ASME
SETTING THE STANDARD

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Solid Waste Processing

Editor: Tom White, P.E.

Summer 2006

MESSAGE FROM THE CHAIR

by Len Grillo, P.E.

Waste Not

Many of our solid waste disposal methods have changed over the years. The days of the Boy Scouts "paper drive," smoke belching incinerators with no pollution controls, and going to the dump on Saturday morning with your dad and watching him light the trash on fire, are long gone.

In 1970, with the first Earth Day and the birth of the Environmental Protection Agency, environmental awareness became prevalent. Modern waste-to-energy (WTE) facilities began to appear in the early '70s. These continued to be improved as the technology and regulations changed. We now have the ability to recover energy from waste in an environmentally sensible manner. Waste-to-energy is generally more costly than landfilling, but many environmentally conscious communities have selected it as the preferred disposal method.

A little slower to emerge was the recycling side of waste disposal. At first, recycling was not well organized, and markets for recovered materials needed to be developed. Voluntary recycling at drop-off bins evolved into curbside collection of source-separated materials and single stream recycling collection associated with materials recovery facilities (MRFs). Today, MRFs are prevalent and markets are well established, increasing the value of recycled materials. Recycling is also generally more costly than landfilling, but again, many communities prefer this method to landfilling. Aggressive recycling goals have been set by many states, and in numerous cases, they are being met.

Most people seem to agree that landfilling is not the most environmentally desirable method of solid waste disposal. Even with the very best efforts at recycling (as seen in California, for example), great quantities of ultimately recyclable materials are buried in landfills, after being shipped many miles on crowded interstate highways, using ever more costly fossil fuel. At the landfills, additional fuel is consumed to dig and line the holes, and compact, bury, and cover the waste materials.

During the period when WTE facilities were being implemented, there was much discussion that they would hurt recycling rates, since many recyclable materials are also combustible. This may have been a valid concern at the time, and many environmentally conscious communities did not embrace waste-to-energy for that reason.

Today, however, the facts show the opposite to be true. Recycling is an excellent way to preserve natural resources, in many cases, but it is not a disposal method. Waste-to-energy preserves even more of our natural resources. The combination of the two minimizes landfilling and optimizes the environmental benefit.

Nationwide, those communities that have implemented waste-to-energy projects have higher recycling rates than those that still employ landfilling as their primary disposal method. The combination of modern waste-to-energy and recycling has grown to be called the "integrated solution" to solid waste management. Integrated solid waste processing solutions have been implemented successfully in many communities over the last 20 years.

Let's stop using precious fuel to bury so many of our resources and move in the direction of an integrated plan of recycling and waste-to-energy for waste disposal. ◆

SWPD POSITION PAPER

The SWPD is working with industry leaders and Columbia University's Waste-to-Energy Research and Technology Council (WTERT) to prepare a position paper on the recommended use of waste-to-energy to enhance the health and welfare of American citizens and provide for part of the nation's energy needs. In light of ever-increasing energy consumption and the worldwide acceptance of modern incineration to manage solid waste, the Division is preparing a position paper for delivery to the U.S. Congress sometime this year. ◆

MY VIEW By Sherman R. Patton

There has been a revitalization in the waste-to-energy industry with expansion projects, plant modernization, and life extension projects currently in progress. Several RFQs are floating around right now seeking Greenfield projects. Population growth, landfill capacity shortages, and just doing the "right thing" are driving the new projects. We also have seen greater trends in recycling and packaging methodologies. The BTU value of the waste is ever increasing resulting in higher facility efficiencies but at a cost of reduced waste throughput.

I popped my first water-wall boiler tube at Nashville Thermal in 1975 and little has changed. We now cover the tubes with high-tech alloys and refractory; however, tube corrosion is still the leading cause of unscheduled outages and high O&M costs. For 30 years we've seen, heard, and presented hundreds of papers on the subject, but as an industry, more needs to be done in providing a collective solution in the design and operation of a modern (future) waste-to-energy facility. This was the purpose of the SWPD when founded by Herb Hollander and others, to create a common forum for the exchange of information and research. Boilers are still constructed to the ASME Boiler Code, without mandated parameters for the design of WTE boilers.

We need to work together and collectively research what works, and what doesn't, and set standards to match. ◆

NAWTEC 14 – A SUCCESS By Elio Manes

Over 300 industry experts gathered in Tampa, Florida, May 1-3, 2006 for the 14th annual North American Waste-To-Energy Conference (NAWTEC-14). The ASME SWPD is a three-way partner in this conference with two other organizations – the Integrated Waste Services Association (IWSA) and the Solid Waste Association of North America (SWANA). John Austin of Hampton/NASA Steam Plant was the Papers Chair and Mark Bobman from the Bristol Resource Recovery Authority was the Papers Vice-Chair and NAWTEC 14 Proceedings Co-Editor.

The conference was a great success. Some of the key highlights of the event included:

- Three distinguished keynote speakers who shared their views on the status and recent accomplishments of the waste-to-energy industry both in the U.S. and abroad – Pam Iorio, Mayor, City of Tampa, FL; Seth Myones, Senior Vice President of Business Management, Covanta Energy Corporation; and Dr. Juergen Vehlow, Forschungszentrum Karlsruhe GmbH
- Welcoming Reception and Table Top Trade Fair – stretched over two days – 26 booth and tabletop exhibits filled with vendors featuring the latest waste-to-energy equipment, technology and services available
- Facility tour of Pinellas County's state-of-the-art waste-to-energy plant – operated by Wheelabrator Pinellas Inc.

Solid Waste Processing Division display booth at NAWTEC 14

The Division also bestowed the 2006 SWPD Facility Recognition Awards during the Awards Luncheon at the conference. ◆

NEWS UPDATE ON SWPD SCHOLARSHIP PROGRAM

By Amit Chattopadhyay

The scholarship program continues to be an important part of the ASME Solid Waste Processing Division's activities. The Division awards an annual total of $9,000 in scholarships with a view toward stimulating students' interests in solid waste processing and related fields.

The program has been generally satisfactory in the past. However, in order to enhance participation, the Scholarship Committee has been making efforts to revise the program for increased effectiveness. As examples, the student eligibility base has been expanded to include environmental programs with solid waste related courses; a new category of Continuing Education Scholarship was added to our existing graduate and undergraduate categories; and with the assistance of ASME and several individuals in academia, we have been able to enhance our communication efforts to "spread the news" effectively. We continue to evaluate our program, and anticipate further enhancements.

Congratulations to the 2005-2006 Scholarship Recipients! We wish the best to the three Graduate Scholarship Recipients:

Shang-Hsiu Lee (Columbia University, Earth and Environmental Engineering)

Judd Adam Larson (University of Florida, Environmental Engineering Sciences)

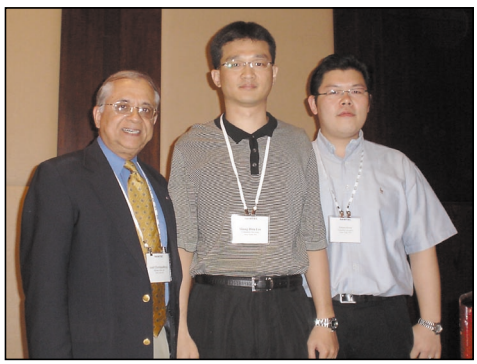
Eilhann Kwon (Columbia University, Earth and Environmental Engineering)

We wish the best to the Undergraduate Scholarship Recipient:

Katherine Mouzakis (University of Florida, Environmental Engineering Sciences)

All scholarship winners receive a complimentary one-year membership in ASME.

For additional information about the SWPD Scholarship Program, go to:
http://www.asme.org/divisions/swpd/studentprograms/index.html ◆



Amit Chattopadhyay (left) congratulates Graduate Scholarship recipients Shang-Hsiu Lee and Eilhann Kwon during Awards Luncheon at NAWTEC 14

15th Annual North American Waste-toEnergy Conference (NAWTEC 15)

May 21–23, 2007 • Doral Resort & Spa • Miami, Florida

Call for Papers & Presentations!

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Don't miss this unique opportunity to reach the largest specialty group of professionals in North America dealing with municipal waste-to-energy, combustion engineering science, and emerging waste conversion & processing technologies.

Abstracts are requested on the following topics:

- U.S. & International WTE Facility Case Studies
- Approaches to Improving Public Perceptions of Waste Combustion
- Economics, Creative Financing & Revenue Generation
- New Thermal Treatment & Waste Combustion Technologies
- Expanding WTE Capacity: Models for WTE Project Development
- Retrofits, Plant Upgrades, & Maintenance Issues
- Managing & Streamlining Plant Operations
- Developing and Renegotiating WTE contracts
- Renewable Energy Credits (RECs) and Marketing WTE as Green Power
- Tax Credits, Energy Legislation & the Politics of Waste-to-Energy
- Air Emissions & Advances in Pollution Control Systems

ABSTRACT SUBMITTAL DEADLINE

September 1, 2006

Please e-mail abstracts to

Brent Dieleman, SWANA Manager of Technical Divisions at bdieleman@swana.org

Any questions - please call (240) 494-2237

SUBMITTAL GUIDELINES:

Preference will be given to papers that address:

(1) Actual plant operations and experience highlighting problems and solutions;
(2) New technologies being implemented or tested;
(3) Innovative management practices; and
(4) Applied research.

Only one presenter per paper is permitted, unless otherwise arranged. Abstracts should be 500 words or less and should include the topic description, a summary of the data to be presented, and identification of key conclusions. All abstracts and papers submitted must be original in nature, not having been presented or published elsewhere. Please include contact information on the abstract and all transmittal materials, as well as a short biography of the presenter highlighting career and presentation experience.

ASME SOLID WASTE PROCESSING DIVISION PRESENTS THE 2006 FACILITY RECOGNITION AWARDS By Nat Egosi

The Solid Waste Processing Division of ASME selected Minnesota's Polk County Solid Waste Resource Recovery Plant and the Southeastern Connecticut Regional Resources Recovery Facility as the winners of the 2006 Facility Recognition Awards.

The annual Facility Recognition Awards are presented for innovative contributions to solid waste processing, economics, safety, and environmental performance, among other criteria. The 2006 awards were presented May 1, at the 14th North American Waste-to-Energy Conference in Tampa, Florida.

The Polk County Solid Waste Resource Recovery Plant, the winner in the Material Recovery Facility category of the awards competition, handles 40 tons of municipal waste collected from five counties in northwest Minnesota. A major technical attribute of the facility is a resource recovery system, fixed to the front of the combustion chambers, that removes virtually all the non-combustible portion of the waste flow and sorts it for recycling purposes.

Polk County Solid Waste Resource Recovery Plant

The Polk County Plant features advanced pollution control technology, including an electrostatic precipitator for controlling particulate emissions, and a chemical injection system for handling heavy metals, acid gases, and dioxins and furans. A heat recovery boiler allows the Polk County plant to produce steam for electric generation.

Bill Wilson, Facilities Manager, Polk County Plant

The Southeastern Connecticut Regional Resource Recovery Facility won the top honor in the Large Combustion Facility category. Placed into commercial service in 1992, the facility is permitted to process approximately 250,000 tons of municipal solid waste per year, recovering the energy for electric power generation.

Covanta SECONN

The safety performance of the Southeastern Connecticut Regional Resource Recovery Facility has received OSHA's VPP Star rating for over 10 years, reaching Gold Level 4 years in a row.

Keith Knowles (center) and John Vinson (right) accept the Large Combustion Facility Award on behalf of Covanta SECONN

Facility Manager Mark Davis proudly displaying the ASME award at the Covanta SECONN plant

The Union County Resources Recovery Facility in Rahway, N.J., received an Honorable Mention award in the Large Combustion Facility category.

Union County Resources Recovery Facility in Rahway, N.J.

Alan Harleston, Facilities Manager, Union County Facility

The ASME Solid Waste Processing Division is accepting nominations for the 2007 Facility Recognition Awards competition. For information and nomination forms, contact Nat Egosi, 631-756-1060 (ext. 108) or by email at Negosi@rrtenviro.com. ◆

PTC 34 UPDATE By Len Grillo

The ASME Performance Test Code 34 (PTC 34), "Waste Combustors with Energy Recovery," went out for industry review in 2005. In June 2006, the Committee met and reviewed responses received from interested parties and incorporated them into the Code. The Code is now complete and is out for a vote for approval by the PTC 34 Committee as well as ASME's Performance Test Codes Standards Committee. Once approved, the Code will be published, which we expect to occur during 2006. The Committee began working on the Code in 1988. ◆

2006 ASME CONGRESS By Peter Napoli

The Solid Waste Processing Division will again present the WTE Panel discussion at the 2006 ASME International Mechanical Engineering Congress & Exposition (IMECE) in Chicago. The Congress, to be held at the Hilton Chicago, will run from November 5th through the 10th; our 2-hour session will start at 2:00 pm on Wednesday, November 8th.

Peter Napoli of Martin Conveyor Division's Engineered Projects will again be the session chair and is in the process of assembling the panel to include participants from each of the corporate offices of Covanta, Montenay, and Wheelabrator; a facility manager; Dr. C.A. (Andy) Miller of the EPA; Lindsey Sampson, Lee County (Florida) Director of Solid Waste; a state DOE representative; and an environmentalist/community activist.

For more info on the Congress go to asme.org and click on the link for the IMECE.

If you would like to participate, there are still openings available. Please contact Peter at pnapoli@martinsprocket.com or by phone at (484) 444-0663. ◆

MEMBERSHIP COMMITTEE REPORT By Shawn Worster

The Membership Committee is continuing its outreach efforts to help grow the Solid Waste Processing Division. Letters were recently sent to QRO certificate holders detailing the significant benefits that being a SWPD member provides. Follow-up phone outreach is underway and we are looking for a few good men and women to help with this effort. If you are interested, please contact Shawn Worster at (617) 357-7747 or via e-mail at shawn.worster@hdrinc.com. We are very excited about increasing our membership rolls and ask each of you to talk up the Division to your friends and colleagues.

The Committee wants to express its appreciation to Peter Napoli for his years of yeoman service. He is moving on from his role as Membership Committee Chairman and we thank him and wish him continued success.

It is an exciting time in our industry. There is a lot happening and what better place to stay in touch with the developments and with your colleagues than through membership in the SWPD. We look forward to growing the organization and appreciate your thoughts, comments, and energy in helping make it so. Please contact Shawn Worster with any questions, comments, or ideas regarding the Membership Committee. ◆

QUALIFIED RESOURCE OPERATOR (QRO) COMMITTEE NEWS

By John W. Norton, PE, DEE

The QRO Committee has expanded the "Standard for the Qualification and Certification of Resource Recovery Facility Operators" to include a new level of operator certification called "Combustion System Operator." It is for operators at plants that only incinerate, without energy recovery. Entry level staff at waste-to-energy plants may also wish to begin their certification journey by taking this optional examination, a first "stepping stone" to a higher level of certification. The new "Combustion System Operator" requirements are largely the same, just no boilers or turbines. (The QRO Committee is a subcommittee of the ASME Codes and Standards Division.)

The QRO Committee may offer additional "stepping stone" certification levels in the future to encourage younger staff to take steps towards the ultimate level of being the person "in responsible charge" of the whole plant operation. Wastewater plant staff all across the country, for example, have three or four levels of certification that their operators follow towards the ultimate certification levels that are required for being in "responsible charge" of the whole plant operation. The levels of such certifications are commonly thought of as the "industry language and safety" level, the "theory of operations" level, and the "design sizing" level. Many state wastewater certification systems include, at the highest end of the certification process, a level that incorporates management training, as well. These are logical steps that encourage the new plant staff to begin learning about their industry; first enabling safe conduct of work and the proper use of the field's language terms, then understanding the science of the process, and then the judgment of how the processing units and components are sized and fit together to accomplish the desired result.

The QRO Committee has also completed the process of completely reissuing the whole "Standard for the Qualification and Certification of Resource Recovery Facility Operators" to incorporate all the many procedural guidelines that the Committee has had to adopt over the years to effectively administer the program. Existing operator certificate holders should not be concerned; no major changes are involved. Their current status and renewal dates should remain unchanged.

Managers of plants hosting the "Site Specific Operator Certification" examinations, however, should take note. There have been some problems in the field with having all the necessary plant documents available and up-to-date for the field exams. The Site Specific exam is to be based on the procedures used for the facility at which the candidates for certification work. A three man Board of Examiners designated by ASME conducts the oral exam after first meeting at the facility, touring the facility and then reviewing the necessary plant documents, including operation manuals, single line drawings, P&IDs, safety procedures, permits and other related material. These plant documents must contain the information necessary for operators to operate the facility under normal and upset conditions. If the plant documents do NOT contain the required material, the Site Specific exam must be postponed until the required plant documents are made available to the board.

The "Site Specific Operator Certification" Board of Examiners consists of three members: a regulatory agency or jurisdictional representative, a solid waste industry representative who has passed the Provisional certification (written exam), and an ASME representative. The minimum requirements for the members of the Board of Examiners for each examination can be found in the QRO Certification Standard. However, the subject facility can review the proposed board and request a substitution of a member, or members. A representative of the owner/operator shall be able to observe the Site Specific exam.

The QRO Committee and the SWPD are giving serious consideration to the development of a standard text, for studying the

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sorts of issues that need to be tested for the QRO Certification process. At the moment, the test bank depends on authority citations from nearly 100 different source documents (including peer reviewed papers, text books, and other documents known in the industry). Thus, it is quite difficult for students of the waste combustion and energy recovery industry to prepare for the exams.

Anyone with QRO questions or interest in being a member of this QRO certification process as a committee member, or field-testing designee, should e-mail John Norton at jnortons@aol.com or call (937) 223-5848. New test questions for the QRO question bank, with citations of authority (i.e. text books, peer reviewed papers, etc.), are always welcome for consideration. ◆

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