentations during joint sessions, with the fossil and nuclear focus, to be presented over 2½ days.

The venue, the Renaissance Austin Hotel, is nestled in the picturesque hills of Austin, Texas, and provides a tranquil environment, surrounded by nature trails and 95 breathtaking acres. Discover the charming grace and distinct elegance at the Renaissance Austin Hotel, located in the upscale Austin Arboretum area. Enjoy the close proximity to downtown Austin, the University of Texas, Sixth Street, and The Domain Shopping Center—less than two miles away. A number of restaurants including P.F. Chang’s and the Cheesecake Factory, are within walking distance of the hotel. I look forward to welcoming you to the symposium this year!

Gary Cohee
55th Annual ISA POWID Conference General Chair

Symposium Registration

Full Conference Rate
ISA Member: $480
Community Member/List: $600

More registration options are available.

Register today at www.isa.org/powersymp.

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Thank you Supporters!

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ISA Security Compliance Institute (ISCI)
LumaSense Technologies Inc
PAS
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Siemens Energy Instrumental, Controls, and Electrical
Sumitomo Electric Lightwave
U.S. D.O.E. NETL
Ultra Electronics
Westinghouse Electric Company LLC
### Schedule—at-a–glance

#### Sunday, 3 June 2012

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<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 a.m. – 10:00 a.m.</td>
<td>ISA POWID Long Range Planning Committee Meeting</td>
</tr>
<tr>
<td>10:00 a.m. – 10:30 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>10:30 a.m. – 12:00 p.m.</td>
<td>ISA POWID Symposium 2013 Committee Meeting</td>
</tr>
<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:00 p.m. – 4:00 p.m.</td>
<td>Exhibitor Setup</td>
</tr>
<tr>
<td>1:00 p.m. – 5:00 p.m.</td>
<td>ISA POWID Executive Committee Meeting</td>
</tr>
<tr>
<td>1:00 p.m. – 5:00 p.m.</td>
<td>Conference Registration</td>
</tr>
<tr>
<td>5:00 p.m. – 7:00 p.m.</td>
<td>Opening Night Reception / Exhibitor Showcase</td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>Exhibitor Showcase</td>
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</tbody>
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#### Monday, 4 June 2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>6:30 a.m. – 7:30 a.m.</td>
<td>Speaker Breakfast</td>
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<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td>Exhibitor Showcase</td>
</tr>
<tr>
<td>7:00 a.m. – 5:00 p.m.</td>
<td>Conference Registration</td>
</tr>
<tr>
<td>7:00 a.m. – 5:00 p.m.</td>
<td>Spouses’ Lounge</td>
</tr>
<tr>
<td>8:00 a.m. – 9:45 a.m.</td>
<td>Session 1: Welcome, Introductions, Keynote Addresses</td>
</tr>
<tr>
<td></td>
<td>• Conference Opening—Gary Cohee, general chairman 2012 ISA POWID Symposium</td>
</tr>
<tr>
<td></td>
<td>• Introductions—Don Labbe, director ISA Power Industry Division (POWID) Division</td>
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<tr>
<td></td>
<td>• Welcoming Remarks—Leo Staples, ISA 2012 past president</td>
</tr>
<tr>
<td></td>
<td>• Keynote Speaker—Christopher Guith, vice president for policy, Institute for 21st Century Energy, U.S. Chamber of Commerce</td>
</tr>
<tr>
<td>9:45 a.m. – 10:00 a.m.</td>
<td>Break</td>
</tr>
<tr>
<td>10:00 a.m. – 11:45 a.m.</td>
<td>Session 2: Industry Roundtable/Panel Discussion</td>
</tr>
<tr>
<td></td>
<td>Moderator: Jason Makansi, president, Pearl Street Inc.</td>
</tr>
<tr>
<td>12:00 p.m. – 1:45 p.m.</td>
<td>ISA POWID Honors and Awards Luncheon Guest Speaker: Texas Ranger, Captain Frank Malinak Recognition of ISA Power Industry Division (POWID) Leadership: People, Facilities and Authors, Mike Skoncey</td>
</tr>
<tr>
<td>1:45 p.m. – 5:00 p.m.</td>
<td>Session 3A: Wireless Sensor Technology and Applications</td>
</tr>
<tr>
<td></td>
<td>Session 3B: Turbine Controls</td>
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<tr>
<td></td>
<td>Session 3C: Plant Performance</td>
</tr>
<tr>
<td>5:00 p.m. – 7:00 p.m.</td>
<td>Exhibitor Showcase</td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>Exhibitor Showcase</td>
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#### Tuesday, 5 June 2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>6:30 a.m. – 7:30 a.m.</td>
<td>Speaker Breakfast</td>
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<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td>Exhibitor Showcase</td>
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<tr>
<td>7:00 a.m. – 5:00 p.m.</td>
<td>Conference Registration</td>
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<tr>
<td>7:00 a.m. – 5:00 p.m.</td>
<td>Spouses’ Lounge</td>
</tr>
<tr>
<td>8:00 a.m. – 9:00 a.m.</td>
<td>Session 4: Plenary Session—Industry Hot Topic: The Next Major Challenge—Making Control Systems More Reliable, Safe, and Secure Plenary Speaker: Joe Weiss</td>
</tr>
<tr>
<td>9:00 a.m. – 12:00 noon</td>
<td>Session 4A: Roundtable/Panel Discussion: Critical Infrastructure—Cyber Security I</td>
</tr>
<tr>
<td></td>
<td>Session 4B: Advanced Control Technology</td>
</tr>
<tr>
<td></td>
<td>Session 4C: Nuclear Power I, Plant Innovations and Enhancements</td>
</tr>
<tr>
<td>12:00 p.m. – 1:30 p.m.</td>
<td>Lunch Break/Exhibitor Showcase</td>
</tr>
<tr>
<td>1:30 p.m. – 5:00 p.m.</td>
<td>Session 5A: Roundtable/Panel Discussion: Critical Infrastructure—Cyber Security II</td>
</tr>
<tr>
<td></td>
<td>Session 5B: Advanced Control Applications</td>
</tr>
<tr>
<td></td>
<td>Session 5C: Nuclear Power II, New and Existing Fleet</td>
</tr>
<tr>
<td>5:00 p.m. – 7:00 p.m.</td>
<td>Exhibitor Showcase</td>
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<tr>
<td>7:00 p.m.</td>
<td>Exhibitor Showcase</td>
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#### Wednesday, 6 June 2012

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 a.m. – 7:30 a.m.</td>
<td>Speaker Breakfast</td>
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<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td>Exhibitor Showcase</td>
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<tr>
<td>7:00 a.m. – 5:00 p.m.</td>
<td>Conference Registration</td>
</tr>
<tr>
<td>7:00 a.m. – 5:00 p.m.</td>
<td>Spouses’ Lounge</td>
</tr>
<tr>
<td>8:00 a.m. – 11:45 a.m.</td>
<td>Session 6A: Measurement Technology</td>
</tr>
<tr>
<td></td>
<td>Session 6B: Plant Automation</td>
</tr>
<tr>
<td>11:45 p.m. – 12:00 p.m.</td>
<td>Closing Comments</td>
</tr>
<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>ISA Conference Critique Meeting, note: open only to Conference Committee Members and EXCOM Members</td>
</tr>
<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>Lunch Break/Exhibitor Showcase</td>
</tr>
<tr>
<td>1:00 p.m. – 1:30 p.m.</td>
<td>Exhibitor Critique Meeting</td>
</tr>
<tr>
<td>1:00 p.m. – 3:00 p.m.</td>
<td>ISA77 Committee Meeting</td>
</tr>
<tr>
<td>1:00 p.m. – 5:00 p.m.</td>
<td>ISA67 Committee Meeting</td>
</tr>
<tr>
<td>1:00 p.m. – 5:00 p.m.</td>
<td>Electric Power Research Institute (EPRI) Interest Group Meeting in Coordination With Department of Energy (DOE) National Energy Technology Laboratory (NETL) Workshop</td>
</tr>
<tr>
<td>1:30 p.m. – 4:00 p.m.</td>
<td>Exhibitor Tear Down</td>
</tr>
</tbody>
</table>

#### Thursday, 7 June

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td>ISA Training Course Registration</td>
</tr>
<tr>
<td>8:00 a.m. – 4:00 p.m.</td>
<td>ISA Training Courses</td>
</tr>
<tr>
<td></td>
<td>Introduction to Boiler Control Systems (ES15C)</td>
</tr>
<tr>
<td></td>
<td>Introduction to the Management of Alarm Systems (IC39C)</td>
</tr>
<tr>
<td>8:00 a.m. – 12:00 noon</td>
<td>EPRI Interest Group Meeting in Coordination With DOE National Energy Technology Laboratory (NETL) Workshop</td>
</tr>
<tr>
<td>8:00 a.m. – 5:00 p.m.</td>
<td>ISA67 Standards Committee Meetings (Tentative)</td>
</tr>
<tr>
<td>8:00 a.m. – 5:00 p.m.</td>
<td>ISA77 Standards Committee Meetings</td>
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#### Friday, 9 June

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 a.m. – 4:00 p.m.</td>
<td>ISA Training Courses</td>
</tr>
<tr>
<td></td>
<td>Boiler Burner Management Systems: Meeting NFPA Standards (ES16C)</td>
</tr>
<tr>
<td></td>
<td>Industrial Wireless Systems (IC85C)</td>
</tr>
</tbody>
</table>
Monday, 4 June
Morning Sessions: 8:00 a.m. – 11:45 p.m.

Session 1 Rio Grande Hall B

Welcome, Introductions, Keynote Addresses

Conference Opening: Gary Cohee, general chairman 2012 ISA POWID Symposium
Introductions: Don Labbe, director ISA Power Industry Division (POWID) Division
Welcome Remarks: Leo Staples, ISA 2012 past president
Keynote Speaker: Christopher Guith, vice president for policy, Institute for 21st Century Energy, U.S. Chamber of Commerce

Session 2 Rio Grande Hall B

Industry Roundtable/Panel Discussion

Moderator: Jason Makansi, president, Pearl Street Inc.
Panelists:
- Christopher Guith, vice president for policy, Institute for 21st Century Energy, U.S. Chamber of Commerce
- Dr. Robert Peltier, PE, editor-in-chief, Power Magazine
- Jeffrey Shroeter, managing director, Genova Power Solutions, LLC
- H. Leo Staples, ISA 2012 past president
- Jeff Williams, business development manager, Emerson Process Management


If you consider a dashboard of indicators for the electric power industry, the price of natural gas is the big circular dial smack in the center. At no time has that been truer than today with all the talk about shale gas. On the one hand, the development of this domestic energy source is leading the nation's economic recovery. On the other hand, it is distorting long-term resource decisions across the electricity production and delivery value chain. At the same time, rulings from EPA, Federal Energy Regulatory Commission (FERC) and the Nuclear Regulatory Commission (NRC) are remaking the regulatory landscape. It's a presidential election year and the strength of an economic recovery from the trauma brought on by the financial industry's debacle in 2008 is still questionable. In this session, we will dissect and probe the big issues affecting power generation facilities and relate the big picture to the future of automation, control, software, digital technology, asset management, and knowledge management systems.

12:00 p.m. – 1:45 p.m.

ISA POWID Honors and Awards Luncheon Rio Grande Hall B

Guest Speaker: Texas Ranger, Captain Frank Malinak

Afternoon Sessions: 1:45 p.m. – 5:00 p.m.

Session 3A San Antonio

Wireless Sensor Technology and Applications

Session Developer: Cyrus Taft, Taft Engineering

- POWID19: Wireless Instrumentation in Industry, Syed Obaidullah, SIPCHEM
- POWID38: The Road to Wireless Sensing in Navy Shipboard Applications, Bill Nickerson, Impact Technologies, A Sikorsky Innovations Company
- POWID17: Thermocouple and Thermowell Response Time Study for Steam Temperature Control – Part II, Cyrus Taft, Taft Engineering

Session 3B Pecos

Turbine Controls

Session Developer: Tim Richardson, Case M&I

- POWID31: Fire-Resistant Fluids, EHC, Phosphate Ester, Daniel Mix, Case M&I ++

Session 3C Sabine

Plant Performance

Session Developer: Seth Olson, Chevron Global Power

- POWID26: Heat Rate and Feedwater Heater Level Control, Donald Hite, Magnetrol International ++
- POWID27: Troubleshooting and Solving Poor Control Loop Performance, Jacques Smuts, OptiControls
- POWID37: Tuning of Boiler Drum Level Controller in Power Plant, S.H. Byun, KEPCO
- POWID39: Predictive Emissions Monitoring Implementation for Title V Applications With Efficiency Feedback Control, Rich Hovan, Rockwell Automation ++
- POWID40: Higher Peak Load Generation & Reduced NOx Emissions Through Coordinated Feedwater Heater Control, Donald Labbe, Invensys
- POWID45: Process Plant Simulator for Operator and Technician Training, Jesus Vazquez–Bustos, Electric Research Institute (IIE)

5:00 p.m. – 7:00 p.m.

Exhibitor Showcase/Drawing Rio Grande Exhibit Hall

Notes: ++ = PowerPoint only—no paper in the Proceedings
Tuesday, 5 June 2012

Morning Sessions: 8:00 a.m. – 12:00 noon

Session 4 Rio Grand Hall B

Plenary Session—Industry Hot Topic:
The Next Major Challenge—Making Control Systems
More Reliable, Safe, and Secure

Plenary Speaker: Joe Weiss PE, CISM, CRISC, ISA Fellow,
IEEE Senior Member

Session 4A San Antonio

Roundtable/Panel Discussion:
Critical Infrastructure—Cyber Security I

Session Developer: Thomas Stevenson, Constellation Energy

- POWID2: The Evolution of Industrial Control Systems
  Control Systems Security Program ++
- POWID4: Getting Data from a Control System to the
  Masses While Maintaining Cybersecurity – The Case for
  “Data Diodes”, Barry Hargis, Engineered Solutions, Inc. ++
- POWID18: Automated Consequence – Based Assessment
  Schema, Dennis Holstein, OPUS Consulting Group ++
- POWID43: ICS Security – Talking Management and
  Strategy, Walt Sikora, Industrial Defender ++

Session 4B Pecos

Advanced Control Technology

Session Developer: Dr. Xinsheng Lou, Alstom Power

- POWID8: Modeling and Control of Nonlinear Electric
  Power Utility Boiler System, Michael Frye, University of the
  Incarnate Word
- POWID9: Robustness Enhancement of PID Cluster for a
  Nonlinear Power Plant Model With Time Delay, Joseph
  Bentsman, University of Illinois
- POWID11: Load Frequency Controller Design for
  Interconnected Electric Power System, Mohamed
  Mahmoud, Invensys Operations Management
- POWID33: The Boiler Model-Based Unit Control in One-
  Through Boiler, In Young Chung, Korea Western Power
- POWID36: Disturbance Modeling and Offset–Free
  Predictive Control for Solid Oxide Fuel Cell, Lei Pan,
  Southeast University of China

Session 4C Sabine

Nuclear Power I, Plant Innovations and Enhancements

Session Developer: Phil Knobel, Invensys

- POWID25: Developing High Quality Nuclear I&C Software –
  From I&C Database Model to Automatic Generation of Software,
  Christopher Creffield, Westinghouse Electric Company
- POWID28: Methods of Improving Quality and Efficiency of
  I&C FMEAs, John Erin, Westinghouse Electric Company
- POWID47: Restoring a Safety Related Analog Instrument
  Line, Phil Knobel, Invensys ++
- POWID48: An Approach to Digital Control Design and
  Validation Incorporating Modeling Tools and Change
  Management, Steven Freel, GSE Systems, Inc. ++

Session 5A San Antonio

Roundtable/Panel Discussion:
Critical Infrastructure—Cyber Security II

Session Developer: James P. Batug, PPL Generation

- POWID3: Preparing for a NERC CIP Audit, James Chance,
  Corporate Risk Solutions
- POWID13: Automating Compliance With NERC CIP
  Regulations: A Case Study, Monica Yoo – PAS ++
- POWID41: A Tactical Approach to Continuous Compliance
  for CIP–010–5, Jacob Kitchel, Industrial Defender ++
- POWID44: The Case for OEMs to Normalize the Patch
  Process, Walt Sikora, Industrial Defender ++

Session 5B Pecos

Advanced Control Applications

Session Developer: Jeffery Williams, Emerson Process

Management–Power & Water Solutions

- POWID10: Steam Temperature Control Using Cascade
  Control, Allan Zadiraka, AJ Zadiraka LLC
- POWID5: Intelligent Control of Solid Fuel Boilers –
  Computing and Optimizing Total Energy Flow to the Boiler,
  Roger Leimbach, Metso Automation ++
- POWID23: Sediment Pond Effluent pH Control, Don
  ANDRASIK, GENON Energy Inc.
- POWID6: Plant Performance Improvements by Enhanced
  Combustion Through Laser–Based Optimization, Sudha
  THAVAMANI, Siemens Energy Inc.
- POWID42: Smart Firing Control System, Donald Labbe, Invensys

Session 5C Sabine

Nuclear Power II, New and Existing Fleet

Session Developer: Robert Queenan, Scientech

- POWID16: Regulatory Perspectives on Impacts of Japanese
  Fukushima Nuclear Accident on I&C Systems in U.S.
  Nuclear Power Plants, Jack Zhao, U.S. Nuclear Regulatory
  Commission, ++
- POWID29: A Analog Protection System for Existing Plant
  Upgrades, Robert Queenan, Scientech ++
- POWID34: Challenges and Successes of Integrating Large
  Digital I&C Systems for Nuclear Power Plants, Christopher
  Creffield, Westinghouse Electric Company
- POWID35: Balancing Compliance and Security in Nuclear
  Plants, Erik Andersen, Westinghouse Electric Company

5:00 p.m. – 7:00 p.m.

Exhibitor Showcase/Drawing Rio Grande Exhibit Hall

Notes: ++ = PowerPoint only—no paper in the Proceedings
**Wednesday, 6 June**

**Morning Sessions: 8:00 a.m. – 11:45 a.m.**

**Session 6A**  
**Sabine**  
**Measurement Technology**  
Michael Cushing, Siemens Industry, Inc., Industrial Automation Division  
- **POWID14:** Asset Management – Developing a New Maintenance Strategy for Instruments and Valves, Gary Reeves, Yokogawa Corporation of America  
- **POWID15:** New Technology & Application for Drum Level Measurement, Jichuan Liu, Qinhuangdao Huadian Measurement & Control Equipment Co., Ltd. (HDSC) ++  
- **POWID22:** Advances in Radar Level Measurement for Coal Power Applications, John Dronette, Siemens Industry

**Session 6B**  
**Pecos**  
**Plant Automation**  
**Session Developer:** John Sorge, Southern Company Services  
- **POWID1:** Daura Power Station – A New Level of Power Plant Automation in Iraq, Josiah Long, Bechtel Group  
- **POWID7:** Load Share Control System for “Twin Pack” Turbo-Jet Power Units, Salvador Delara, Instituto De Investigaciones Electricas  
- **POWID12:** Automation Advancements for Reduced Power Plant Operator Attendance: The Australian Experience, Donald Parker, Provenca Process Automation  
- **POWID21:** Enhanced Operational Flexibility of Combined Cycles Through Advanced Controls, Fernando D’Amato, General Electric  
- **POWID32:** Advanced Control for Ancillary Service of Combined Cycle Power Plants, Damien Faille, Electricite de France

**Thursday, 7 June**

**7:00 a.m. – 8:00 a.m.**

**ISA Training Course Registration**  
**Colorado**

**8:00 a.m. – 4:00 p.m.**

**ISA Training**  
**San Antonio**

**Introduction to Boiler Control Systems (ES15C)**

**ISA Training**  
**San Marcos**

**Introduction to the Management of Alarm Systems (IC39C)**

**Friday, 8 June**

**8:00 a.m. – 4:00 p.m.**

**ISA Training**  
**San Antonio**

**Boiler Burner Management Systems—Meeting NFPA Standards (ES16C)**

**ISA Training**  
**San Marcos**

**Industrial Wireless Systems (IC85C)**

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Session 4A: Critical Infrastructure-Cyber Security I
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Session 4B: Advanced Control Technology
Dr. Xinsheng Lou
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Session 4C: Nuclear I
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Held in conjunction with the 55th ISA POWID Symposium

ISA is the authoritative and unbiased provider of continuing education for technicians, automation engineers, and managers worldwide. These courses are led by industry experts with real-world experience. Make the most of your ISA POWID Symposium experience by including ISA training.

Thursday, 7 June

Introduction to the Management of Alarm Systems (IC39C)
Instructor: John Bogdan
Room: San Marcos
This short course focuses on the key activities of the alarm management lifecycle provided in the ANSI/ISA-18.00.02, Management of Alarm Systems for the Process Industries standard. The key activities covered in this course include the alarm philosophy development, alarm rationalization, basic alarm design, advanced alarm techniques, Human Machine Interface (HMI) design for alarms, monitoring, assessment, management of change, and audit.

Introduction to Boiler Control Systems (ES15C)
Instructor: Jerry Gilman
Room: San Antonio
This short course will help process control system engineers, managers, project engineers, operators, and technicians in boiler houses and power plants, explain the basics of boiler operation and control. This course will teach you what must be controlled when working with boilers and how the control systems operate.

Friday, 8 June

Industrial Wireless Systems (IC85C)
Instructor: Wayne Manges
Room: San Marcos
This short course will cover the most relevant details associated with industrial wireless systems with an emphasis toward how the various technological choices coexist, interoperate, and interact with each other. Numerous examples of real-world deployments are covered. Considerable emphasis is placed specifically on ISA100 (the standard for industrial wireless) including deep dives into some of the standard’s most pertinent details.

Boiler Burner Management Systems—Meeting NFPA Standards (ES16C)
Instructor: Jerry Gilman
Room: San Antonio
With emphasis in industry on process safety, the design of Burner Management Systems (BMS) is now more important than ever. This short course provides an explanation of the boiler standards and why they are so critical to this industry.
Steam Drum Level Measurement
Temperature Equalizing Column Concerns

Dale P. Evely, P.E.
Principal Engineer, I&C
Southern Company
Birmingham, Alabama  35242

KEYWORDS
Steam Drum Level Measurement, Temperature Equalizing Columns, Pressure Compensation of Drum Level Measurement

ABSTRACT
In the 1950’s and 1960’s, and possibly before that, a number of vendors utilized what were known as temperature equalizing columns to develop their measurement reference legs for steam drum level measurements. Columns of this type were provided by Bailey Meter Company, Republic Flow Meters, Yarway Corporation, and possibly other companies. These columns were used because they were necessary to somewhat simplify drum level pressure compensation when that was being done by purely mechanical means (helix tubes and linkages). Temperature equalizing columns are problematic because a portion of the reference leg can flash to steam on a pressure decrease (load increase) and this will result temporarily in a false high level measurement, adding to the swell effect. There can also be a measurement inaccuracy related to the use of these columns. Because of the problems with temperature equalizing columns, at least one manufacturer discontinued the sale of them in the 1960’s. When temperature equalizing columns are encountered on existing steam drums a general recommendation is to remove them and replace them with a more modern reference leg installation. It should be recognized that if a temperature equalizing column is in place, pressure compensation of the drum level measurement is still required but the compensation equations may be different than the standard compensation and the accuracy of the compensation may not be as good. This technical paper will provide a description of three known types of temperature equalizing columns. It will also provide further support for the recommendation to remove these columns where they are still in service.

INTRODUCTION
Boiler steam drum level measurement has intrigued the author since 1976; that’s when he joined Bailey Meter Company as an engineering “Cadet”. Three months of intense classroom training, including a generous amount of lab work, supplemented a degree in electronics with an initial
understanding of electronic, mechanical and pneumatic instrumentation and control (I&C) equipment. Four years working in the field for Bailey following that, however, was the real internship in power plant I&C. The four years spent with Bailey, and the thirty years since then, continue to uncover measurement issues related to boiler steam drum level. The most recent issue arose at one of our plants during an outage associated with an upcoming boiler control system retrofit. Questions came up concerning the drum level transmitter pressure compensation configuration due to a couple of unusual devices in the piping at the drum. This brought back memories of some work done by the author in 1988 and resulted in a decision to write a paper so others could be proactive in addressing this issue where it might still be present at other plants.

STEAM DRUM LEVEL MEASUREMENT OVERVIEW

One of the more critical measurements made at a utility power plant is the water level in the boiler steam drum. A variety of devices are usually applied to monitor this drum water level. Differential pressure based level devices (and even sight glasses) experience inaccuracies in measurement when steam drum pressure is not at its design value. These changes in pressure can be overlooked for boilers operating at lower pressures, but for most utility boilers, and many industrial boilers, these inaccuracies should be corrected for.

A typical steam drum differential pressure based level measurement installation is shown in Figure 1 below.

![Figure 1 - Typical differential pressure based drum level transmitter installation](image-url)

The drum level transmitter in the figure senses the differential pressure between the lower drum measurement tap and the top measurement tap. Since the drum is filled with steam, and since there is no flow through the sensing lines, the steam will condense in the reference leg and fill that leg with water. This means that the transmitter is really comparing the difference in pressure between the height of water plus the height of steam in the drum at saturation temperature and pressure with the
In the 1950’s, as well as prior to that, drum level differential pressure measurement was done by purely mechanical means. Many of the measurement devices of that time were mechanical floats on mercury manometers that were in direct contact with the process fluids. The float, with the help of linkage turned a spindle, which went through a pressure packing and gland and that drove a mechanical pointer. The mechanical pointer would typically be connected to a pneumatic device that could generate a control output directly or it could send a pneumatic signal to another location. A typical device of this nature was the Bailey LH Level Mechanism³. These devices worked well but did require regular cleaning and calibration since they relied on purely mechanical means to indicate level. These devices also could have a significant displacement associated with them and that was the reason for the reservoir (also called a condensate pot) on the reference leg that was shown in Figure 1. Modern differential pressure transmitters with no (or insignificant) displacement with changes in differential pressure would not require this reservoir.⁴

THE NEED FOR MEASUREMENT COMPENSATION

A limitation of the purely mechanical level measurement devices, however, was that in their basic configurations they could not compensate for changes in steam drum pressure or ambient temperature. These pressure related inaccuracies in measurement were usually addressed by calibrating the drum level transmitter so that it was correct for the drum normal operating pressure and for an assumed ambient reference leg temperature (usually 100°F). This was usually good enough for lower drum pressure applications but as steam drum pressures increased mechanical solutions had to be found to better deal with this phenomenon.

A number of manufacturers addressed this problem with a two pronged approach. To accommodate changing drum pressures, the differential pressure measurement device would also include a pressure measurement bourdon tube or helix coil. This additional device would connect to linkage that would use drum pressure to change the gain applied to the spindle induced movement of the level measurement pointer. The Bailey LH meter described previously used a Class 13H helix coil compensator mechanism to accomplish pressure compensation³. Yarway Corporation used a bourdon tube in their pointer gauges to perform the same function⁵.

To address issues with changing ambient temperatures the manufacturers developed enhanced versions of the reference leg reservoir⁵,⁶. These enhanced reservoirs were known by some manufacturers as Temperature Compensated Reference Columns⁵, Temperature Equalizing Columns⁶, and Temperature Compensated Constant Head Chambers⁹. Other manufacturers may have had other names for these devices but for the purpose of this paper they will be referred to in the balance of the paper as temperature equalizing columns.
TEMPERATURE EQUALIZING COLUMN CONCERNS

Temperature equalizing columns of some designs can be problematic because, during boiler operation, they keep the reference leg at a high temperature. As a result, a portion of the reference leg can flash to steam on a rapid pressure decrease (load increase) and this will result temporarily in a false high level measurement, adding to the swell effect. The design of some of the columns may have been less susceptible to this flashing because the intent was to keep the column at a constant temperature but that temperature was meant to be somewhat less than drum saturation temperature. There will also be a measurement inaccuracy related to the use of these columns because the temperature of the reference leg must still be assumed to be a particular value. Because of the problems associated with the reference leg flashing to steam in temperature equalizing columns, at least one manufacturer discontinued the sale of them in the 1960’s.

Temperature equalizing columns of two different manufacturers were the unusual devices that were found in the piping for two of the steam drums at one of our facilities as described in the introduction of this paper. Photographs of these devices are shown in Figure 2 below.

Figure 2 – 1950’s vintage Temperature Equalizing Columns from Yarnall-Waring (Yarway) on the left and Republic Flow Meters on the right

It should be noted that some of the insulation associated with the devices shown in Figure 2 was removed to aid in the identification of what the devices were.
The third type of these columns that the author is familiar with was the one manufactured by Bailey Meter Company. Pictures were not available for that device but a drafted rendition of it is shown in Figure 3 below.

![Figure 3](image)

**Figure 3 – 1950’s vintage Temperature Equalizing Column from Bailey Meter Company**

When temperature equalizing columns are encountered on existing steam drums the author’s general recommendation since 1988 has been to remove them, due to the flashing concern, and replace them with a more modern reference leg installation. It should be recognized that if a temperature equalizing column of some type is in place, pressure compensation of the drum level measurement is still required but the compensation equations may be different than the standard compensation equations. The overall accuracy of the compensated level measurement may also not be as good as what could be realized with a more modern approach.

**PRESSURE COMPENSATION EQUATION**

For all types of steam drum differential pressure (dP) based level measurements, the dP measured by the level transmitter is inversely related to the level of water in the steam drum. As the water level goes up, the sensing leg water column approaches the height of the reference leg water column. When the water level in the steam drum reaches the same elevation as the top of the reference leg the two legs will be the same height and there would be a differential pressure of zero between the two legs of the transmitter if the legs were both at the same temperature. But, as stated previously, these legs are not usually at the same temperature for steam drum level measurements and that is the primary source of the error related to this measurement technique.

Figure 4 on the next page is another way of looking at our typical measurement arrangement that was previously shown in Figure 1. Figure 4 highlights the different specific weights of water that we have to concern ourselves with.
Using the arrangement shown in Figure 4, it can be seen that the differential pressure measured by the steam drum level transmitter can be represented by the following formula:

\[
dP = \frac{(H \cdot W_{wo}) - [(H_s \cdot W_{wd}) + (H_w \cdot W_{sd})]}{W_{w}}
\]

(Equation 1)

Where:
- \(dP\) = transmitter measured differential ("H2O")
- \(H\) = height of the reference leg between the taps (inches)
- \(H_s\) = height of the column of steam in the drum (inches)
- \(H_w\) = height of the column of water in the drum (inches)
- \(W_{sd}\) = specific weight of steam at drum saturation pressure (lb/ft³)
- \(W_{wd}\) = specific weight of water at drum saturation pressure (lb/ft³)
- \(W_{wo}\) = specific weight of water in the reference leg between the taps (lb/ft³)
- \(W_w\) = specific weight of water at 68ºF that is used to calibrate the transmitter (lb/ft³)

The above equation is the basis for the boiler steam drum pressure compensation algorithms that are available for use in most digital control systems (DCSs). You can see from the above equation that the specific weight of the water in the reference leg (\(W_{wo}\)) is an important part of the compensation calculation.

Figure 5 on the next page shows the situation that exists regarding water and steam conditions when a particular type of temperature equalizing column is used to develop the reference leg for the differential pressure measurement. Figure 5 is representative of past temperature equalizing column designs of Bailey Meter Company and Republic Flow Meters.
In Figure 5 the water in the temperature equalizing column that surrounds the lower part of the reference leg is in balance with the water in the steam drum. Anyone who has ever used a water level to verify elevations knows that water seeks its own level, but when it comes to this application the water in the column is somewhat cooler than the water in the drum so it will take a shorter column of this cooler water to be in balance with the water in the drum. You of course would want to insulate the lines connecting the temperature equalizing column to the drum but if you were to do a really good job of insulating the column itself the steam would never condense to form your reference leg or the height of the reference leg would be constantly changing with pressure and unpredictable. Each of the manufacturers of these columns had their own specific requirements for insulation of their columns.

Since the temperature equalizing column is somewhat cooler than the drum the steam that sits over the balancing water in the figure is wet steam (of a low steam quality). The steam is wet because that steam’s pressure is the same as the pressure in the drum but the temperature is less than saturation; basically it is raining in the column in the space above the balancing water. This wet steam condition doesn’t have much impact on the basics of our pressure compensation equation because the water and the steam in the column is in balance with the water and steam in the drum, so our sensing leg pressure at the drum level transmitter should still be representative of the level of water in the steam drum. The unknown in the pressure compensation equation is the temperature of the reference leg. An assumption must be made as to what this reference leg temperature is and that assumption must be made based on the design of the temperature equalizing column.
REDUCING THE MEASUREMENT ERROR

The Bailey Meter Company and Republic Flow Meter column designs and insulation approaches were such as to keep the reference leg as close to saturation temperature as practical. The Yarway design and insulation approach was quite a bit different and their philosophy was to keep the reference leg temperature approximately halfway between saturation and ambient\textsuperscript{5}. It was stated on page 3 of this paper that for the more modern measurement approach the assumption is usually that the reference leg is at 100°F. Since each of the reference leg designs that have been discussed rely on assumptions as to the reference leg temperature, each of these designs share a common possible inaccuracy in the drum level measurement. This inaccuracy can be reduced by measuring the temperature of the reference leg\textsuperscript{8}.

A reference leg temperature measurement can be retrofit to an existing installation like that shown in Figure 1 by adding a thermocouple that is in contact with the tubing skin of the reference leg. This thermocouple would need to be attached at an elevation that is midway between the top and bottom connections of the steam drum. If the reference leg is heat traced for freeze protection purposes it would be important to be sure to place the thermocouple on the opposite side of the reference leg tubing from the heat tracing. This thermocouple and the reference leg tubing adjacent to it should then be insulated and weatherproofed. The thermocouple can then be brought into the control system and incorporated into the drum level measurement pressure compensation algorithm.

A reference leg temperature measurement can also be retrofit to an existing temperature equalizing column installation like that shown in Figure 5 and on the right side of Figure 2. In this case you would attach the thermocouple to the column skin midway between the top and bottom column connections and you would again insulate over the top of it. In the case of a Yarway Temperature Compensated Constant Head Chamber\textsuperscript{9} like that shown on the left side of Figure 2 you would need to get the thermocouple in contact with the reference leg (they call it the constant head pipe\textsuperscript{9}) that is underneath the stainless steel jacket.

When the situation was encountered that prompted the writing of this paper the two units were well into a scheduled outage. It was decided to add reference leg thermocouple measurements and to bring those signals into the control system. The data collected since these two units were brought back on line show that when the units are operating near their 1900 PSIG normal operating pressure the three Republic columns that are in place between these two units (right side of Figure 2) are within 15°F of the saturation temperature. This confirms the assumption that the Republic columns will be near the saturation temperature when properly insulated (the Figure 2 pictures were taken before the thermocouples were added and before the Republic column was re-insulated). The data also shows that when the unit with the single Yarway column installed is operating near its 1900 PSIG normal operating pressure the reference leg associated with that column (left side of Figure 2) is about 126°F below the saturation temperature. This shows that the Yarway assumption of being halfway between saturation and ambient is not always correct because our measurements show the reference leg in this column to be operating three-quarters of the way between ambient and saturation.
CONCLUSION AND RECOMMENDATIONS

This paper was written because of the author’s concern that temperature equalizing columns may still be in place on units where their purpose and compensation requirements are not well understood. It is hoped that these columns are now better understood by the reader. Since temperature equalizing column designs similar to the Bailey and Republic columns are prone to flashing, it is recommended that columns of these type be removed from service and replaced with an arrangement like that in Figure 1, minus the reservoir if the transmitter has negligible displacement. Since temperature equalizing column designs similar to the Yarway columns have a less predictable reference leg temperature they should either be retrofit with a reference leg temperature measurement or they should also be removed from service and replaced with an arrangement similar to that in Figure 1.

Lastly, for arrangements like Figure 1 the assumed reference leg temperature, which is usually 100°F, should be investigated and modified if that assumption is not reasonable. When the reference leg is outdoors or if that leg is indoors but the ambient temperature is expected to vary widely, consideration should be given to measuring the reference leg temperature and bringing that temperature into the compensation calculation.

REFERENCES

Because butterfly valves cost less than “real” control valves, like globe valves or characterized ball valves, they are sometimes used as control valves to save money. This decision is often costly in the long term because of the poor control performance resulting from butterfly valves.

Late last year I optimized several control loops at a mid-sized manufacturer of specialty chemicals. Similar to most plants I have worked at, I found a number of control loops that were oscillating. Many of them oscillated because of valve stiction, incorrect controller settings, or process interactions. One of the loops, a distillation column level control loop, oscillated as a result of using a butterfly valve as the final control element.

To perform well, a PID control loop needs (among other things) that the process gain remain constant. In other words, the process variable must change linearly with changes in controller output. A small degree of nonlinearity can be tolerated, especially if we apply robust tuning methods, but if the process gain changes by more than a factor of 2, we can expect control problems. And this is why a butterfly valve makes a poor choice for a control valve – it has a highly nonlinear, S-shaped flow curve, as shown in Figure 2.

At the chemical company, the butterfly valve was used to control the bottom level of a distillation column. The distillation column was the last one in a train of three columns, of which each column had a progressively smaller diameter. Moderate increases in feed rate to the first column easily caused high-level alarms when they propagated to the small final column. The level controller originally seemed to be responding too slowly to handle these upsets, so the loop tuner increased the controller gain to achieve fast response at high flow rates. However, at normal flow rates, where the process gain was 15 times higher, the loop was unstable and oscillated continuously as shown in Figure 1.

The correct solution to this problem would have been to replace the butterfly valve with a control valve that has a linear flow characteristic and then retune the control loop. However, this could only be done during the plant’s annual maintenance shutdown. In the mean time we installed a characterizer to linearize the butterfly valve (Figure 4). The characterizer compensated for the butterfly valve’s nonlinearity and made the flow through the valve follow the controller output in a reasonably linear fashion.

With the characterizer in place we retuned the controller. After this the oscillations stopped and the loop performed much better than it did before. However, the control performance was still not as good as what a linear control valve would have provided. The real solution to the problem remained replacing the butterfly valve with a control valve, but this had to wait for the next maintenance shutdown.
The Tennessee Valley Authority (TVA) wanted to use lower sulfur coal blends at its Gallatin power plant and, therefore, needed to increase the fuel flexibility of the plant’s existing electrostatic precipitators to continue meeting environmental requirements. As part of the project, TVA contracted with Siemens to purchase 36 Insulated Gate Bipolar Transistor (IGBT) inverter-based high voltage power supplies as well as 24 digital thyristor control systems and related expert software. IGBT semiconductors increase the average values of electrostatic precipitator voltage and current (corona power) and allow for fast recovery of voltage/current after discharges. Conventional thyristor controlled, high voltage power supplies limit the maximum corona power due to the high ripple of the precipitator's voltage/current and the precipitator's voltage peaking at the flashover voltage while having a relatively low average value. TVA scheduled the upgrades to occur during routine maintenance schedules of the electrostatic precipitators to avoid disrupting power generation. During the scheduled maintenance shutdown outages, TVA restored the internal mechanical and electrical condition of the precipitators. This work included improving electrical clearances and alignment, and mechanical condition and wear. Without TVA completing this maintenance outage work, the new electrical IGBTs, controls, and supervisory system would have had only limited or no success in improving performance with lower sulfur coal blends.

An initial test installation was used at Gallatin to demonstrate the advantages of the IGBT technology to improve the collecting efficiency of electrostatic precipitators. Customer tests yielded the best results when installing IGBT systems for the first, second, and last electrostatic precipitator fields. TVA ultimately installed a total of 36 IGBT inverter systems into the existing control cabinets. The remaining 24 thyristor controlled power supplies were outfitted with new microcomputer controllers. All controllers (IGBT and thyristor) are controlled and optimized for best efficiency using expert system software. While operating below its rated values, TVA was able to reuse the existing 60-Hz transformer/rectifier (T/R) sets with the new IGBT inverter systems (with 60-Hz inverter frequency). The solution enabled the operator to modernize the plant’s precipitators and controls to burn lower sulfur coal without interrupting critical operations. The result was an increase of the average values of electrostatic precipitator voltage/current, very fast recovery of voltage and current after discharges, and increased collecting efficiency. TVA originally installed the controls and utilized the existing copper wiring for T/R feedback to each T/R. Noise on the line was interpreted as flashovers, which reduced the overall effectiveness of the controls. TVA upgraded all the T/Rs to fiber optics, and this change improved the performance and efficiency of the new controls. The improved collecting efficiency of the electrostatic precipitators with lower sulfur blends has contributed to a steep decline in SO₂ emissions from 78,000 tons in 2000 to 34,000 tons in 2002. Project costs were justified by the ability to lower the sulfur levels in coal blends.
Meeting: ISA Power Industry Division Executive Committee Meeting
Chairman: Don Labbe
Recorder: Tom Stevenson
Date/Time: Oct 17, 2011 1:00 PM To 5:00 PM, EST
Location: Mobile, Alabama

Attendees:

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* indicates member emeritus ** part time

1. Call to Order
Don Labbe, ISA Power Industry Division Director-Elect, called the meeting to order at 1:04 p.m. EST.

2. Introduction of Members and Guests
Passed around attendance list and Committee roster for corrections and had guests introduce themselves. Present on the Skype Conference call were: Zeke (Allan Zadiraka), Terry Graham, Tim Hurst and Seth Olson.

3. Review & Approve Agenda
The POWID Executive Committee Meeting Agenda previously distributed by email was distributed at the start of this meeting and displayed by projector. Cyrus Taft made a motion to approve the agenda. Dan Lee seconded the motion. Agenda was approved by voice vote.

4. Review & Approve Minutes of Last Meeting
The minutes for the June POWID EXCOM meeting held at the Embassy Suites - Charlotte, North Carolina were previously distributed electronically to the POWID EXCOM members. Hard copies of the minutes were also circulated at the meeting. With no changes to the minutes Denny Younie made a motion to approve and Dale Evely seconded the motion. The minutes were approved by voice vote.

5. Director - Staff Reports
   a) I&S Department Report - Denny Younie attended the Department meeting:
      • Peggy Koon past VP of Dept - new successor is John C. Campbell - ISA Dept. VP. Alex Habib - is VP Elect.
      • Discussion of division activities - one Division had achieved $73K sponsorships for their conference with about 40 sponsors @ $2400/ea.
      • Jennifer Infantino presented ongoing ISA efforts to improve sponsorship; in excess of $400K raised this year, and asking individual divisions to relinquish the term “Sponsor”, so ISA HQ can reserve the term for large corporate sponsorship. Suggested this was more of a recommendation for the future. ISA still is somewhat in the red regarding their overall budget.
      • VP Elect John DiPietro - Water & Waste Water developed an ISA website with more social networking capability (http://automation.isa.org/); provided some POWID technical material on the site; this effort is in line with POWID’s efforts to develop an eNews site. This blog is on the web now providing publicity for authors.
      • Mike Fedenyenszen & Michael Lopresti - Intech Magazine - requested technical input from POWID, also we should follow-up with ISA transactions to see if our papers can be submitted
      • Dan Lee - ISA Governance Task Force - restructure of the ISA organization - intent is to modify the Task Force to include more representation. Overall objective is more effective organizational structure for ISA.
   b) Financial Reports
      • Denny Younie reported - For the POWID symposium we received a spreadsheet indicating the 2011 Symposium is $17K in the black - expected $20K; Denny will investigate - will replicate budget next year with no status until end of year.
   c) Nominating
      • Cyrus Taft reported: POWID Executive Committee has a full board - newest member Paul Hollingshead of B&W - present at this meeting. A member addition is possible in June 2012 as Don Christopher to retire by June next year. Dan Lee will assume membership coordinator position for Gordon McFarland.

6. Standards Committee Reports
   a) ISA67 Nuclear Power Plant Standards Committee - No report
   b) ISA77 Fossil Fuel Power Plant Standards Committee -
      1. Dan Lee was in attendance and reported that ISA77 has four committee actively working:
ISA77.22.01 (Simulation) is in reaffirmation and is currently resolving ISA77 comments. This document will be reissued to ISA77 committee for balloting.

2. ISA77.22.01 (Plant Automation) is a new document being drafted. This committee is scheduled to meet Tuesday (10/18/11).

3. ISA77.40.01 (Function Diagram) chair and the ISA5.1 chair in discussion with ISA Staff agreed to co-publish this technical report as ISATR5.01/TR77.40.01. The current draft was submitted for ISA77 and ISA5.1 approval. Dan reported that the ISA77 committee has approved the technical report with a few comments. The ISA5.1 ballot closes November 1. If time permits, members of the ISA77 will review the comments on Tuesday (10/18/11).

4. ISA77.30.01 (Plant Performance) is a new committee formed last June. Since June the ISA77 committee approved the new committee chair (Cyrus Taft), title, scope, and purpose. This committee is scheduled to meet Tuesday (10/18/11).

5. The ISA77 committee is scheduled to hold a physical meeting on Thursday (10/18/11) at the ISA Automation Week in Mobile AL.

c) ISA67 Nuclear Power Plant Standards Committee

There was general discussion regarding performance challenges with volunteers lacking – topics for ISA vs. other professional organizations - leaders busy with their regular work or other standards – it was suggested that if members have someone to recommend please do so. Letter of invitation: Paul Hollingshead will check with B&W – Nuclear and other POWID members, Dale will check with Southern Co. possibilities; He reminded us that many on the board will likely be retiring soon.

7. Membership Service Committee Reports

a) Honors & Awards - Mike Skoncey

Nice article was submitted for the newsletter - Mike requested remote access – to be provided

Facilities Award – Mike commented that the recent award was probably not very well communicated or understood (appreciated) by the management of the organization that received it so we will work to improve that communication area.

b) Membership - report sent in by Gordon McFarland

3,277 Total members in POWID
2,961 – Active
498 – Student
391 – Grace
554 – Total Students

Membership is still growing. Suspended numbers average about 60 per month – sent emails to all, received 18 replies – many unaware that they were dropped. ISA to possibly change email approach to have better granularity

c) Historian - Don Christopher

Unable to attend – will be retiring from ISA soon. Looking for guidance for boxes he has in his possession – POWID will need a new historian Chair – POWID needs to add some additional history of past awards.

d) Professional Development - Tom Stevenson, POWID Professional Development Chair, provided a verbal and written report. Asked moderators to consider tally of attendance at upcoming sessions.

e) Section/Division Liaison - Bob Hubby - No report available since one was included in the Spring minutes.

8. Communication Committee Reports

a) Newsletter - Dale Evely

Updated index
Sent out newsletter by Sept. this year
Fall 2011 - process started - request with a due date 11/3/11
Response from non-EXCOM is appreciated for technical content
Zeke suggests adding request to LinkedIn, Dale asked Zeke to add, but Zeke would like to see others posting to LinkedIn
Quick response expected from EXCOM meeting attendees. Very positive newsletter comments were received by Don Labbe.

b) Publicity - Joe Vavrek (could not attend) - detailed report included - Mike Fedynszien of InTech indicated that cost of production - limited space – value for content – value for advertising – are less for us as an internal customer

ACTION ITEM: Don Labbe - will work to understand the requirements for inclusion into InTech - be prepared to fit the space and interest maybe newsletter article by Mike Fedynszien.

c) Web Page - via Remote Skype connection
Gary Cohee – recent roster addition will be added; symposium will be a work in progress as new info flows in, will link to abstracts link.
Jim Batug – to add author resource content.
Zeke - cannot get access to presentations, PowerPoint with Firefox while others can. This was determined to be related to Firefox browser.

Dan Lee - The POWID 2011 Symposium’s technical papers have been submitted to the ISA Technical Paper database. A few errors have been identified on the ISA database and has been reported to ISA staff. No new conference proceedings have been scanned for submission to the ISA Technical Paper database.

LinkedIn - New membership falling off or leveling off to a low rate; cannot use Firefox to see presentations – yes-DOI to add, but Zeke would like to see others posting to LinkedIn

Jim Batug – to add author resource content.

John DiPietro – anyone can publish articles or presentations such as PDFs – can be accessed by search engine by keyword.

ISA Interchange - do not have to be a member to see – is only for current subscribers.
John DiPietro indicated that all are open to the public.

ACTION ITEM: Dale Evely - send out newsletter by 11/3/11

Dale Evely asked for improvements in this area.

Zeke – cannot get access to presentations, PowerPoint with Firefox while others can. This was determined to be related to Firefox browser.

John DiPietro – anyone can publish articles or presentations such as PDFs – can be accessed by search engine by keyword.

ISA Interchange – do not have to be a member to see – is only for current subscribers.

Jody Damron, Don Andrasik and Jason Makansi getting authors interested with a wider audience

e) External Marketing - Jason Makansi, External Marketing Coordinator - No report – see minutes.

f) ISA Marketing - Rodney sent a report

Will include list of dates, emails planned, includes full-page in
9. Symposium

a) POWID 2011, Charlotte, NC, June 5-9, 2011
   Topics and location were discussed, had 70+ papers presented. Some individual sessions were not well attended due to parallel sessions competing.
   Denny Younie has report from ISA - 225 attended, 70 papers, 32 exhibitor booths; better than Nashville, slightly less attendance than Phoenix; 11 major contributors, expect $24K profit.
   Location critique – some objected to the long drive to Concord from the Charlotte airport.
   Tim – make sure we have room for the next with better location drawings.

b) POWID 2012, Austin, TX, June 3-8, 2012.
   Gary reported: Sent an email to Bluebonnet Section in Austin - will send the MOU for Division/section relationship.
   Gary is working with Mike Marlowe on keynote speakers. Rodney to send email to last year's sponsors. Edit the sponsors/exhibitors literature - have them as "Champions" vs. sponsors. Layout of exhibit hall causes issues with columns. Gary will review marketing plan with Rodney. Technical program - need more session developers and a nuclear co-chair was suggested today - Phil Knobel of Invensys. Jim Batiug report attached - gave summary.
   Dale asking for reminder for papers call for Newsletter POWID 2012 location – Austin Marriott Residence – 16 minutes North of Austin.

b) POWID 2013, Date and Location TBD.
   Location in LRP – we had three areas: FL, DC, Boston – had seven to eight cities – staff asked to narrow so group selected Orlando, FL; Arlington, VA: and Newport, RI.
   Tim Hurst noted that we need a general chair and Program chair for 2013.

c) eNews Prototype – See Social networking

10. ISA Automation Week

a) Mobile, AL - Energy Track Chair – Don Labbe. Cyrus, John Sorge are session chairs on Wednesday, Thursday and Friday. A few are repeat presentations from Charlotte.

b) 2012 - Orlando Technical Conference; Orange County Convention Center – Sept, need energy track volunteers – ISA needs to find new authors or get Symposium re-presenters; Automation Week runs differently than symposiums. B&W’s Paul Hollingshead will volunteer as POWID’s representative. ISA to pay for one trip for Paul?

11. Old Business

a) International
   Edson da Costa Bortoni submitted an email identifying the Brazilian Automation Conference (Nov 9, 2011) as an opportunity to promote POWID and present technical papers. Edson reported that the event cost is $1,100.00 US and is looking for a sponsor. Edson will contact Brazilian POWID members to set up an interest group.

b) MOU - The POWID Section/Division MOU template ballot was submitted by ISA Staff in July for approval by the POWID EXCOM. After the ballot closing date, not enough ballots were recorded to close the balloting period. Thus, Dan issued a reminder and obtained enough ballots and with enough ballots the POWID Section/Division MOU template was approved. The approved document has been submitted to the POWID ftp site. Dan requested Bob Hubby to distribute this document to the Sections and requested Don Labbe to distribute to the other Divisions. Two comments were received with the ballots. Dan has addressed one comment and is in the process of research a resolution for the second comment.

   Dan is currently researching the ISA Event Policy with regard to International Division Symposium. In discussion with Leo Staples, Leo volunteered to provide reference material but no information has been received to date. Information exists within current ISA MOP documents but, Dan has not fully digested this information. Dan will continue to review the Society documents and start dialog with ISA staff.

   Brazil - conference possible – communications is an issue.
   Dan Lee will ask specific questions to ISA HQ in order to get official response, should they be in our business plans? Paper handling with XCD? Costs? No such thing as a subsection in MOP for divisions.

   Governance Task Force – improvements – Don commented to include bylaws for international data base for rosters

12. New Business

a) Long Range Planning Results - Met this AM – already discussed 2013 symposium locations
   1. Newport, Arlington, Orlando
   2. eNews prototype – ISA Interchange, Web/blog Zeke
   3. Training course from Paul DeMello discussed – follow-up regarding copyright by Cyrus Taft and he will also investigate better copy to scan.

b) Executive Committee – term limits were discussed to address duration of Excom term suggested by Peggie Koon. An alternate approach is to apply the MOP which defines requirements to retain EXCOM position. Will work to create EXCOM slots and discuss again in RTP; Discussed whether POWID should be seated in the new ISA governance committee – Cyrus volunteered and will be nominated.

c) Improving Technical Representation of ISA – will be presented this week – results will be sent to the group via a web link or file.
   Automation Week – Don Labbe – noted only one review per paper, very loose standards – cleanup of commercialism was an issue.

13. Date of Next Meeting
   The next meeting of the Power Industry Division Executive Committee - Feb 28 2012; at ISA Headquarters.

14. Adjournment
   A motion to adjourn and via voice vote the motion was approved and the meeting was adjourned at 5 pm. Dale Evely motioned & Denny Younie seconded.
ISA77 Standards Committee Meeting Minutes

Call to Order
The ISA 77 Fossil Fuel Power Plant Standards Committee meeting was called to order at 3:35 pm EST by ISA 77 Co-Chair, Dan Lee.

Introduction of Attendees
Dan asked everyone present to introduce themselves. Dan Lee (Co-Chair) circulated an attendance list for members to sign and a committee roster for member to verify and/or update.

Review & Approve Agenda
The ISA 77 Committee meeting agenda was previously distributed with the meeting announcement. Hard copies were distributed to attendees. Dan noted two corrections to the agenda. First the Managing Director is currently Joe Weiss and second the next meeting is to be held on June 6, 2012. Dan requested that two new items be added to the New Business: b) ISA Joint Technical Report and c) Standard Leader of the Year Award. Dan asked if there were any other comments or corrections to the agenda. With no comments, Cyrus motion that the agenda be approved as the meeting agenda. Henrik seconded the motion and via voice vote the revised agenda was approved.

Review & Approve Minutes of Last Meeting
The October 18, 2011 ISA 77 committee meeting minutes were distributed electronically and an approval ballot was distributed electronically. With no disapproval votes or comments to the October 18, 2011 committee meeting minutes, the minutes were approved and were posted to the committee web site on February 19, 2012.

Co-Chair Opening Remarks
Dan reported that Gordon McFarland has officially retired form Emerson and has emailed that he would like to change his membership status from voting to informational. Dan made a motion to change Paul Hollingshead’s membership status from information to voting. Allan Zadiraka seconded the motion and via voice vote the motion passed. Ellen will update the committee roster accordingly.

Managing Director Opening Remarks
Joe Weiss was present and reported that he is willing to help the ISA 77 committee in any way possible. Dan only asked that the ISA 77 committee chairs receive a copy of the S&P Board meeting minutes. Joe asked Ellen to see to it that the S&P Board meeting minutes are distributed to Dan and Bob Hubby.

Are you an ISA Member who is interested in helping others in the automation profession? Sharing your expertise is a great way to make a difference in another person’s life.

Become an ISA mentor!
Join ISAs Mentor Program and help a young professional Member or an ISA Student Member in his or her career. Learn more about this online program at www.isa.org/mentor.

Meeting: ISA 77 Fossil Fuel Power Plant Standards Committee
Recorder: Daniel Lee
Date/Time: February 29, 2012
Location: ISA Headquarters, Triangle Research Park, NC

Attendees:
Members
Daniel Lee (Co-Chair)
Gary Cohee
Jerry Gilman*
Paul Hollingshead
Henrik Johansen
Mukesh Pandya
Dave Roney*
Cyrus Taft
Tom Stevenson*
Joe Weiss*
Allan Zadiraka
(*) Attendance via Live Meeting
## ISA77 Active Subcommittee Reports

<table>
<thead>
<tr>
<th>Committee</th>
<th>Published Date</th>
<th>Status - (EPR Date)</th>
<th>Chair Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISA77.10 Turbine Series</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ISA77.13 Turbine Steam Bypass Systems</td>
<td></td>
<td></td>
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<tr>
<td>ISA77.14.01 Steam Turbine Controls</td>
<td>2008</td>
<td>Current Standard</td>
<td>Report not required</td>
</tr>
<tr>
<td>ISA77.20 Plant-wide Series</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISA77.20.01 Fossil Power Plant Simulators</td>
<td>2012</td>
<td>Current Standard</td>
<td>New Revision Cycle Started</td>
</tr>
<tr>
<td>ISA77.22.01 Power Plant Automation</td>
<td></td>
<td></td>
<td>Henrik Johansen was in attendance and reported that the committee held a physical meeting this afternoon to work on draft 5 and define author assignment. The document draft is proceeding slowly. The committee plans to hold two web meetings before the June physical meeting.</td>
</tr>
<tr>
<td>ISA77.30 Plant Performance Series</td>
<td></td>
<td></td>
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<tr>
<td>ISA77.30.01 Dynamic Performance for Power Plant Control Systems</td>
<td>New Standard (2012 Q4)</td>
<td>CYRUS TAFT was in attendance and reported that since October the sub-committee held one teleconference and a physical meeting this morning. Several author assignments were submitted and reviewed. New author assignments have been made. The committee plans to hold two web meetings before the June physical meeting.</td>
<td></td>
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<tr>
<td>ISA77.40 Boiler Series</td>
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<tr>
<td>TR 77.40.01 Functional Diagramming</td>
<td>Draft (2012 Q2)</td>
<td></td>
<td>Dan was in attendance and reported that the joint technical report (ISA5.1.01/ISA77.40.01) was balloted by both the ISA5.1 and ISA77 committees and was approved by both committees. However, many comments were submitted with the ballots which the ISA77.40.WG1 committee met this morning to resolve. Due to the time limitation, the resolutions of the comments were not completed and the committee plans to hold a web meeting to complete the comment resolution. Upon completing the resolution, the updated technical report and the comment form will be issued to the ISA5.1 committee for their final approval.</td>
</tr>
<tr>
<td>ISA77.41.01 Boiler Combustion Controls</td>
<td>2010</td>
<td>Current Standard</td>
<td>Report not required</td>
</tr>
<tr>
<td>ISA77.42.01 Feedwater Control - Drum Type</td>
<td>2011</td>
<td>Current Standard</td>
<td>Report not required</td>
</tr>
<tr>
<td>TR77.42.02 Feedwater Controls-Drum Level Measure</td>
<td>2009</td>
<td>Current Technical Report</td>
<td>Report not required</td>
</tr>
<tr>
<td>ISA77.43.01 Unit Plant Demand Development</td>
<td>2008</td>
<td>Current Standard</td>
<td>Report not required</td>
</tr>
<tr>
<td>ISA77.44.01 Steam Temperature Controls</td>
<td>2007</td>
<td>In Reaffirmation</td>
<td>Dan reported that the ISA77.44.01 standard will be submitted for ISA77 committee reaffirmation. As the current Chair, Dan has solicited Mike Cushing and Paul Hollingshead to assume the co-chair position. Dan made a motion to designate Mike and Paul as co-chair of the ISA77.44.01 subcommittee. Allan seconded the motion and via voice vote the motion passed. Action: Ellen to issue ISA77.44.01 for ISA77 committee ballot.</td>
</tr>
</tbody>
</table>
Committee | Published Date | Status - (EPR Date) | Chair Report
---|---|---|---
ISA77.60 HMI Series | | | 
ISA77.60.02 Alarms | 2010 | Current Recommended Practice | Report not required.
ISA77.60.04 CRT Displays | 2008 | Current Standard | Report not required
RP77.60.05 Task Analysis | 2007 | In Reaffirmation | Dan reported that this document has started the reaffirmation process as the document has been issued for ISA77 committee ballot. Ellen reported that the balloting ends Feb 29 and she needs a few more ballots to close the balloting. Committee comments (if any) will be addressed at the next physical meeting.
ISA77.70 Instrument Series | | | 
TR-77.70.01 Tracking and Controlling Instrument Documentation in Fossil Power Plants | 2010 | Current Technical Report | Report not required
ISA77.70.02 Instrument Piping Standards | 2010 | Current Standard | Report not required
ISA77.80 Post Combustion Series | | | 
ISA77.82.01 SCR Instrumentation and Controls Standard | 2011 | Current Standard | Report not required

### Liaison Reports

**NFPA 85** - Dan Lee reported that the next revision publication is schedule for 2015 and the revision cycle starts this year. NFPA 85’s Fundamental, Multiple Burner Boiler and HRSG subcommittee are schedule to meet the week of May 22-25 to determine what committee comments to be prepared and who is to prepare the comments. Public comment period will be open soon.

**IEEE** - Dan reported that he contacted Philip Spotts (IEEE Station Design, Operation and Control Subcommittee Chair) to see if the IEEE is actively working on any new documents. Philip reported that his subcommittee is currently maintaining two documents 1) IEEE 1050 (grounding) and 2) IEEE 666 (power service systems). Philip report that his committee is not working on any new documents. Under the Energy Development and Power Generation committee, Dan reported that IEEE is working on a series of Hydro standards including a Hydro Control standard. The Energy main committee is investigating new renewable technology and distributed generation/energy storage as possible new subcommittees.

**ASME** - No report was given

**ISA101** - Bob Hubby was not present and did not submit a report.

**VGB** - Henrik Johansen was present and report that the KKS identification standard is being drafted as Part 10 of IEC 81346 (Power Plant Standards). This standard was originally creates as a DIN standard and then an ISO standard.

### Old Business

a) Hydro Control Standards - Edson was not present and no report was given.

Previously, it was reported that there is a global work group on Hydro standard IEC 62344. Subsequently, Dave reported that the present IEC 62344, IEC/PAS 62344 is titled “General guidelines for the design of ground electrodes for high-voltage direct current (HVDC) links”, is not associated with Hydro.

Dave Roney also reported that there once was a draft standard DIN IEC 62344, “Hydroelectric power plants – Communications for monitoring and control.” This draft is obsolete and has been replaced by a different draft standard: “DIN EN 61850-7-410, Communications networks and systems for power utility automation – Part 7-410: Hydroelectric power plants – Communication for monitoring and control. Draft date is 10/01/2011.

**Action:** Dan will poll the ISA77 committee to determine if there is an interest to explore Hydro control.

### New Business:

a) **S&P Department Procedure Changes:** Dan reported that ISA Standards and Practice Department was audited by ANSI last year which resulted in a revision of the ISA Standards and Practices Department Procedures. ISA has recently posted the 2011 revision of the procedures with the track changes enabled so that the reader can easily identified those changes to the procedures. Most of the changes were to add clarity to the methods and duties of chairs and committees. For the committee members please note the following:

“4.3.3 Failure by a voting member to vote on any two non-default ballots in a calendar year results in an automatic and immediate change from voting to information status at the close of the second missed non-default ballot, until compelling rationale is approved by the Chair as a basis for a reinstatement of the member’s voting status. (If voting status is not reinstated, the individual may re-apply for voting status after 12 months).”
b) ISA Joint Technical Report: Dan reported that S&P Board is promoting the creation of joint documents with other societies or within ISA societies. Dan cited the Function Diagram Usage (ISA5.1.01/ISA77.40.01) as one such case in which ISA77 committee is working on a joint document. Recently, a new subcommittee was formed to create a technical report titled; ISA18.2.6 (Alarm Systems for Batch and Discrete Processes). Dan talked to the ISA18.2 co-chairs about the possibility of a joint technical report like ISA18.2.7/ISA77.60.02 (Alarm Systems for Power Industry). The ISA18.2 co-chairs were open to the idea and provided some guidelines on preparing such a document. Dan suggested that the work of the ISA18.2 is more current than our ISA60.02 and that our industry members would be bested served with a combined document. Dan asked the ISA77 committee members present for their opinions. After some discussion, the ISA77 committees agree that the concept of a joint document should be explored further. Allen noted the committee resources could be a problem at this time. Dan also noted that the ISA77.60.04 (CRT Displays) and ISA77.60.05 (Task Analysis) could be a joint document with ISA101 (Human Machine Interface) committee.

Action: Dan will discuss this concept with Bob Hubby (ISA60 chair).

c) Standard Leader of the Year Award: Dan reported that ISA Honors and Awards committee has revised the ISA awards to better promote the significance of the award. The new standards development award is being called a Members Choice Award titled “Standard Leader of the Year award”. The process is web based where a Nominator submits a Candidate information and provides a short description of the initiative, importance, and example. Nominations are being accepted until April 15. Then, for the month of May ISA members can vote once or multiple times for one of the candidates. The candidates with the most members’ votes will receive the award. Dan asked if ISA77 should submit a candidate for 2012. Ellen suggested that Dan should be nominated. Cyrus agreed and volunteered to be the nominator. Since ISA77 has issued awards for standards development in 2011, no other candidates were identified.

Action: Cyrus to nominate Dan for the “Standard Leader of the Year” Award.

POWID Membership Recognition

November 2011 through February 2012
The Power Industry Division (POWID) of ISA continues to grow. We would like to welcome all of our new, returning and student POWID members. We hope you will take advantage of everything POWID has to offer for your work and your career including the opportunity to network with power industry professional colleagues across the globe. Our primary goal is to provide a means for information exchange among engineers, scientists, technicians, and managers involved in instrumentation, control and automation related to the production of power. POWID is active in developing industry safety and performance standards, working closely with two ISA standards committees—ISA67, Nuclear Power Plant Standards, and ISA77, Fossil Power Plant Standards. The Division also conducts technical training and sponsors awards for power plants and individuals advancing instrumentation and control within the power industry. POWID welcomes your involvement in our division activities. Opportunities are available to provide information for our newsletter and website, to develop papers for presentation at our annual conference, and to participate in our division’s management structure. It’s a great way to get to know other industry professionals, to gain professional recognition, and to keep informed!

Welcome New POWID Members

Ms. Adeayo Abidemi Abiona  
GIL Automations & Control Services Ltd  
Project Engineer

Mr. Paul N. Acchione  
Management Consultant

Mr. Ashok D. Acharya  
GE Energy  
Plant Controls Product Manager

Mr. Mohammed A. Al-Ammari  
Power & Water Utility Co  
Project Engineer

Mr. Soosaidas Albert  
Principal Engineer

Mr. Mohammed Ali  
Sr SCADA & Control Engineer

Mr. R. Eric Allen  
Entergy Arkansas Nuclear One  
Sr Staff Engineer

Dr. Leo Altcheh  
Deputy VP-Electrical and Controls Design

Ms. Almudena Alvarez Fernandez  
Honeywell SL  
Sales Coordinator

Wilson Manuel Ariza Sanchez  
Occidental De Colombia

Mr. Kayode Emmanuel Arowosafe  
GIL Automations & Control Services Ltd  
SNR Project Engineer

Dr. Sivabalan Arumugam  
ABB Global Industries and Services  
Associate Scientist

Mr. Wallace Ascef  
Diretor Tecnico

Mr. Masood A.Bajwa  
Lead Engineer

Mr. Alan G. Barta  
Engineer

Mr. Frank J. Bartos  
Consulting Editor

Mr. Suresh D. Benegal  
Genon Energy Inc  
System Engineer

Mr. Frank J. Bennett  
Genon Energy Inc  
Manager Instrumentation & Controls

Mr. Brett E. Benson  
Engineering Manager

Mr. Louis Bertha  
President

Mr. John M. Bever  
Project Manager
Mr. Ishwara A. Bhat
Infosys Ltd
Senior Engineering Manager

Prof. Roberto Fernandez Blanco
Sales & Application Manager

Mr. William Bold

Mr. Jean-Romain Botembe
EIT Control Systems

Ms. Barb J. Boynton
Exlar Corp
Director

Mr. John Bradley
Engineer

Mr. Ted Brenner
I & E Tech

Mr. Donald P. Brown
NASA GRC
Electrical Engineer

Mr. Bruce Burton
Kurz Instruments Inc
Engineering Director

Mr. Douglas S. Byers
Service Representative

Mr. Guilherme Estives Mendez Campos
Analista Trainee

Mr. Leandro de Jesus Candido
Engenheiro De Manutencao Pleno

Mr. Brian S. Cary
Senior Rotating Equipment Engineer

Mr. Luis Gustavo
Guedes Pereira De Castro

Mr. Todd Channey
Westburne Electric
Automation Specialist

Mr. Suresh Chawla
Altronix
Partner

Lester D. Childs
Principal Engineer

Mr. Philip Dean Clark
AEI Supervisor

Mr. Albert B. Costa
Sr Design Engineer

Mr. Frank A. Cuomo
Frank Cuomo & Assoc Inc
President

Dev Ranjan Das
Scientific Officer E

Javier de La Morena Cancela
WEG Iberia SL
Responsable De Grandes Cuentas

Mr. Gerald P J Desrochers
Responsible Partner Fort McMurray and Calgary Operations

Mr. Eric A. DeVries
I & E Maintenance Superintendent

Mr. Ricardo Diaz-Hernandez
San Diego Gas & Electric
Instrument and Controls Technician

Carlton D. Duncan
Process Measurement Co
I&C Specialist

Mr. Greg L. Durecki
Senior Account Manager

Mrs. Susan M. Dytzkiewicz
Electrical/Instrumentation Technical Specialist

Mr. Don E. Ehrlich
System Engineer

Mr. David L. English
President

Mr. Dennis Fairchild
Maintenance Foreman

Mr. Gary L. Faul
Senior Engineer

Mr. James G. Firth
Design Specialist

Ms. Julia Forbes
Senior Engineer

Mr. William H. Fornuff
ABB Inc
Sr Manager

Mr. Glen Alan Fox
Glen A Fox Consulting
Owner/Operator

Dave Galenski
Controls Specialist

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