



American Institute of Chemical Engineers Knoxville-Oak Ridge Section

For additional information see our Web site at: <http://www.ornl.gov/sci/aiche/>
Or contact: Linda Puckett, puckettlf@ornl.gov, (865)574-6147 or
Susan Seymour, Seymour@utk.edu, (865)974-2421

Inside this issue

- January 2009 Meeting
- Hands on Whisky Making Course In Scotland
- Local Section Election Results
- Local Section Assisting with 2009 Annual AIChE Meeting
- Activities Calendar
- Sponsoring Opportunities
- Officers
- About Our Organization – AIChE eLibrary

January 2009 Meeting

Date: Tuesday, January 13, 2009
Cost: \$20
Location: Calhoun's, Turkey Creek, Farragut, TN – Private dining area
Menu: Buffet (Special menu available upon request)
5:30 pm Executive Committee Meeting (All members welcome)
6:00 pm Dinner
7:00 pm Program – Thomas E. Pearson, Product Engineering Manager, ALSTOM Inc., **Springerville Generating Station Unit 3 Dry Flue Gas Desulfurization System**

Abstract – The Springerville Generating Station (SGS) is expanding with the addition of two new generating units rated at 400 MWe each. Alstom was awarded the contract to supply and commission the flue gas treatment systems to control the stack emissions for SO₂, particulate matter and Opacity. Dry flue gas desulfurization systems (DFGD) each comprised of 2 x 50% spray dryer absorbers (SDAs), a 16 compartment fabric filter (FF), and a lime slaking reagent preparation system were designed and provided. Unit 3 has been in commercial operation since July of 2006. Unit 4 is currently under construction.

This presentation will summarize the SGS unit 3 regulatory requirements, the design criteria, process design, equipment selection, layout, construction and operating performance. In July of 2006 the SGS SDAs were the largest in the world. Since 2006, Alstom has commissioned 2 x 50% SDAs for an 825 MW unit and has a design for a 900 MW unit under construction.

Bio – Mr. Pearson graduated from the University of Illinois in 1978 with a BS degree in Chemical Engineering. While working at ORNL, IT Corp. and the University of Tennessee (UT), he continued his education in Chemical Engineering and received his Master's degree in 1984 with a minor in Environmental Engineering. His graduate thesis is a "Mathematical Model for the Removal of Sulfur Dioxide in a Pilot Scale Spray Dryer".

In 1983, Tom assisted in the development of Alstom's Spray Dryer Absorber (SDA) technology at the University of Tennessee pilot plant in conjunction with his Master's Thesis. Over the past 21 years he has been responsible for SDA process development and the design of over 2700 MW of SDAs including the world's largest SDA vessels. He is currently managing the global application and improvement of Alstom's SDA, SCR and Mercury Capture technologies.

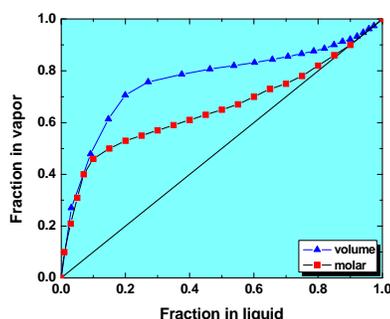
Please make your reservations by noon, **January 12**, by contacting

Linda Puckett, puckettlf@ornl.gov, (865)574-6147 or
Susan Seymour, Seymour@utk.edu, (865)974-2421

***The Section will subsidize up to 15 students,
including graduate students***

HANDS ON WHISKY MAKING COURSE IN SCOTLAND

Drs. John (Chemical and Biomedical Engineering, ChBE) and Billie Collier (Dean, Human Sciences) at Florida State University (FSU) created a hands-on whisky making class in Scotland. While at the University of Tennessee (UTK) John (then ChE Head) and Billie (then Associate Vice Chancellor and MSE) cooperated with the Bruichladdich Distillery on Islay in Scotland in developing a hands on whisky making classes in June 2003, that has been repeated in May 2004, May 2005, June 2006 and June 2007.



Due to a high exchange rate in 2008 the class was cancelled and for 2009 (May 11-15, 2009) the economy is limiting enrollment of college students therefore other participants are being especially encouraged to apply this year. In previous years associated persons have joined the students including ChE alumni, a physician, university professors, and a corporate research VP. The students have been from different engineering and science backgrounds.

The classes at Bruichladdich were conceived by Jim McEwan, have evolved to be the Bruichladdich Single Malt Academy, and are now open to the public in another format; in addition to the technical lecture augmented week initiated the Colliers. The now FSU ChE/Scotland program week is reserved for the augmented program and includes on site lectures, explanations and overview from the Drs. Collier. Although started with ChE students the program is open to other students and non-students, all

participants must be at least 18 year of age and for this special augmented week approved in advance by Dr. John Collier. Participants in the augmented program are given lectures on the engineering and science related to whisky production by Dr. Collier and on-site presentations by the distillery staff related to the program and international considerations. The first topic of discussion by the distillery personnel is a safety discussion specific to the Bruichladdich Distillery and then familiarization with the distillery. During the time at the distillery the participants will operate full scale processing equipment supervised by the faculty, and with trained operators present at all times: mash tun (extraction of sugars from malted barley), washbacks (fermentors for conversion of sugars to alcohols and other constituents), wash and spirits stills (distillation of the fermentor intermediate product); vatting (marrying of matured whisky from different casks to achieve proper character and reduction to 46 v%), and sampling and analysis of maturation effects. Students can earn one academic credit for their participation, if registered through FSU.



In the past samples of the distillates in the wash and spirits pot stills, and from different age whiskies were taken by the group, shipped back to the University and analyzed on campus, at Lincoln Memorial University, and at the Bush Brothers research laboratory in Knoxville. Student projects for additional credit have been conducted

related to analysis of the samples, related calculations, resulted in an M.S. thesis, a current PhD dissertation, a team senior design project that won first place in green engineering at the 2003 AIChE annual conference, and a paper about the program was given by the Drs. Collier, former participants and distillery personnel at the 7th International Chemical Engineering World Congress in 2005.



The Bruichladdich/FSU course could include students from other programs and universities and approved (by Dr. Collier) non-student professionals. All participants are encouraged to spend time in Europe before the course, afterwards, or both, as a result travel to and from Islay and the UK are the responsibility of each participant. The week of May 11-15, 2009 is reserved for this activity. The classes start with Monday afternoon presentations by Dr. Collier, dinner and an after dinner discussion on Monday evening and run through breakfast on Friday morning. It is the responsibility of the participants to arrive at the distillery by the afternoon meeting on Monday of their class and remain through breakfast on Friday. Advice on travel arrangements will be given and contact with other

participants will be shared, but no formal group travel to or from Islay occurs. Islay can be reached from Glasgow by plane, by auto and ferry, or by a coordinated bus and ferry. The ground route goes by Loch Lomond, and through the highlands and then a two hour ferry boat trip.

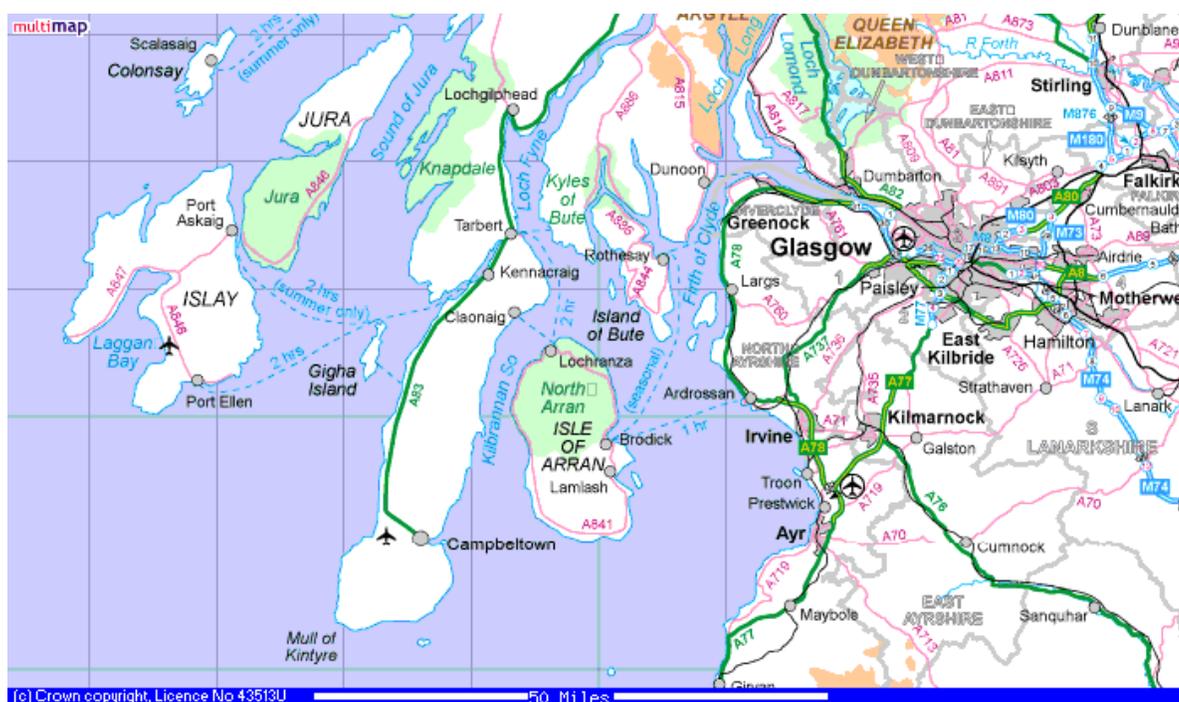
The students and instructors stay in the modern Bruichladdich B&B on the distillery grounds and all meals are provided. The cost at the distillery is £795 (pounds sterling) covers participation at the distillery, food and lodging. This is the same cost as the non-augmented classes offered by the distillery. Additional costs occur if academic credit is sought. If space is available non-participating persons accompanying a participant can stay and dine in the Bruichladdich B&B for an additional £300. All payments are to the distillery unless academic credit is desired and then the payments and additional information are through FSU International Programs

(<http://www.international.fsu.edu>).

Additional information about this program can be obtained by contacting Dr. John Collier through the FSU ChBE Department at 850-410-6262 or by e-mail at john.collier@eng.fsu.edu. Both Professor Robert (Pete) Counce (counce@utk.edu) and Professor John

Prados (jprados@utk.edu) have participated and can comment on the course. The 2009 week that is reserved for this program is May 11-15, 2009. A commitment with prior approval for this week must be made to the distillery (<http://bruichladdich.com>) after approval by Dr. Collier and before the end of January 2009.

For students and non-student interested persons, please contact Dr. John Collier at his location, as Professor, Department of Chemical and Biomedical Engineering, FAMU-FSU College of Engineering, 2525 Pottsdamer St., Florida State University, Tallahassee, FL 32310-6049, phone 850-410-6262, and e-mail john.collier@eng.fsu.edu. Persons can participate in a similar week long class at the distillery at other times for the same cost; the unique aspects of this program are the technical lectures and oversight by Drs. Collier.



Local Section Election Results

The ballots have been counted and the results of the Local Section election sanctioned. A total of 20 ballots were cast to elect the following local section officers and directors for 2009:

Chair Elect: Jacob Hutton
 Secretary: David DePaoli
 Treasurer: Paul Taylor
 Directors: Ed Alperin and Mark Swientoniewski
 Director – Past Chair: Sharon Robinson

In addition, because a Chair-Elect was not elected in 2008, Michael Hollander has volunteered to continue as the section Chair for 2009.

Please congratulate the newly elected officers and directors and continue to support the local section by participating in section activities.

Local Section Assisting with 2009 Annual AIChE Meeting

The Knoxville-Oak Ridge Section of the AIChE is assisting with the planning and coordination of the 2009 Annual AIChE Meeting to be held at the Gaylord Opryland Hotel in Nashville, TN on November 8-13. Sharon Robinson and Jacob Hutton will be leading the efforts of the local section, which will include:

- Helping with Nashville General Arrangements and Student Conference, including potential tour of Opryland Hotel CHP system
- Coordinating Sustainable Southeastern Energy Portfolio Topical which will highlight regional efforts in bioenergy, energy efficiency, and nuclear energy

The highlight of the meeting will include:

- 1st Annual Fusion Energy Topical Planned
- Highlights energy papers
- New Topical Technical

Programming Areas.

- Sustainable Southeastern Energy Portfolio
- Innovations of Green Process Eng. for Sustainable Energy & Environ
- Solar Topical.
- Comprehensive Quality by Design to Develop and Manufacture of Pharmaceutical Products.

For additional information contact either Sharon or Jacob at:

Sharon Robinson
 Oak Ridge National Laboratory
 P. O. Box 2008, MS-6113
 Oak Ridge, TN 37831-6113
 Phone: (865) 574-6779
 Fax: (865) 574-0600
 Email: robinsonsm@ornl.gov

Jacob Hutton
 ALSTOM Power Inc.
 Process Engineering
 1409 Centerpoint Boulevard
 Knoxville, TN 37932-1962
 Phone: (865) 560-1706
 Fax: (865) 694-5213
 Email: jacob.hutton@power.alstom.com



Gaylord Opryland Hotel in Nashville, TN
 (Source: Expedia.com)

Activities Calendar

Date	Time	Topic	Speaker	Location
Jan 13	6:00 PM	Overview of a Flue Gas Desulfurization System - Springerville, AZ	Tom Pearson	Calhoun's, Turkey Creek
Feb 10	6:00 PM	Fuel Cycle Status - Joint with ANS	Bob Jubin	Buddy's Bearden Banquet Hall
Mar 10	6:00 PM	Biodiesel Production - Nu-Energie	TBD	Calhoun's, Turkey Creek
Apr	6:00 PM	Student Awards	TBD	The University of TN
Apr 26-30		2009 AIChE Spring National Meeting and 5 th Global Congress on Process Safety		Tampa, FL
May	6:00 PM	Kimberly-Clark Plant Tour	TBD	TBD
June 12-14		2009 Leadership Development Conference		Augusta, GA
Nov 8-13		Annual Meeting		Gaylord Opryland Hotel, Nashville, TN

Sponsoring Opportunities

We continue to accept advertising in the newsletter in order to provide funds to support student participation in the meetings.

Rates per newsletter are:

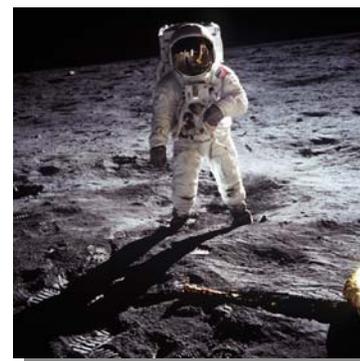
\$80 full-page advertisement

\$45 half-page advertisement

\$25 quarter-page advertisement

The section will also continue to accept individual or corporate sponsors to provide student meals at section meetings. The sponsor will be recognized at the meeting and in the Newsletter.

The cost to sponsor one meeting is **\$200**. It's a great way to encourage students to attend the local meetings and become future members in the Institute!



(Source: NASA web site at <http://www.nasa.gov/multimedia/imagegallery/>)

"Do you realize if it weren't for Edison we'd be watching TV by candlelight?"

AI Boliska

Officers

Chair:	Michael Hollander	300-5645	enviroms@att.net
Chair-Elect:	Jacob Hutton	560-1706	jacob.hutton@power.alstom.com
Secretary:	David DePaoli	574-6817	depaolidw@ornl.gov
Treasurer:	Paul Taylor	574-1965	taylorpa@ornl.gov
Directors:	Sharon Robinson	574-6779	robinsonsm@ornl.gov
Term ends 2010	Mark Swientoniewski	574-1150	swientoniemd@bechteljacobs.org
Term ends 2010	Ed Alperin	694-7335	Ed.alperin@shawgrp.com
Term ends 2009	Stuart Daw	946-1341	dawcs@ornl.gov
Term ends 2009	Tom Busmann	694-7517	tbusmann@focusenv.com
Membership:	Paul Taylor	574-1965	taylorpa@ornl.gov
Newsletter:	Linda Puckett	574-6984	puckettlf@ornl.gov
Webmaster:	Ben Lewis	574-4091	lewisbejr@ornl.gov
E-mail:			aiche-chat@chem.engr.utk.edu
Website			http://www.ornl.gov/aiche

Knoxville - Oak Ridge Section

P.O. Box 2008
Bldg. 4500N, Room B14
Oak Ridge, TN 37830-6243

Phone: 574-6984

Fax: 574-6986

E-Mail: [aiche-
chat@chem.engr.utk.edu](mailto:aiche-chat@chem.engr.utk.edu)



We're on the Web!

See us at:

<http://www.ornl.gov/sci/aiche/>

About Our Organization – AIChE eLibrary

As an AIChE member, you have access to a wealth of technical information through the AIChE eLibrary.

The AIChE eLibrary provides access to hundreds of engineering and scientific references, handbooks, standards, and databases on your desktop, 24/7. The highly interactive AIChE eLibrary lets you work with your own data as you:

- Search for content across the entire collection

- Analyze results, reorganize data and export information
- Manipulate interactive tables, graphs, equations and spreadsheets
- Perform 'what if' experiments on the data

You also have access to essential chemical engineering content like *Perry's Handbook of Chemical Engineering*, the

Plastics Design Library Series, and ChemEssentials.

To use this service, simply log on to the AIChE web site (<http://www.aiche.org/index.aspx>) and select the AIChE eLibrary link under the Member Center.

(Source: AIChE web site at: <http://www.aiche.org/MemberCenter/KnovellI.aspx>)

P.O. BOX 2008
BLDG. 4500N, ROOM B14
OAK RIDGE, TN 37830-6243

