

NACC 2016 June 5-7, 2016, San Antonio, TX

34th INTERNATIONAL NUCLEAR

AIR CLEANING

CONFERENCE

June 5-7, 2016

MARRIOTT PLAZA SAN ANTONIO

SAN ANTONIO, TX

CONFERENCE WELCOME

DR. RONALD R. BELLAMY

CONFERENCE CHAIR

Good morning and welcome to the 34th International Nuclear Air Cleaning Conference, sponsored by the International Society of Air Treatment Technologies. My name is Ronald Bellamy, and I am the present President of ISNATT. It is my distinct honor and privilege to chair this conference, and I formally declare this conference to be in session. The Air Cleaning Conferences were started 68 years ago to review research activities at the national laboratories by the Atomic Energy Commission, and have been held regularly since 1948. Each meeting has provided an extremely useful and beneficial forum for air cleaning experts from around the world to establish contacts, to network, and to exchange ideas, information, and technology. I am confident

that this meeting will continue that outstanding tradition. I am thrilled by the response to this conference, in terms of the quality and quantity of technical presentations, the interest in exhibits by companies, the number in attendance, and the support for the other activities associated with the conference, such as sponsors for the breaks and receptions. To each of you I say thank you for your interest and participation, especially those of you from outside the United States for making that extra effort to travel here and contribute to our conference. Discussion topics this year will include new and old issues, and we hope that issues resolution continues to be a common theme of our conferences.

ISNATT has a group of volunteer officers, which at present also include Eric Banks as Vice-President, Curt Graves as Treasurer, and Art Soma as Secretary. We have a Board of Directors that includes Charles Waggoner, Nicholas Zaremba, and Chris Chadwick. I ask that these individuals stand and that they be recognized with a round of applause. At our ISNATT business meeting today, we will entertain a slate of officers for the next two years. This will be an important meeting as we ensure that our course forward will satisfy your interests and needs in terms of technical topics, location and structure of future meetings, and how else we can use the ISNATT resources to move forward on a path to improve the safety of nuclear facilities of all kinds.

I ask that you silence your cell phones, pagers, blackberries and other electronic devices. Any messages received will be at the Registration Desk. You should have all received a copy of a flash drive with the papers and presentations, for your reference both here at the conference, and in the future. This flash drive also contains the minutes of our ISNATT business meeting from 2014, as well as the attendees at our 2014 conference in St. Louis, MO. You will note that there are some presentations not included on the flash drive since they were not submitted in time. Once received, we will provide them on the ISNATT website. Speaking of the ISNATT website, I trust that you all either used the site to register or at least to search information on the conference. We have invested considerable effort and expense since the last conference in completely revamping the website, and I believe that it reflects a significant improvement. We will also be posting all of the papers from the past conference proceedings on the ISNATT website, ISNATT.org, so check the website as we complete this activity to provide one location for all of these important reference documents. As any good nuclear organization, we grow by continuous learning, and we welcome, and frankly, expect your input on the new website. Bring your comments, good and not-so-good, to today's ISNATT business meeting, talk to me at any time, or even use the website which provides a direct link to an ASK ISNATT opportunity.

You are all well aware of the importance of self-reflection, critical thinking and continuous improvement. This philosophy is a cornerstone of nuclear safety worldwide. We want your feedback on these conferences, so please be sure to fill out a questionnaire feedback sheet to give us your thoughts, comments and

suggestions for future conferences, particularly in terms of locations and technical topics to emphasize. You can be sure that each and every comment will be reviewed and factored into future planning. The feedback form will also be on the website if you would like to use that avenue to provide feedback.

This conference is so much more than the formal presentations you will hear. Please take advantage of the many opportunities outside the formal presentations to interface with your colleagues. The breaks for these conferences provide an excellent opportunity for this interface. Our breaks are being sponsored by several of the corporations represented here: ATI, Camfil, NUCON, and Porvair Filtration. These companies have also taken the opportunity to set up exhibits for all of us to look at during our conference breaks. Please express your appreciation.

All of you have interfaced with our administrative staff. They are an exceptionally hard-working, dedicated, and efficient group of volunteers and I urge you to acknowledge their excellent performance. Without them we could not have kept our administrative costs low, and these conferences could not achieve the success we continue to experience.

We are continuing the tradition started at our last conference for student attendance and participation. You may recall that we initiated scholarships to fund these students for attendance and other expenses. Each scholarship is in honor of one of the founding fathers of nuclear air cleaning, who have made a significant contribution to past conferences. Students in attendance include Daniel Varela from New Mexico State University, whose scholarship is in honor of Dr. Melvin W. First, and Samuel Gifford, also of New Mexico State University, whose scholarship is in honor of Mr. David Crosby. We also awarded a scholarship to a Cal Poly graduate who is working as an intern at Lawrence Livermore National Laboratory, Juan Nagengast, whose scholarship is in honor of Mr. Fred Leckie. I ask these individuals to please stand so we can recognize them as well as those technical giants who we honor with the scholarships in their names. Please seek out the students during the conference and make them feel part of the team that we have established with the world's nuclear air cleaning experts.

I mentioned the scholarship in memory of Dave Crosby. Dave was a key part of these conferences for the past 30 years, as well as an integral part of our American Society of Mechanical Engineers Committee on Nuclear Air and Gas Treatment activities, and on the faculty for the Harvard University TH Chan School of Public Health In-Place Filter Testing Workshop. Dave passed away last April 2015, and he is being sorely missed in all of these efforts. One cannot help but remember Dave for his technical expertise, his common sense approach to issues, his direct input to improve our products, his wit, and his colorful emails. Just a couple weeks before he succumbed to cancer, he sent a note that ended with this, which I will try to read: "Now we come to the enjoyable part of this

message. Some of my friends & colleagues I have worked with or known for over 50 years, some maybe only for a few years but I cherish every moment I have spent with y'all. I want each and every one of you to know that I love you and that I will miss you. May God Bless you and keep you in good health." To show some of the humor and support he provided, here are some lines taken from Dave's emails that are appropriate to this conference: After being in space, John Glenn said, "And to think every part of this space capsule was made by the lowest bidder", and here is one I think we all have experienced: "why is it that the first piece of luggage on the carousel never belongs to anyone". Two technical facts that Dave circulated: first, it was just a short 66 years from the first flight at Kitty Hawk to a flight landing a human on the moon; and second, and one we have talked about at ASME meetings, and bears repeating over and over, is the fact that the use of nuclear and other renewable energy sources has prevented 1.8 million deaths from the effluent releases of coal fired plants from 1971-2009. Thanks, Dave.

I would now like to recognize in this forum two individuals that have received significant awards during the past 6 months. The ASME Committee on Nuclear Air and Gas Treatment awarded its first Outstanding Dedicated Service Award and medal to Ben Franklin to recognize his long and outstanding service and technical contributions to the ASME Committee on Nuclear Air and Gas Treatment. Ben, if you would stand so we could recognize you. And we also had an individual that was nominated for the ASTM 2015 Professor of the Year. This is a highly competitive award and we are honored to have with us a runner-up for this award. Dr. Charles Waggoner of Mississippi State University and the Deputy Director of the Institute for Clean Energy Technology was recognized as a runner-up for his significant contributions to the education of students and the use of recognized international standards in their scholastic development and research pursuits. Charlie, if you would stand so we can recognize you.

We have a very ambitious agenda, filled with exceptionally interesting and timely papers and discussions. Keynote presentations this morning will focus on international developments here in the US and internationally, with representatives from the US Department of Energy and the China Institute of Radiation Protection. Our final keynote will be from Dr. Lou Kovach, probably the longest tenured air cleaning conference participant, who will talk to us about an activity he was involved in, the development of an International Atomic Energy Agency standard for waste management. We will have a technical presentation during our Texas Barbecue lunch from Mr. Ron Pratt, who will share with us his perspectives on air cleaning in the UK based on his many years of experience in this area.

After lunch, which is provided for all attendees, we will hear about the US approach to BWR containment enhancements post-Diacchi Fukushima, how ASME code sections are being used, some lessons learned from a fire at the Filter Test Facility last year, and control room and offgas management in

Germany and Australia. Our formal agenda today ends with an ISNATT business meeting, followed by a student poster session and reception sponsored by Mississippi State University in the hotel conference center Cavalier Room. Please show your support for this function.

Tomorrow there will be a breakfast next door for all attendees, followed by papers on testing and inspection. We will be provided the status of research and testing of various filter media, measurement techniques and results for laboratory testing and tracer gas testing at nuclear facilities, developments at the Waste Isolation Pilot Plant, and a review of HEPA test data from the DOE sites.

All attendees and others with you are invited to join us on Tuesday for a South of the Border Mexican Buffet Lunch featuring local delicacies. Our luncheon speaker is Mr. Marc Dapas, who is presently the Regional Administrator for the US Nuclear Regulatory Commission's Region IV location in Arlington, TX. Mr. Dapas has held various senior level management positions with the USNRC at most of the USNRC's locations, and we are honored to be able to hear from him about the USNRC in its present status.

Following our working lunch on Tuesday will be a very interesting series of papers on filtration components, as well as the status of new reactors in the US. Radial flow filters, venting components, heat transfer issues in activated carbon, failure mechanisms for pleated media, silver zeolite use, and HEPA filter loading after a fire are all on the agenda.

ASME CONAGT activities are a large part of our overall program this week. Wednesday and Thursday will be consumed with subcommittee and other working level meetings, and the Main Standards Committee meets Friday morning. You are most welcome to attend any of these meetings, and if not already involved, consider becoming involved in committee work. Feel free to talk to any committee member, the ASME staff here, Oliver Martinez, our staff secretary, or myself or Eric Banks as vice chair, for further details.

Please plan on a full day Tuesday, concluding with time for any followup discussions, presentations of emergent issues, and any rebuttals. We will review the accomplishments of this conference, receive any last-minute thoughts you may have, and discuss plans for future conferences.

There are two collateral upcoming functions that fit nicely with the goals of this conference, and I want to mention them. First, the Harvard University TH Chan School of Public Health will offer its In-Place Filter Testing Workshop August 8-12, 2016, in Boston, MA. Many of the lecturers are here and look forward to your attendance at this course. More information is available at <https://ecpe.sph.harvard.edu>. Second, the Nuclear Heating, Ventilating, and Air Conditioning Utilities Group, NHUG, will hold its annual meeting August 24-26, in New York City. You can get more information and register at their website,

NHUG.org.

Questions and answers, and discussions, are a key part of the information exchange we hope to achieve. Time will be allowed after each presentation for questions, and we can arrange for followup discussions if necessary. You are the key to a successful conference and we look forward to your active participation. Thank you for your attendance.

Before I introduce our keynote speakers, I will give you the opportunity for comments or issues from the floor that we can address at this time.