



The Catalyst
PITTSBURGH SECTION
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS



Volume 21 Issue 6



March, 2007

MARCH MEETING NOTICE

Tour of Bruce Mansfield Power Plant

Where: First Energy Generation Corp.
128 Ferry Hill Road
Shippingport, PA 15077

When: Thursday, March 15, 2007

Time: 5:45 PM Registration
6:30 – 8:30 Movie and Plant Tour

Menu: Pizza and soft drinks will be served in the Conference Room during registration.

Cost: \$10.00 Registration fee covers a variety of Pizza and Soft Drinks.

Note: Please dress to walk in a plant environment, i.e., no high-heels, dresses, shorts, etc. Since some of the tour will be outdoors, dress appropriately for the weather.



Bruce Mansfield Plant Facts

The plant is located in Shippingport, Pennsylvania, along the Ohio River, approximately 25 miles northwest of Pittsburgh. The site covers 473 acres.

- First Energy's largest coal-fired power plant
- Three coal-fired units produce 2,360 megawatts (MW) of electricity
- Unit 1 on line in 1976, generates 780 MW; Unit 2 on line in 1977, generates 780 MW; Unit 3 on line in 1980, generates 800 MW
- At full capacity, the plant's generating units can produce 56-million kilowatt-hours daily
- Burns more than seven million tons of coal annually
- 500 employees
- Pays \$3.9 million annually in state and local taxes

**RSVP NO LATER THAN
THURSDAY, MARCH 8, 2007**

To: Jim Miller, Vice-Chair
Phone: 412-268-9517
E-mail: jbmiller@andrew.cmu.edu

Your RSVP must include: **Name, Affiliation, E-mail
Address, and Phone Number.**

PLEASE PAY AT DOOR.

CANCELLATIONS: If you must cancel your meeting reservation, please do so no later than 48 hours prior to the meeting. Otherwise, you will be invoiced for the cost of your meal.



LETTER FROM THE CHAIR

Dear Members:

For those who did not get a chance to attend *Student's Night* you missed another great event. We had more students participate this year than last and the food was excellent. The speaker, Mr. Justin Driscoll, gave the students a presentation on the seven things they should be aware of in looking for a career and a job. The posters were the best I've seen in several years. Kudos to Vice Chair Jim Miller for another excellent meeting! Special thanks go out to the students, their advisors and counselors at the four schools that participated.

This month's meeting is a tour of Bruce Mansfield Power Plant. Having been there many times, I am sure you'll enjoy the tour and learn something at the same time. Sign up today.

Thanks to Nancy Hirko who ran another fantastic program at the Carnegie Science Center for National Engineer's Week. This will be Nancy's last year of running this program due to other commitments so we are looking for a volunteer for her to train to take over this program next year. If you are interested give Nancy or me a call.

It is almost time to elect new officers for the next AICHE year. Jim Miller will assume the Chair, but we need to replace him. If you have an interest in being a committee chair or running for one of the elected offices give David Missenda, Jim Miller or me a call.

Lastly, this is a McAfee Award year. If you have a nominee for the award, let us know. We will make this presentation at our May meeting.

Dreaming of spring,

Gary Hall
Chairman, AICHE Pittsburgh Chapter

MARCH MEETING

Some environmental measures at Bruce Mansfield Plant

- The Bruce Mansfield Plant is a recognized showplace for environmental technology. More than one out of every three dollars spent to build the \$1.4 billion facility was spent on environmental protection.
- One out of three employees operates pollution control equipment.
- The plant is equipped with full-scale air quality control systems designed to remove virtually all particulates and 92% of the sulfur dioxide from boiler flue gases.
- Units 1 & 2 are equipped with massive ductwork "scrubber trains" — large enough for a tractor trailer truck to pass through — located between the boilers and the 950-foot chimney. This two stage scrubber/absorber system removes particulates and sulfur dioxide.
- Unit 3 is equipped with a precipitator/absorber system – four electrostatic precipitators, four induced draft fans, five parallel absorber modules, and a 600-foot chimney.
- Units 1, 2 & 3 are equipped with Selective Catalytic Reduction (SCR) systems for removal of nitrous oxides from the boiler combustion gas. The SCR is a large vessel that transforms nitrous oxides into nitrogen — which becomes part of the ambient air — and water.
- The air quality control systems require about 175,000 tons of lime per unit each year, or one ton of lime for every 11 tons of coal burned. As a result, more than 400,000 tons of sulfur dioxide are removed from plant emissions each year.
- The coal and lime needs for the Bruce Mansfield Plant are handled through a docking facility located on the Ohio River, the largest such inland facility in the U.S.



- Rail unloading capacity has recently been added for coal and aqueous ammonia delivery
- At full capacity, each unit's air quality control system can produce up to four million gallons of scrubber slurry daily.
- A separate pollution control system is used to dispose of this slurry. It includes a treatment and pumping facility at the plant site, seven miles of underground pipeline, and a 1,300-acre disposal site, complete with the largest earth and rock fill embankment dam in the eastern U.S.
- The plant uses more than 70 million gallons of water a day. Water from the Ohio River is returned in a quality that equals or is cleaner than its original condition.
- Three 410-foot natural draft cooling towers reduce the temperature of approximately 310,000 gallons of water per minute by 27 degrees. A plume of water vapor leaves the top of the tower while cooled water collects at the base where it is mixed with water pumped from the Ohio River to make up for evaporation.

Some reuse/recycling activities

Forced Oxidation Gypsum (FOG) Plant

The scrubber system at the Bruce Mansfield Plant creates a byproduct called calcium sulfite, which is normally disposed of in a landfill. First Energy developed a process that converts that byproduct into gypsum, which then is used in a nearby factory to produce wallboard — nearly half a million tons each year. That's enough drywall for 70,000 new homes.

The recycling process is called Forced Oxidation Gypsum, or FOG. Launched in 1999, the FOG plant, a separate building on the Bruce Mansfield property, is the only one like it in the world. Once the calcium sulfite is transformed into gypsum, an enclosed conveyer belt transports it to a National Gypsum Company drywall-production facility across the street.

The technology benefits First Energy in two ways: the company generates additional revenue by selling the gypsum, and it reduces disposal costs. National Gypsum benefits by buying a raw material at reduced

costs and without shipping expenses. And, it benefits the environment by lowering the impact on landfills and reducing further need to mine gypsum from the earth.

For additional information about First Energy, visit: www.firstenergycorp.com

DIRECTIONS TO BRUCE MANSFIELD POWER PLANT:

From Downtown Pittsburgh, the South, East and West:

Take I-279 South through the Fort Pitt Tunnel towards Greater Pittsburgh Airport. I-279 becomes US-22W/US-30W, then PA-60N. Stay on PA-60N past the airport until Exit #10 Aliquippa. Turn left onto Green Garden Road for six miles. At intersection with PA-18N, turn right but immediately bear left onto Shippingport Road. After 2.5 miles and at the bottom of the hill, turn right at the large First Energy – Mansfield sign onto Ferry Hill Road. At the stop sign, bear right and go down the hill to the left. Stop at the small guard house on the right; the guard will direct you to the Main Security Building. Assemble there for further instructions.

From the North:

Take PA-60S across the Ohio River and take the very next exit and bear right onto PA-18S. Continue for 5.5 miles then turn right onto Ewing Hill Road. Continue for 1.1 miles then turn right onto Shippingport Road. Continue for 1.3 miles and turn right onto Ferry Hill Road. At the stop sign, bear right and go down the hill to the left. Stop at the small guard house on the right; the guard will direct you to the Main Security Building. Assemble there for further instructions.

AICHE NATIONAL NEWS

The 2007 AIChE Spring National Meeting, Global Congress on Process Safety – with CCPS International Conference, Loss Prevention Symposium, Process Plant Safety Symposium – plus other conferences will be held at Hilton Americas in Houston, Texas on April 22 – 26, 2007.

For more details, visit: www.aiche.org/Conferences/SpringMeeting/index.aspx



A GREAT NATIONAL ENGINEERS WEEK!!

Thank you to all the hardworking and dedicated volunteers for another successful event at the Carnegie Science Center. Engineer's Week celebrations were well attended on February 16 and 17. We had a record-breaking event - over 700 super balls were made by many future chemists and engineers!!

I would like to thank the following who gave generously of their time and helped staff the table this year:

Mike Friedrich, William Mentzer, David Missenda, Marion Maniet, Deborah Kosmack, and University of Pittsburgh students: Zach Fuller and Jeff Baker.

It should be noted that Zach and Jeff helped last year and were brave enough to come back for the event this year. Thanks again to all who participated.

For those of you who have not experienced this event, it is a lot of fun and very rewarding. Think about volunteering next year!!

Due to certain time constraints, I am announcing my "retirement" (or at least a sabbatical) from the Science Center Events. If anyone would like to step forward and take over the responsibility, I would gladly provide training. Send me an e-mail at: nhirko@air-comp.com

Nancy Hirko



2007 – 2008 PITTSBURGH SECTION EXECUTIVE COMMITTEE NOMINATIONS

Anyone interested in volunteering their skills to the Pittsburgh Section as part of the Executive Committee or as one of the additional officers and chairs can nominate themselves (and others) by contacting David Missenda at 412-503-4620 or by e-mail at david_missenda@URScorp.com

The Pittsburgh Section will be holding annual elections in May for the following positions: Vice-Chair, Secretary, and one Counselor.

The current Vice-Chair automatically elevates to the position of Chair in the 2008 -2009 program year. The Secretary, Treasurer and Counselor each serve a two-year term.

SOLICITATION FOR 2007 MCAFEE AWARD NOMINEES

There are many talented chemical engineers in our region. The Pittsburgh Section of AIChE provides an opportunity for us to network with many of our colleagues in the Tri-state area. Additionally, the Section is proud to honor the professional and community service of our most remarkable members through the biennial McAfee Award.

The McAfee Award is presented to a distinguished chemical engineer in honor of Jerry



McAfee, former Chief Executive Officer of the Gulf Oil Corporation. The award, the culmination of this program year, is an important opportunity to promote chemical engineering in the Pittsburgh area and a chance to celebrate our profession with our associates, clients, and spouses.

The award is presented to a distinguished Pittsburgh chemical engineer who:

- Is widely recognized for contributing to the profession
- Has community appreciation where she or he lives and works, and
- Has participated in and contributed to the AIChE and the Pittsburgh Section

Nominations for this year's McAfee Award recipient are now being accepted. The nomination must include a letter from a "champion" and at least three supporting letters. Please send the letters via USPS or email to:

Mr. Ed Moretti, Scholarship and Awards Chair
AIChE Pittsburgh Section
c/o Moretti Consulting Group
314 East Main Street
Carnegie, PA 15106
emoretti@moretticonsulting.com

Nominations are due by April 15, 2007.

The McAfee Award dinner will be held at the Fox Chapel Golf Club on Tuesday May 22 beginning at 6:00 p.m.

2007 – 2008 SCHOLARSHIP WINNERS!

The AIChE Pittsburgh Section Scholarship winners are Mr. Morgan Ames of West Virginia University and Ms. Elyse Coletta of Carnegie Mellon University. We congratulate them on their achievements. Each winner receives \$750 for the 2007 -2008 academic year.

Irish Proverbs for St. Patrick's Day

- A good beginning is half the work.
- You'll never plow a field by turning it over in your mind.
- Many hands make light work.
- Long churning makes bad butter.
- Every dog is brave on his own doorstep.
- A little dog can start a hare, but it takes a big one to catch it.
- One man's meat is another man's poison.
- The wearer best knows where the shoe pinches.
- It's no use boiling your cabbage twice.
- It is better to be lucky than rich.
- It is better to be lucky than wise.
- It is better to be lucky than to be an early riser.
- It is not a secret if it is known by three people.
- Do not show your teeth until you can bite.
- Put silk on a goat and it is still a goat.
- An old broom knows the dirty corners best.
- A kind word never broke anyone's mouth.
- Eaten bread is forgotten.
- You never miss the water till the well has run dry.
- The windy day is not for thatching.
- A trout in the pot is better than a salmon in the sea.
- There are as many good fish in the sea as ever came out of it.
- Men may meet, but mountains never greet.
- A light heart lives long.
- Good sense is as important as food.
- What butter and whiskey will not cure, there's no cure for.
- Good as drink is, it ends in thirst.
- If you lie down with dogs, you'll rise with fleas.
- Constant company wears out its welcome.
- It was not on one foot that St. Patrick came to Ireland.
- Your feet will bring you to where your heart is.
- A friend's eye is a good mirror.
- Beauty will not make the pot boil.
- No one is ever poor who has the sight of his eyes and the use of his feet.
- When your hand is in the dog's mouth, withdraw it gently.
- God is good, but never dance in a small boat.
- It's often a man's mouth broke his nose.
- Proverbs cannot be contradicted.

HAPPY ST. PATRICK'S DAY





MEMBERSHIP CORNER

Please send all change of address notifications to the Membership Chair:

Holly Gray
412-269-6059
hgray@mbakercorp.com

Please verify your updated e-mail address and post office mailing address so that you will continue to receive newsletters and e-mail notifications! Newsletters are also posted on our website, www.aichepgh.org

Please sign me up for the Pittsburgh Section of AIChE

Name _____

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Business Phone _____

Residence Phone _____

Email _____

Annual dues are \$16.00. Make check payable to "AIChE Pittsburgh Section" and send to the Treasurer:

Paul Brezovec
AIChE Treasurer
164 Taylor Avenue
Johnstown, PA 15906

NEWSLETTER DEADLINE

**THE DEADLINE FOR THE
APRIL NEWSLETTER IS
FRIDAY, MARCH 23, 2007**

Please submit newsletter information to:

E.G. Klein
724-796-3128
eg.klein@giccusa.com

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2006-2007 OFFICERS**

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2006 - 2007 Chapter Meeting Schedule

Date	Topic	Location
March 15, 2007	Bruce Mansfield Power Plant Tour	First Energy, Shippingport, PA
April (TBA), 2007	Technical Presentation	TBA
May 22, 2007	McAfee Award Banquet	Fox Chapel Golf Club

Mark your Calendars!
For the Following Dates:

March 15, 2007	Bruce Mansfield Power Plant Tour	First Energy, Shippingport, PA
May 22, 2007	McAfee Award Dinner	Fox Chapel Golf Club, Fox Chapel, PA



The Catalyst

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Visit us on-line at www.aichepgh.org



GOD Bless The U.S.A.!