Setting the Standard for Automation

ISA **Wilmington Delaware** Section

The Sensor

November 2007

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Upcoming Events

Nov 27	**Section Meeting at ACE**
Jan 29	**Joint Meeting with IEEE at DTCC**
Feb 26	**Section Meeting at ACE**

November 27, 2007
More Doh!
Real Proof Test Experiences
5:30 PM at ACE in Newark

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More Doh! Real SIS Testing Experiences

Nicholas Sands of DuPont

This presentation will use industrial examples to illustrate the value of testing safety instrumented functions. Proper validation identifies failures prior to startup. Well designed periodic tests identify many failures, but testing does not eliminate all design errors. Faulty test methods and procedures can introduce hazards, as some examples will show.

New Member

WISA Welcomes
Mr. Michael Russo
0f
Sunoco

New Member

President's Message

By Bill Balascio

Countdown to November 2008: what is happening in November a year from now? We will be having the next Exhibit/Show. As most of you know we have them every other year. So you may ask - "What is going to be new about the Exhibit/Show in 2008, that I want to talk about it now?". The answer would be that we are planning a few important differences.

The first major difference is that we are already planning for it – that is a head start of probably six months over previous years. We are aiming for a bigger and better show, more vendors and many more users/attendees.

We are negotiating for a change of location that will accommodate the added size and provide other added benefits to those that choose to attend. I don't have details to share with you now, but I should have them at this month's section meeting.

One feature that we have had in previous shows that we will be retaining for this show is training. We will be arranging for paid training with ISA certified instructors – this is done as a service to you, our members, and we will be asking for your input on what type of training you would like. Please let us know so that we can serve you better.

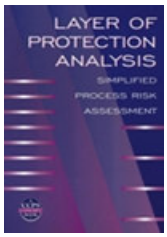
Our Exhibit/Show is an important part of the function of our section. It is important because it serves the ISA community, being the only show of its kind in the area. It is important because it provides our section with revenue. Revenue that we use to fund section meetings and events, send officers to leadership meetings, and most importantly fund our scholarship programs. Wilmington Section of ISA funds two programs that benefit students entering college (The Ralph Moore Scholarship), and those already in college (The Dan Roarty Scholarships at the University of Delaware).

That's all for now, hope to see you at this month's meeting.

WISA Bylaws

The WISA executive committee has made revisions to the section bylaws.
The bylaws are posted on the WISA website.
The bylaws are open for review and comment by any member of the section.
A vote on bylaws will take place at the October section meeting.

A Calculated Risk



Layer of Protection Analysis: Simplified Process Risk Assessment
from the Center for Chemical Process Safety
BBB (Borrow)
Reviewed by Nick Sands

One of the most popular risk assessment methodologies today is Layer of Protection Analysis (LOPA). Layers of Protection Analysis explains the methodology and its application. The Center for Chemical Process Safety (CCPS), formed by the American Institute of Chemical Engineers (AIChE) in 1985, has published many guidelines to promote safety in the process industries. Art Dowell, of Rohm and Haas, chaired the CCPS committee of experts from several companies that produced the book. A pair of examples, which are not all that different, are introduced early and used in each chapter to clarify the steps of LOPA.

The first chapters provide a very brief history of LOPA, an outline of the book, and an overview of LOPA. LOPA is a semi-quantitative method to assess risk by systemically identifying the causes and consequences of an event and identifying each protection against the event and its probability of success in preventing the consequences of the event. LOPA is more detailed than the qualitative methods developed by many companies and less rigorous than Chemical Process Quantitative Risk Assessment (CPQRA) method documented by CCPS.

The steps of LOPA begin with estimating the consequences of an event and summarizing its severity. Several different approaches to consequence estimation can be used. Once a consequence has been identified, scenarios are developed that could result in the event. The scenarios include an initiating event, and may also include enabling conditions or events. The next step is to quantify the initiating event frequency, the first quantitative step. There are typical frequencies used for common initiating events, such as different types of equipment failures and operator errors.

With the frequency of the unmitigated event determined, the next step is to identify the various protections from the event. To fit the method, there are rules for the selection of protection layers. Primarily each layer must be independent of other layers, which can be quite complicated to determine. This rule enables the math of probability multiplication used to determine the resulting event frequency. Each layer must also be effective and auditable. All layers of protection are audited. Many things can qualify as layers of protection, from design options, to procedures, to alarms, to relief devices, and interlocks.

Standards & Practices: SP92, Part 2

Performance Requirements for Industrial Air Measurement Instrumentation Related to Health and Safety

By Nick Sands

The SP92 committee was chartered to formulate standards, recommended practices, and technical reports for workplace ambient air measurement instrumentation that is used to enhance worker health and safety including installation, operation, and maintenance. The committee also supports efforts to develop international standards for these instruments.

The committee is active and seeking new members, especially users, to assist in revising the committees documents. Jon Miller of Detronics is the committee chairman.

The committee has several documents on hydrogen sulfide (H2S), carbon monoxide (CO) , ammonia (NH3), oxygen (O2) , and chlorine (Cl2) detection. These documents are also available as a set.

ANSI/ISA-92.04.01, Part I-1996 Performance Requirements for Instruments Used to Detect Oxygen-Deficient/Oxygen-Enriched Atmospheres provides minimum performance requirements of electrical instruments for the determination of oxygen (O2) content in air in order to enhance the safety of personnel.

ISA-RP92.04.02, Part II-1996 Installation, Operation, and Maintenance of Instruments Used to Detect Oxygen-Deficient/ Oxygen-Enriched Atmospheres establishes user criteria for the installation, operation, and maintenance of instruments used to detect oxygen-deficient/oxygen-enriched atmospheres.

ISA-92.06.01-1998 Performance Requirements for Chlorine Detection Instruments (0.5-30 ppm Full Scale) provides minimum performance requirements of electrical instruments for the detection of chlorine gas (Cl2), in order to enhance the safety of personnel.

ISA-RP92.06.02-1999 Installation, Operation, and Maintenance of Chlorine Detection Instruments (0.5-30 ppm - Full Scale) establishes user criteria for the installation, operation, and maintenance of chlorine gas-detection instruments.

WISA Trivia Question?

What type of detector is covered by ISA-92.06.01-1998 ?

Email your answer to
WISA newsletter editor Nick Sands
At nicholas.p.sands@usa.dupont.com

Win an ISA shirt.

Nicholas Sands of DuPont

Nick is currently the process control technology manager for Dupont's chemical solution enterprise business. In his 17 years with Dupont he has been a business process control leader, site process control leader, process control consultant, and plant control engineer in several different businesses. Nick has also been an ISA member for over 15 years, serving as Wilmington section president, Co-chair of Standards & Practices committee 18 working on Alarm Management, and a volunteer in the development of the Certified Automation Professional program. Nick's path to instrumentation and control started when he earned his BS in Chemical Engineering from Virginia Tech..

Robotics & Expert Systems Division

Our Division is part of the Automation and Technology Department of ISA and is chartered to focus on the technologies associated with its various disciplines. As the name ROBEXS (for Robotics and Expert Systems) implies, it was formed to mainly cater the various robotics related technologies for the hardware and expert systems in the software area.

Our division has grown during the last 14 years and currently represents one of the key high-technology divisions of ISA. Here are the areas of current focus of the ROBEXS Division.

- Robotics Sensors
- Motion Control Hardware and Software
- Robotic Systems
- Robotic/Computational Vision
- Artificial Intelligence
- Artificial Neural Networks
- Distributed Intelligent Systems in Robotics &AI
- Expert Manufacturing Systems
- Expert Systems
- Human Factors
- Intelligent Process Control
- Speech and Natural Languages
- Virtual Reality

Many new areas are being regularly suggested by the membership and the Division periodically adopts the new disciplines in its charter. ROBEXS organizes technical sessions at the ISA annual conference, publishes newsletters and provides technical books as a part of membership service.

We support ISA Theme Committees, and actively support International Symposium on Measurement and Control in Robotics (ISMCR), organized by the International Measurement Federation's (IMEKO) Technical Committee on Robotics.
Webmaster, Newsletter Editor/Asst. Editor, and other committee chairmen.

Analysis Division

The Analysis Division aims to contribute to the professional involved in every aspect of process stream and laboratory methods of analysis-from theory and development to application, training, calibration, and others. Our role at ISA is to facilitate program development, implementation and effectiveness through integrated planning, measurement, evaluation and interventions; and to support your specialty: such as spectroscopy, chromatography, electrochemistry and sample handling.

We are covering the following topics;

- Chromatography
- Spectroscopy
- Chemical Analyzers
- Physical Property Measurements
- Process Stream Analysis
- Environmental Monitoring
- On-line Analysis
- At-line Analysis
- Maintenance
- Laboratory Analysis
- Sample Handling
- Validation
- System Integration
- Standards
- Emerging Technology

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A Calculated Risk Continued…

With all of the layers, and their associated probability of success, or probability of failure, identified, the final event frequency can be determined. This information allows decisions to be made about risk. If the risk is unacceptable, other layers of protection can be added or the risk can be avoided. The final chapters provide a plan to implement LOPA within a company and some advanced topics.

The Center for Chemical Process Safety provides a great service to the process industry, publishing guidelines and books on special topics. Books written by committee seem to address the lowest common denominator. While Layer of Protection Analysis does cover the LOPA method, it does so in a minimal way. It is worth borrowing and reading (BBB). It is available at Amazon.com for about $136.