
AIChE® The Pipeline

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Mark Kettner/Bryan Kirkman, Co-Editors

February 2012

NEWSLETTER OF THE EAST TENNESSEE SECTION OF AIChE

Local section website

<http://www.tnengineering.net/AICHE/>

Local section mailing address

PO Box 7448 Kingsport, TN 37664-7448

Upcoming February Program

“Safety Issues in Particle Handling: Dust Explosions”

Pete Lodal and Wayne Chastain
Tennessee Plant Protection
Eastman Chemical Company

Tuesday February 14th, 2012 Noon to 1PM

B-150 Auditorium

(Pizza will be served at 11:30)

Abstract

Combustible dust explosions in the United States have been documented for over 200 years. Due to several high-profile dust incidents over the past 10 years, there has been an increased interest in awareness, training and regulation regarding the hazards of combustible dust.

This presentation will go over the basics of combustible dust, when it presents a hazard, and what can be done to mitigate or prevent an incident. Several case histories will be discussed, with a video.

About the Speakers



Pete Lodal

Peter Lodal is a Technical Fellow and group leader of the Plant Protection Technical Services group at Eastman Chemical's Tennessee Operations site in Kingsport, TN. He has been with Eastman in various positions for more than 34 years, 17 years in process engineering, and the past 17 years in process safety and loss prevention. He is Eastman Chemical Company's representative to the Center for Chemical Process Safety (CCPS) Technical Steering Committee, is the chair of the CCPS Planning committee, and is the past chair of the Reactivity Management Roundtable (RMR). Pete chairs the Process Safety Subteam for the American Chemistry Council (ACC), and serves on the International Editorial Board for the *Journal of Loss Prevention in the Process Industries*.

Pete is a Fellow of the American Institute of Chemical Engineers (AIChE) and a Fellow of the Center for Chemical Process Safety (CCPS). He is a past Director of his local AIChE section (East Tennessee), and was the 2010 Chair of AIChE's Safety and Health division. Additionally, he is the author or co-author of over 20 papers and publications.

Pete holds BS (1976) and MS (1977) degrees in Chemical Engineering from Purdue University, and is a registered Professional Engineer in the state of Tennessee.

Pete and his wife of more than 34 years, Susan, have three children, Erik (31), Nicholas (27) and Genevieve (27). Susan is currently a two-term member of the Kingsport Board of Education, and the 2010 Tennessee School Boards Association (TSBA) Boardsperson of the Year. They are active members of Waverly Road Presbyterian Church in Kingsport, where both Pete and Susan serve on the board of the Waverly Road Food Pantry. Pete has also served on the City of Kingsport's Parks and Recreation Advisory Board since 1999.



Wayne Chastain

Wayne Chastain is an Engineering Associate at the Kingsport, TN site of Eastman Chemical Company. He has worked in various areas of process safety since starting work with Eastman Chemical in 1992. Mr. Chastain's areas of expertise are in Process Hazards Analysis, risk management, layer of protection analysis, reactive chemical safety, dust hazards and emergency relief. He serves as a member of the Design Institute for Emergency Relief Systems (DIERS), the chair of the CCPS subcommittees for Guidelines for Independent Protection Layers and Initiating Events and Guidelines for Enabling Events and Conditional Modifiers, and serves on the CCPS

subcommittee for Guidelines for Probability of Ignition of Flammable Releases. Mr. Chastain holds a B.S. degree in Chemical Engineering from Clemson University.

Letter from the Chair

Steve Miller

One of the most rewarding benefits of being an officer of our local AIChE section is having an opportunity to glimpse the energy and creativity of our organization's volunteers. As has been the case throughout our section's

history, we are blessed to have a group of talented and engaged leaders who are interested in and dedicated to the improvement of the East Tennessee Section – and I'm not only talking about our elected officers. In fact, we have a number of members who have simply identified opportunities for improvement and have stepped in to make something happen.

The examples of proactive volunteer contributions to our section abound; to name just a few:

- The New Year had barely begun, we were still months away from kicking off the planning effort for the 2012-2013 program calendar, and we had several people who, without solicitation, contacted section officers to volunteer to serve on the program committee.
- We have a member of our section who noted that, while we have considerable involvement from Eastman employees (certainly understandable since most meetings are held on or near Eastman's site) and while we have increasing participation of chemical engineers at several other companies, we could continue to broaden our active membership base. He volunteered to help strengthen our outreach to chemical engineers in the region.
- We continue to have an opportunity to track and increase our membership. A volunteer stepped forward to help do that, and he is creatively providing ideas regarding how we can communicate and enhance the value that we offer our membership.
- We have a strong record of providing continuing education opportunities to chemical engineers in the area, and we have a volunteer who has been doing a splendid job of identifying and coordinating quality short courses each year.
- We have a number of members who have for years volunteered their time and shared their expertise to provide Profession Engineer Exam Review courses.
- We had a desire to have a splashy new logo for the section, and we had several volunteers who conjured up their inner artist to make that happen. (More on that next month.)
- We have a member of the section who noted that we have the opportunity to reach out to young members of the profession with greater purpose. She has spent time developing a plan to do just that. (More on that in months to come.)
- ...Well, the list goes on.

We really do have a great section – one of the largest and most active in the country. The credit for that clearly goes to our many wonderful volunteers...and there's always room for fresh ideas, for new vigor, for new volunteers.

If you have an interest in providing ideas and/or volunteering a bit of your time to maintain and enhance the vitality of the East Tennessee Section of AIChE, there truly are many opportunities to do so; just contact an officer at your convenience.

East Tennessee Section Programming Series for Winter/Spring 2012 – An Update

Steve Miller

We have had a couple of date changes (actually, the February and March presentations have simply been flip-flopped). A summary of the current plan for the remainder of the 2011-2012 program year is provided below. **The February, March, and April presentations will all be in Eastman Chemical Company's B-150, beginning at 12:00 pm. Pizza will be served at 11:30 am.**

| Date | Topic | Speakers |
|-------------|--|---|
| February 14 | Dust Explosions | Wayne Chastain and Pete Lodal Eastman Chemical Company |
| March 7* | Scale-up / Piloting Visions for the Future | Brad Duckworth Eastman Chemical Company |
| April 3* | Future Trends in Chemical Process Control | Jim Downs Eastman Chemical Company |
| May 3* | AIChE/ACS Family Night at Gray Fossil Site | Norman Jacobs Nuclear Fuel Services |

*Please note that these dates are tentative; subsequent newsletters and meeting notices will be used to provide confirmation.

Make it a point to join us for these great presentations, brought to you by your Local Section AIChE leadership and programming team!!

January Program Recap

Jaclyn Shuman



“Chemical Plant Startup”

Joseph Bays, Eastman Chemical Company

Joe Bays, the Acetyl Licensing Group Leader in Chemicals Development Division at Eastman Chemical Company, discussed his international project experiences while serving as the project manager for the Chang Chun Acetic Acid Plant in Taiwan. The Chang Chun Group, founded in 1949, had existing VAM production with the long-time goal of back integrating to acetic acid. Licensing technology from Eastman finally allowed for CCP to accomplish the goal of acetic acid production. Walking through some of the project details, there were many entertaining stories shared about how the project team executed the startup and relayed information between CCP and Eastman. One of the more entertaining and perhaps worrisome of these stories was the method that the CCP operators used to light the gasifier, i.e. the gasoline soaked rag. As a reoccurring theme from this discussion, startup and project engineers must do “whatever the job requires”. There are, however, known phases of execution: advise licensee on technical matters, training, construction, process safety evaluation, consideration of product quality, consideration of plant performance, project management, etc. The cultural and language barriers were some of the speaker’s most pronounced challenges with this foreign assignment, but he shared some thoughts on how to overcome them, and to make the best of foreign assignments by finding that balance between work and rest/family/fun. This was a very entertaining and insightful discussion.

What’s New at National AIChE

Steve Miller

Upcoming AIChE Conferences:

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|----------------|---|-------------|
| April 1-5 | Spring Meeting & 8th Global Congress on Process Safety http://www.aiche.org/Conferences/SpringMeeting/index.aspx | Houston, TX |
| April 29-May 2 | 3rd International Conference in Stem Cell Engineering http://stemcell.aiche.org/ | Seattle, WA |

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|------------|---|------------------------|
| June 5-7 | 2012 AIChE Process Development Symposium http://processdevelopmentsymposium.aiche.org/ | King of Prussia, PA |
| June 24-27 | 6th Int'l Conference on Bioengineering and Nanotechnology http://icbn.aiche.org/ | Berkeley, CA |

Upcoming live webinars:

AIChE Webinar: Two-Phase Gas/Liquid Pipe Flow and Relief Sizing

Professor Ron Darby. Wednesday, February 15, 2012. 2:00 - 3:00 p.m. ET

This webinar covers methods for identifying flow regimes and determining friction loss in two-phase distributed and homogeneous gas/liquid pipe flows and sizing relief valves for frozen and flashing homogeneous two-phase flow. Attendees will learn to:

- Identify Two-Phase Separated Flow Regimes in Horizontal and Vertical Pipe Flows
- Define Flow Parameters that govern Two-Phase Gas/Liquid Pipe Flow
- Size Safety Relief Valves for Frozen and Flashing Equilibrium or non-Equilibrium Homogeneous Two-Phase Flow
- Learn Calculational Methods for Friction Loss in Homogeneous and Separated Two-Phase Flow

Engineers and engineering supervisors concerned with handling two-phase gas/liquid fluids in pipe flow and relief systems will benefit from attending

AIChE Webinar: Maintenance and Reliability for Chemical Engineers, Part 4-Building the Business Case Presented by David A. Rosenthal, Tuesday, February 21, 2012, 11:00 AM. - 12:00 PM. ET

Manufacturers require a greater return on their assets to compete in the marketplace. The bar for targets for safety, availability, and cost has been raised over the years to respond to this challenge. Owners have established asset management strategies geared to delivering operational goals needed for business performance. The path to achieve this performance is routed in the application of methods, tools, and practices that are applied throughout an asset's life.

The commitment to achieve improved reliability requires personnel and monetary resources. However, competition for these resources across all business initiatives requires difficult decisions. Decision-making requires data and tools to understand the best approach to impact the business. In addition, the understanding of cultural change is needed to enable the improvement plan.

This webinar encompasses how to develop a business case for reliability improvement. The webinar covers both benchmark and margin analysis approaches to understanding the value of the opportunity faced by the facility. The process for both methods including assessment, analysis, and reporting are also covered. Sample implementation plans are also discussed.

Please note that this is the fourth and final webinar of a four-part series. The first three sessions can be viewed in the ChemE on Demand archive. The first session explores the evolution of maintenance, its

intended function, value of reliability, and the components of asset management. The second session focuses on machine failure and the application of preventative and predictive care. The third session covers root analysis, defect elimination (five why's), failure modes and effects analysis (FMEA), criticality, reliability-centered maintenance, and bad actor management.

Recent webinars of potential interest:

The following recently-presented webinars (plus many more) can be accessed via ChemE on Demand. Check it out: <http://apps.aiche.org/chemeondemand/home.aspx>

AICHE Webinar: Cheers! The Chemistry of Wine

Presented by Dr. Ariel Fenster on Wednesday, February 1, 2012

AICHE Webinar: Outcomes of the EPA/NSP/AICHE Center for Sustainable Technology Practices Sustainable Supply Chain Design Scientific Workshop

Presented by Professor Ignacio E. Grossmann on Wednesday, February 8, 2012

Continuing Education – Professional Development Hours Available



Eastman Employees Only: Are you a professional engineer seeking to meet state continuing education requirements for professional development hours (PDH's)? If so, please visit this website for a list of potentially eligible courses and more information: [Continuing Education for Professionals](#)

Calendar of upcoming events



Several great programs are planned for the upcoming programming year. Topics

include:

- Safety Issues in Particle Handling, Pete Lodal and Wayne Chastain (Eastman Chemical Company) – February 14, 2012

Keep Up With the Local Section Online

Up-to-date information about the East Tennessee Section of the American Institute of Chemical Engineers can be found [on our website \(www.tnengineering.net/AICHE\)](http://www.tnengineering.net/AICHE). The website includes the Local Section Bylaws, List of Officers from 1945 to present, and an archive of Pipeline Newsletters - to mention only a few aspects of the information covered. Photos from past events can be found, along with contact information for the Local Board. Review the site occasionally and keep up with the local section!

2012 Local Section Officers, Directors, & Support Staff

| | | |
|---|----------------------------|---------------|
| Chair: | Stephen Miller | 224-7350 |
| Chair-Elect and Program Committee Chair: | Noah McMillan | 224-8114 |
| Secretary: | Lane Daley | 229-3064 |
| Treasurer: | Rebecca Glaspie | 229-6144 |
| Directors: | Paul Fanning | 229-8500 |
| | Mark Harrison | 229-6952 |
| | Lauren Moyer | 229-2208 |
| Local Section Webmaster: | Tim Nolen | 229-8287 |
| Short-Course Coordinator: | Mark Shelton | 229-4753 |
| Professional Development Coordinator: | Joe Parker | 229-3850 |
| Corporate Relations Coordinator: | Braxton Sluder | 578-6225 |
| AICHE Pipeline Newsletter Co-Editors: | Mark Kettner/Bryan Kirkman | 229-3907/1587 |
| ETEAC Representative: | Lane Daley | 229-3064 |

2012 Local Company Contacts

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|---|--|
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| Nuclear Fuel Services Inc., a subsidiary of The Babcock & Wilcox Company | Tracy Coates tjcoates@nuclearfuelservices.com |
| Domtar | Rhonda Smith, Process Control Engineer 423-392-2797, Rhonda.Smith@domtar.com |

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