A&WMA's 108th Annual Conference & Exhibition

Connecting the Dots: Environmental Quality to Climate

Final Program

June 22–25, 2015

Raleigh Convention Center

Raleigh, North Carolina

2015 General Conference Sponsor

DUKE ENERGY®

Air & Waste Management Association

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EXHIBITION

TECHNICAL PROGRAM

WELCOME FROM THE A&WMA PRESIDENT

Welcome to the 108th A&WMA Annual Conference & Exhibition! I hope your experience in Raleigh this week is one full of seeing old friends, meeting new ones and building meaningful relationships with your peers from around the world. Value is generated from the connections you are making today. The technical expertise and environmental problem solving practices you will be exposed to may be applied directly to your work back home. I encourage you to make a deliberate effort to get to know people at this event whose work interests you, or who may benefit from yours.

This premier Conference & Exhibition represents the culmination of months of hard work and planning of dozens of volunteers. I'd like to thank the entire Local Host Committee, whose members are listed in the program, for putting together a great event for the Association. Special thanks go to Committee Chair and Co-Chair, Robert E. Hall and Rahul P. Thaker respectively, for their leadership and skillful planning. Making this event possible are our Sponsors and Exhibitors, also listed here. I would like to extend them each my thanks, and in particular express gratitude to our 2015 General Conference Sponsor Duke Energy. Make sure you spend time in our Exhibit Hall meeting those providing cutting edge innovation and services you need to be successful. Organizing the outstanding technical program was the responsibility of a tireless group of our members led by Sara Head and Leo Stander. Finally I should recognize the capable A&WMA staff for all they do year round to make events like this successful. I can say without hesitation, "job well done."

The agenda was constructed with our organization's Mission, Purpose and our strategic Vision in mind. In 2014 the Board, and key leaders conducted a two-day strategic planning session that looked at ways the Association can best serve society and fulfill our stated organizational purpose going forward. What came from that effort was our new Strategic Plan, headlined by a bold and clear Visionary *Goal*: to be recognized as the leading organization for the exchange of global environmental knowledge, ideas, and solutions. In the fabric of this event are woven elements of this Plan that move us closer to achieving important goals. Our strength as the Air & Waste Management Association lies in the neutral forum we create to exchange information that improve environmental knowledge and decisions. In these halls, meeting rooms and auditoriums, this week we find success to that end.

Thank you for attending, and if you aren't a member yet, please stop by the A&WMA Booth to discover the ways a Membership in the Air & Waste Management Association will help you achieve more as an environmental professional and open doors that otherwise would remain closed. Our different perspectives are what make us an unique organization. While in Raleigh, take advantage of scheduled events that bring you together with regulators, industry representatives, academic and research professionals and others whose specific body of work differ from yours. And while you're at it, explore and enjoy beautiful North Carolina in June.

Dallas Baker, A&WMA President

A&WMA is a nonprofit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for information exchange, professional development, networking opportunities, public education, and outreach to more than 5,000 environmental professionals in 65 countries. A&WMA also promotes global environmental responsibility and increases the effectiveness of organizations to make critical decisions that benefit society.

WELCOME TO RALEIGH, Y'ALL!

From the General Conference Chair and Co-Chair

Robert E. Hall

General Conference Chair

Rahul P. Thaker

General Conference Co-Chair

On behalf of A&WMA's RTP Chapter and South Atlantic States Section we welcome you to Raleigh, North Carolina and the 108th A&WMA Annual Conference & Exhibition (ACE). The 2015 ACE is being held in Raleigh's new LEED Certified Convention Center. We are glad that you have chosen to spend the week with us in the "City of Oaks", the capitol of North Carolina, which forms one point of the Research Triangle Area and is well known for technical innovation. The Triangle encompasses the largest concentration of environmental research in the world, including the U.S. Environmental Protection Agency (EPA), National Institute of Environmental Health Sciences (NIEHS), programs at North Carolina State University, University of North Carolina, and Duke University.

With EPA's four major research centers and headquarters for administering the National Air Program located in the Research Triangle Park, just 20 miles from Raleigh, this year's conference theme, Connecting the Dots: Environmental Quality to Climate, was selected to reflect the importance of showing how Climate, Air, and Waste are all connected. Our Keynote Program features a presentation by the EPA Administrator, Gina McCarthy, followed by a panel discussion with Donald van der Vaart, Secretary of North Carolina's Department of Environment and Natural Resources, Cari Boyce, Vice President of Duke Energy's Environmental and Energy Policy, and Vickie Patton, General Counsel and Manager of the Environmental Defense Fund's national and regional clean air programs. The technical program will bring views and information on air and waste topics of essential interest to a wide spectrum of professionals from industry, regulators, consultants and public interest groups. The Mini-Symposium will provide a single three-day track on a variety of environmental quality and climate issues. Tuesday's 45th Annual Critical Review presentation "Air Quality and Climate Connections" by Columbia University's Arlene Fiore and commentary by four invited discussants promise to bring new insights into some of our greatest environmental challenges. With North Carolina State University, Duke University, and the University of North Carolina only minutes away from downtown Raleigh, a wide variety of nearby student activities are planned, as well as a plethora of technical and social tours for attendees and spouses. Sonja Neiger, Director of the Women's Leadership Institute for the Impact Center, a non-profit based in Washington, D.C., will be the guest speaker for the Professional Development of Women's Luncheon. You won't want to miss the Grand Reception with North Carolina style food choices, which will feature a set of environmentally themed parodies and songs by Alexander Drive, featuring John Bachmann and other current and former EPA and NIEHS stalwarts.

Raleigh has an enjoyable temperate climate, and ever evolving downtown entertainment. Visitors are guaranteed a spectacular conference experience! Located centrally in North Carolina, Raleigh is within a two- to three-hour drive to beautiful beaches and the majestic Blue Ridge Mountains for those who want to enjoy our wonderful outdoor experiences. The North Carolina Zoo is an hour's drive west from Raleigh and the USS North Carolina Battleship offers a fascinating experience in Wilmington, a two-hour drive to the East, and very near Wrightsville Beach, on the coast. North Carolina is also known for its many wonderful golf courses, including Pinehurst, which is about a one-hour drive from Raleigh. The A&WMA Golf Tournament will be held in Raleigh on North Carolina State University's new Centennial Campus at the brand new Lonnie Poole Golf Course, designed by Arnold Palmer.

Greater Raleigh is often dubbed the "Smithsonian of the South" for having more than 40 free attractions including the recently renovated Museum of Art, the North Carolina Museum of Natural Sciences, North Carolina Museum of History, and the Marbles Kids Museum. Other attractions include the historic Oakwood Cemetery, Meymandi Concert Hall, live music and other venues within walking, hybrid bus, or even peddle-powered contrivances throughout the centrally located downtown area, including over one-hundred exclusive and varied dining destinations. In addition, the outdoor Red Hat Amphitheater, located behind the Raleigh Convention Center, offers live performances throughout the summer.

Durham, the second point of the Triangle, is the home of Duke University, Duke Gardens, Duke's Lemur Center, Durham Bulls baseball, and the Durham Performing Arts Center (DPAC) that hosts Broadway shows and other well-known entertainment. The University of North Carolina is located in Chapel Hill, which forms the third point of the Triangle.

We want to take advantage of this opportunity to thank all who have been involved over the past two years for planning the 2015 ACE. We especially thank all members of the Local Host Committee who have spent many hours to make each part of this conference a success. In addition we thank the A&WMA staff for all of their hard work and many hours spent to make the conference a success. We give a big "thank you" to our General Conference Sponsor, Duke Energy, and to all of the other sponsors and exhibitors. Without their support, this conference would not have been possible. We encourage all attendees to meet them and find out more about their businesses, services, and products. Thanks too to the A&WMA Board of Directors and A&WMA President, Dallas Baker; President Elect, Brad Waldron; Past President, Michael Miller; Chair of Technical Council, Sara Head; and volunteers on Technical Council, Education Council, and Young Professional Council for all they have done. Last, but not least, we thank Julie Brakenberry and the staff from the Greater Raleigh Convention and Visitors Bureau for their support and guidance and for working so closely with us to make this a fun and educational event.

Your Local Host Committee, A&WMA's RTP Chapter, and the South Atlantic States Section are extremely pleased to host this year's conference in Raleigh. We have planned a full schedule of technical presentations, professional development courses, great panel discussions, and fun activities. We welcome you to our beautiful city and state. Enjoy your stay!

Robert E. Hall, General Conference Chair
Rahul P. Thaker, General Conference Co-Chair

GOVERNOR WELCOME LETTER

Dear Friends,

On behalf of the State of North Carolina, it is a pleasure to welcome you to the 108th Annual Conference and Exhibition of the Air & Waste Management Association, the first one held in North Carolina. We are honored to host this meeting of environmental scientists, engineers and policy-makers from across the United States and other nations.

The work of environmental professionals contributes to the health and well-being of the general public, the economy, our quality of life and natural resources. In North Carolina, we have experienced dramatic improvements in air quality over the past decade, with the number of bad air days declining from more than 100 a year in the late 1990s to one in 2013 and none in 2014. Likewise, we have seen substantial reductions in the amounts of hazardous and solid waste generated by businesses, industries, households and institutions.

These accomplishments would not have been possible without the dedication of professionals like you. Thank you for your commitment to researching environmental problems, designing pollution control equipment, developing policies for managing and protecting resources, writing environmental permits, inspecting facilities and numerous other tasks.

Many challenges remain in our understanding of environmental systems and finding better ways to protect our air, water and land. In doing so, we also must find the right balance among protecting health, preserving the environment and fostering the economy.

I hope that you have a productive meeting and you take time to enjoy the many attractions that make North Carolina a wonderful place to live, work and raise a family.

Sincerely,

Governor Pat McCrory
State of North Carolina

MAYOR WELCOME LETTER

Greetings!

On behalf of the City of Raleigh, it is my pleasure to extend warm greetings to the participants of the Air & Waste Management Association's 108th Annual Conference & Exhibition.

Raleigh has a strong commitment to environmental, cultural and economic sustainability. There are a number of city programs and services focused on conserving and protecting our environmental resources through best practices and cutting edge conservation, land use, infrastructure and building technologies. With your conference theme focused on environmental impacts and how climate, air and waste are interconnected, Raleigh offers real world examples at work that help illustrate that interconnectivity and impact on the environment.

In addition to the technical program and information available at your conference, I hope you will find time to explore Raleigh and all it has to offer. I think you will quickly see why we are consistently ranked one of the best places to live, work and play in the country!

Welcome to Raleigh and please enjoy your time here!

With best wishes,

Nancy McFarlane
Mayor

2015 ANNUAL CONFERENCE & EXHIBITION SPONSORS

A&WMA gratefully acknowledges our sponsors for their generous support of the 108th Annual Conference & Exhibition.

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A&WMA gratefully acknowledges our sponsors for their generous support of the 108th Annual Conference & Exhibition.

General Conference Sponsor

Duke Energy, largest US electric power holding company, supplies/delivers energy to approximately 21 million people. Electric generating capacity is located in the Carolinas, Midwest and Florida; natural gas distribution in Ohio and Kentucky. Commercial and international businesses include power generation in North and Latin Americas, and renewable energy portfolio.

Platinum Sponsors

3M captures the spark of new ideas and transforms them into thousands of ingenious products. Our culture of creative collaboration inspires a never-ending stream of powerful technologies that make life better. 3M is the innovation company that never stops inventing. With $30 billion in sales, 3M employs 88,000 people worldwide and has operations in more than 70 countries. For more information, visit www.3M.com or follow @3MNews on Twitter.

The objective of NASA's Applied Science Program is to expand the realization of economic and societal benefits from Earth science, information, and technology. The program works to facilitate the assimilation of Earth observations and predictions into the decision-support tools used by partner organizations, providing essential services to society.

RTI International is one of the world's leading research institutes providing research and technical services to governments and businesses in the areas of health and pharmaceuticals, education and training, surveys and statistics, advanced technology, international development, economic and social policy, energy and the environment, and laboratory testing and chemical analysis. www.rti.org

Gold Sponsors

Amec Foster Wheeler Environment & Infrastructure, with more than 170 offices and 6,200 employees, offers engineering, environmental, and clean energy services to public and private sector clients worldwide. Our air quality experts have experience in permitting and compliance, pollution control engineering, emissions inventories, ambient monitoring, source testing, GHG and climate change consulting, risk assessments and management, accidental releases, information management and database development. Our waste management expertise goes beyond the traditional evaluation of compliance with existing rules by staff identifying waste minimization and recycling opportunities, impacts of proposed rules on client operations, best management practices, and corporate social responsibility issues.

The Bay Area Air Quality Management District is the public agency entrusted with regulating stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties.

The U.S. EPA's Air, Climate, and Energy Research Program (ACE) conducts research that provides the critical science to develop and implement Clean Air Act regulations that protect air quality. Scientists are identifying health and environmental effects of air pollutants; investigating air pollutant sources and how they are transported in the atmosphere and advancing air measurement and monitoring technology for use by communities, citizen scientists and air quality managers. Climate change research is providing new tools and approaches to effectively respond and adapt to a changing climate and protect public health and the environment. Visit: http://www2.epa.gov/air-research and http://www2.epa.gov/climate-research

Environmental Resources Management (ERM) is a leading global provider of environmental, health, safety, risk, social consulting services and sustainability related services. We have over 150 offices in 40 countries and territories employing more than 5,000 people.

The N.C. Department of Environment and Natural Resources (DENR) is the lead stewardship agency for the preservation and protection of North Carolina's natural resources. DENR administers regulatory programs designed to protect air quality, water quality, and the public's health. DENR also offers technical assistance to businesses, farmers, local governments and the public and administers environmental education programs. Through its natural resource divisions, DENR works to protect fish, wildlife and wilderness areas. The agency's activities range from helping to make sure drinking water is safe to managing state parks for safe and enjoyable outdoor recreation experiences.

Silver Sponsors

As compliance challenges with current and evolving air quality regulations and ongoing changes to waste and residuals management regulations grow, AECOM is at the forefront— tackling issues with collaboration, innovation, and advanced technology. We are a global design, construction, and consulting firm with 100,000 employees in 150 countries. We are excited to have welcomed URS into the AECOM family to enhance our capabilities to support our clients.

GET TO KNOW OUR SPONSORS

A&WMA gratefully acknowledges our sponsors for their generous support of the 108th Annual Conference & Exhibition.

The Louisiana Section of the Air and Waste Management Association is over 300 members strong located throughout the state. Meetings are held every other month and the two day Fall Conference in October is very successful. The Section is especially proud of its Young Professional group which includes several members active at the international level. We are very excited to have been selected as the host for ACE 2016 and we look forward to sharing the progress New Orleans has made in recovering from Hurricane Katrina. Laissez le bon temps rouler!

The West Coast Section (WCS) was chartered in 1957. The Charter Members included S. Smith Griswold, Robert L. Chase, Dr. W.L. Faith and Dr. Arie Haagen-Smit. The first three all went on to become International Presidents of A&WMA/APCA. The WCS has 18 Chapters, including San Diego, Channel Islands, Mojave Desert, Orange County, Mid-Pacific, plus nine student chapters at universities. As areas throughout the western U.S. (Alaska, Nevada, Mexico, Arizona, etc.) have split off to form separate Sections, WCS has adopted international Chapters in Delhi India, Singapore, Thailand and Turkey. WCS has won the Minasian Award more times than any other Section.

BMW Manufacturing Co., located in Spartanburg, S.C., is a subsidiary of BMW AG in Munich, Germany and is the global producer of the BMW X3 and X5 Sports Activity Vehicles and X4 and X6 Sports Activity Coupes. More than 1,300 vehicles are made daily in South Carolina and exported to over 140 markets, making BMW the largest U.S. automotive exporter by value. BMW is in the midst of a $1 Billion expansion to add fifth model to its product portfolio, the BMW X7. For more information on BMW Manufacturing's commitment to sustainability, visit www.bmwusfactory.com/green.

Boeing is the world's largest aerospace company and leading manufacturer of commercial jetliners and defense, space and security systems. A top U.S. exporter, the company supports airlines and U.S. and allied government customers in 150 countries. Boeing products and tailored services include commercial and military aircraft, satellites, weapons, electronic and defense systems, launch systems, advanced information and communication systems, and performance-based logistics and training. With corporate offices in Chicago, Boeing employs more than 168,000 people across the United States and in more than 65 countries.

Capital Power (TSX: CPX) is a growth-oriented North American power producer headquartered in Edmonton, Alberta. The company develops, acquires, operates and optimizes power generation from a variety of energy sources. Capital Power owns more than 3,100 megawatts of power generation capacity at 16 facilities across North America and owns 371 megawatts of capacity through a power purchase agreement. An additional 90 megawatts of owned wind generation capacity is under construction in Ontario.

Lakes Environmental Software is internationally recognized for providing state-of-the-science environmental modeling software and data service. Our environmental IT solutions include: Emissions Inventory, Air Dispersion Modeling, Ambient Air Monitoring Analytics, Human Health Risk Assessment, Regulatory Permitting and Compliance, Custom IT Solutions, Real-Time and Forecast Modeling Solutions, Meteorological Data Processing (e.g. MM5/WRF), and Training.

Bronze Sponsors

The Mississippi Chapter is a member of the A&WMA Southern Section.

Parker Poe Adams & Bernstein LLP has approximately 190 lawyers in five offices located in major markets across North Carolina and South Carolina. The Firm provides legal counsel to large commercial and public organizations on litigation, corporate and regulatory matters nationally. For more information, please visit www.parkerpoe.com.

Piedmont Natural Gas is the trusted natural gas provider for more than 1 million residential and business customers in North Carolina, South Carolina and Tennessee. We've been in operation for more than 60 years. We believe our success is due to the high-quality service we provide, and to the relationships we've formed in our communities. As an organization, we are committed to our environment, our customers, shareholders, our communities and our employees.

Trinity Consultants advises on environmental regulatory compliance and environmental management, provides BREEZE® environmental modeling software, assists with EMIS selection and implementation, and provides EH&S professional training and EH&S staffing assistance. SafeBridge Consultants, a Trinity Consultants company, provides SH&E services to the life sciences industries.

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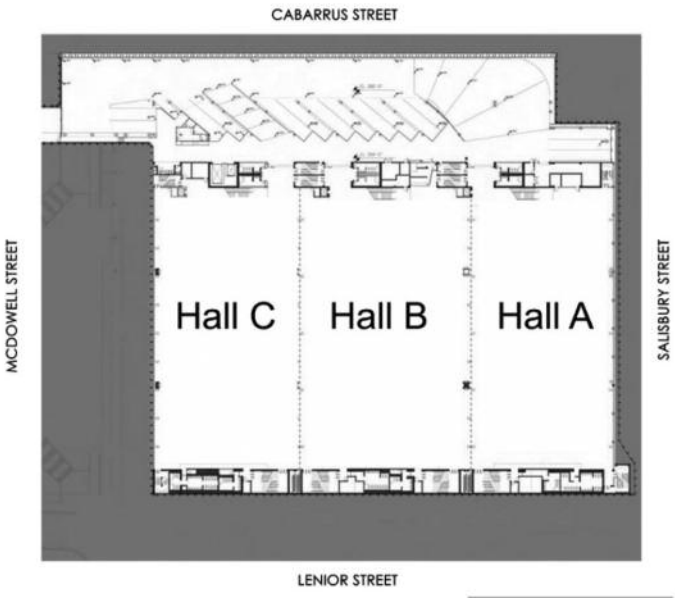
CONTINUING EDUCATION CREDITS

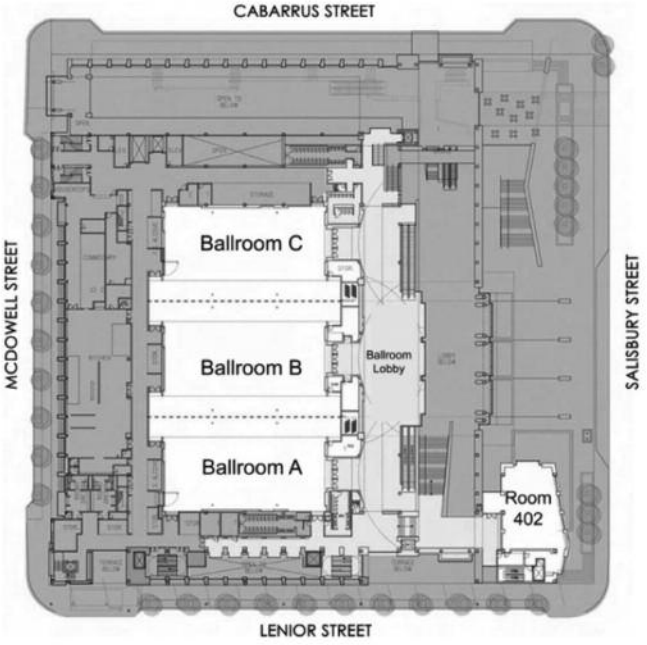
Conference attendees may be eligible for continuing education credits (eg. PDHs, CLEs) based upon their participation in events. See page 21 for more information.

RALEIGH CONVENTION CENTER

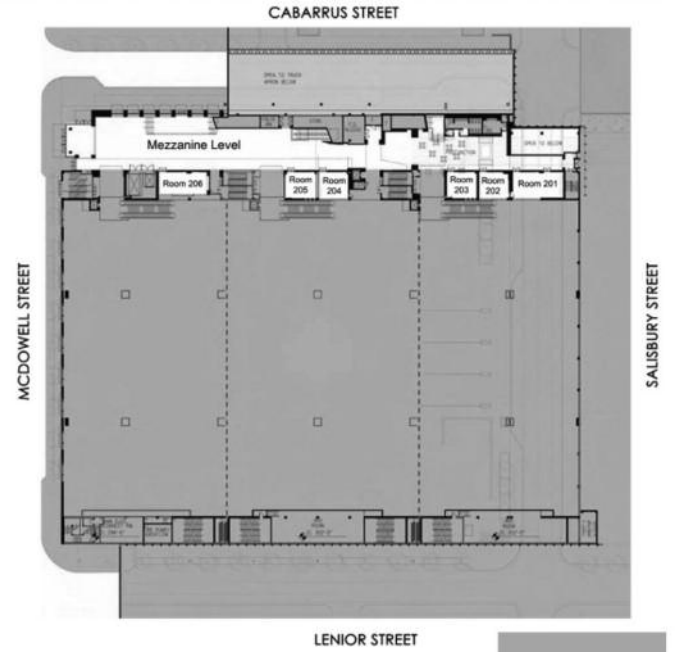
Exhibit Level



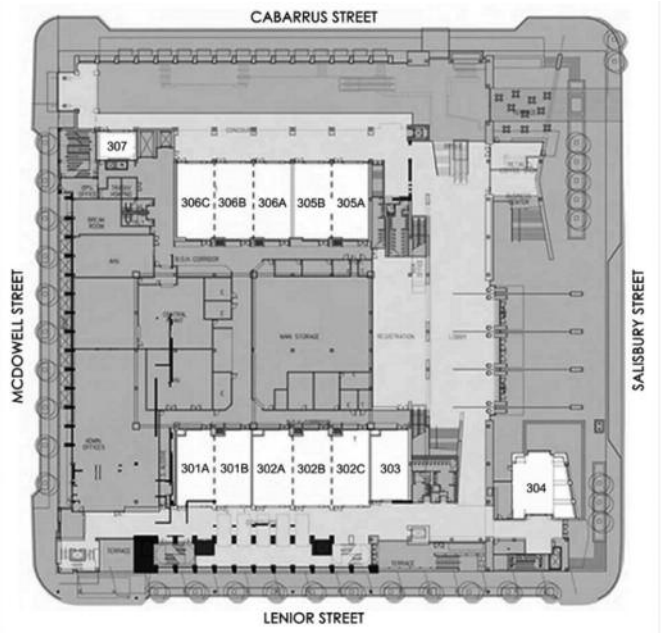
Ballroom Level



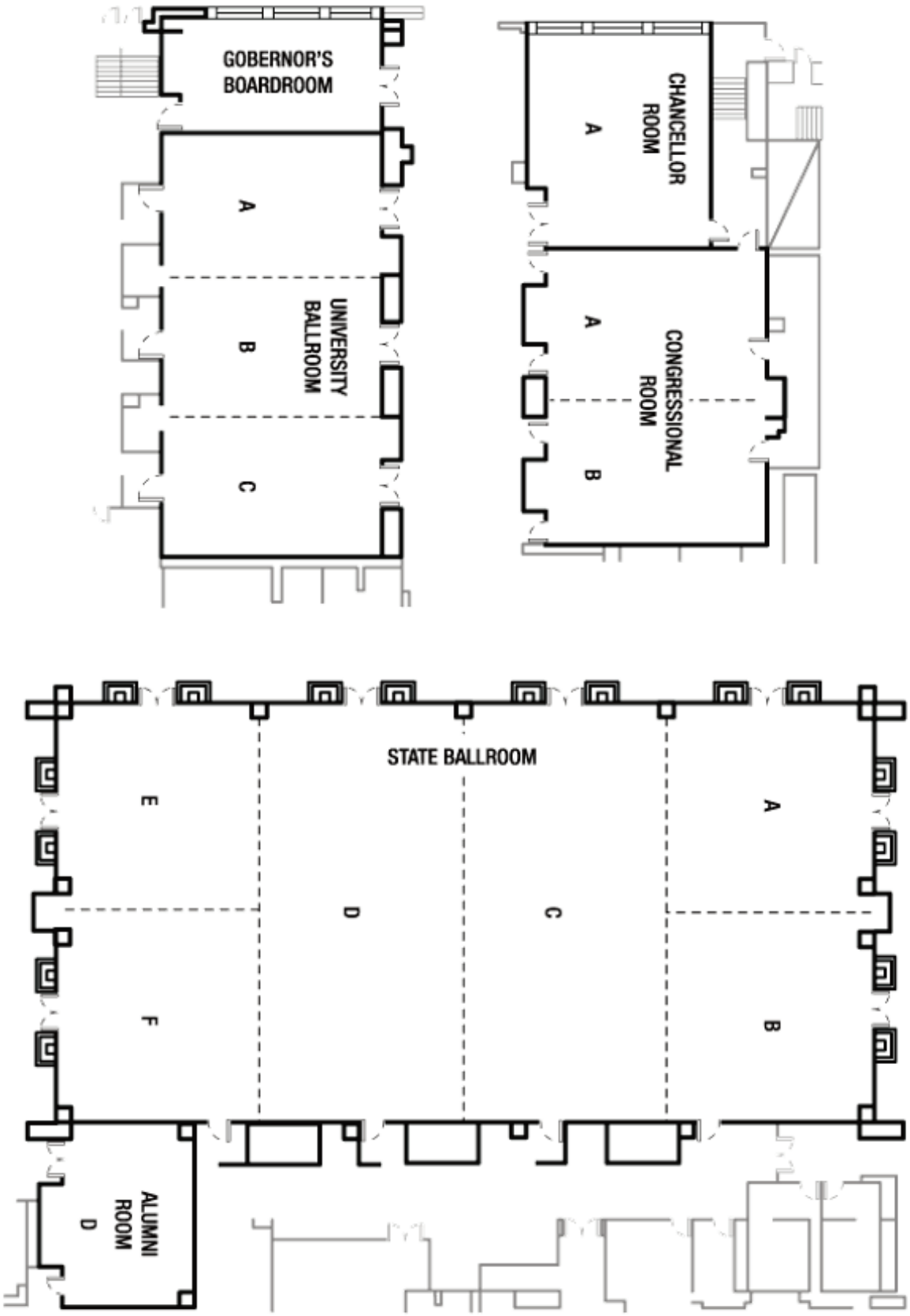
200 Level



300 Level



MARRIOTT RALEIGH CITY CENTER



DAILY SCHEDULE AT-A-GLANCE

TIME	EVENT	LOCATION		
SUNDAY - JUNE 21		**VENUE**	**ROOM NAME**	**FLOOR**
7:00 AM - 5:00 PM	Annual Conference Registration	RCC	Lobby	2nd
8:00 AM - 5:00 PM	Board of Directors Meeting	RCC	306C	3rd
8:00 AM - 5:00 PM	Professional Development Courses	RCC	Refer to Page 21	
11:30 AM	A&WMA Scholarship Golf Open	Off Site: Lonnie Poole Golf Course 11:30 am - Transportation pickup at the Raleigh Convention Center		
MONDAY - JUNE 22		**VENUE**	**ROOM NAME**	**FLOOR**
7:00 AM - 5:30 PM	Annual Conference Registration	RCC	Lobby	2nd
7:00 AM - 7:45 AM	Joint Councils' Breakfast	RCC	301AB	3rd
8:00 AM - 12:00 PM	A&WMA Lake Johnson 5K Fun Run/Walk and Fun Fest	Bus Departs at 8:00 am at the RCC on South Salisbury Street and will loop from the Conv Center and Lake Johnson until 11:30 am		
8:00 AM - 5:00 PM	Professional Development Courses	RCC	Refer to Page 21	
8:00 AM - 3:00 PM	Young Professionals Advisory Council Meeting	RCC	303	3rd
8:00 AM - 3:00 PM	Technical Council Meeting	RCC	302B	3rd
8:00 AM - 3:00 PM	Section & Chapters Council Meeting	RCC	302A	3rd
8:00 AM - 3:00 PM	Education Council Meeting	RCC	302C	3rd
8:30 AM - 4:15 PM	Air Quality Workshop for Educators	Marriott	Congressional	1st
9:00 AM - 11:30 AM	NC DOT Rail Yard and Engine Emissions Testing Technical Tour	Bus Departs at 9:00 am at the RCC on South Salisbury Street.		
9:00 AM -1:00 PM	Exhibitor Appreciation Break	RCC	Exhibit Hall AB	1st
10:30 AM - 1:00 PM	Raleigh Area Social Tour	Bus Departs at 10:30 am at the RCC on South Salisbury Street.		
12:00 PM - 1:00 PM	Joint Councils' Lunch	RCC	301AB	3rd
1:00 PM - 4:00 PM	Technical Poster Setup	RCC	Side Foyer	3rd
2:45 PM - 5:00 PM	Keynote Presentation	RCC	Ballroom BC	4th
5:00 PM - 6:30 PM	Exhibition Grand Opening Networking Reception	RCC	Exhibit Hall AB	1st
6:30 PM - 8:00 PM	EPA Alumni Reception	RCC	304	3rd
TUESDAY - JUNE 23		**VENUE**	**ROOM NAME**	**FLOOR**
7:00 AM - 5:30 PM	Annual Conference Registration	RCC	Lobby	2nd
7:00 AM - 5:00 PM 7:00 AM - 7:30 AM 12:30 PM - 1:00 PM	Monitors Room AM INSTRUCTION PM INSTRUCTION	RCC	205	2nd
7:30 AM - 8:45 AM	Social Program Breakfast	RCC	202	2nd
7:30 AM - 9:00 AM	Technical Coordinating Committee Meetings	RCC	Refer to Page 14	
8:00 AM - 5:00 PM	Technical Program Resource Center	RCC	204	2nd
8:00 AM - 9:00 AM	Young Professionals' Mentor Breakfast	RCC	304	3rd
8:00 AM - 10:00 AM	Technical Poster Setup	RCC	Side Foyer	3rd
8:30 AM - 4:15 PM	Air Quality Workshop for Educators	Marriott	Congressional	1st
9:00 AM - 10:00 AM	Session Break / Exhibition	RCC	Exhibit Hall AB	1st
9:00 AM - 11:00 AM	Membership Committee Meeting	RCC	203	2nd
9:00 AM - 11:45 AM	Critical Review	RCC	Ballroom BC	4th
9:00 AM - 4:30 PM	Durham Area Social Tour	Bus Departs at 9:00 am at the RCC on South Salisbury Street.		
9:00 AM - 5:30 PM	Exhibition Hours	RCC	Exhibit Hall AB	1st
10:00 AM - 11:45 AM	Technical Poster Session	RCC	Foyer near 305A	3rd
10:00 AM - 11:45 AM	Technical Poster Presentation Room	RCC	305A	3rd

RCC - Raleigh Convention Center

DAILY SCHEDULE AT-A-GLANCE

TIME	EVENT	LOCATION		
TUESDAY - JUNE 23		**VENUE**	**ROOM NAME**	**FLOOR**
10:30 AM - 1:15 PM	The Committee for the Professional Development of Women Luncheon and Meeting	RCC	304	3rd
11:00 AM - 12:00 PM	Visibility Conference Steering Committee Planning Meeting	RCC	301A	3rd
11:30 AM - 1:30 PM	Past Presidents' Lunch	RCC	202	2nd
11:30 AM - 12:30 PM	Student Welcome Reception	RCC	Exhibit Hall AB	1st
11:45 AM - 1:15 PM	Technical Coordinating Committee Meetings	RCC	Refer to Page 14	
12:00 PM - 2:00 PM	Technical Poster Teardown	RCC	Foyer near 305A	3rd
12:30 PM - 1:30 PM	Academia 101: How to Apply For and Get a Faculty Position	RCC	301A	3rd
1:30 PM - 2:30 PM	ACE 101: Conference Introductory Panel for Young Professionals	RCC	301A	3rd
2:00 PM - 2:30 PM	ECi Poster Set Up	RCC	Exhibit Hall AB	1st
2:00 PM - 2:30 PM	Student Poster Competition Set Up	RCC	Exhibit Hall AB	1st
2:30 PM - 5:30 PM	ECi Poster Judging	RCC	Exhibit Hall AB	1st
2:30 PM - 5:30 PM	Student Poster Competition Judging	RCC	Exhibit Hall AB	1st
1:00 PM - 5:00 PM	US EPA Technical Tour	Bus Departs at 1:00 pm at the RCC on South Salisbury Street.		
1:20 PM - 3:00 PM	Technical Sessions	RCC	Refer to Page 54	
1:20 PM - 5:40 PM	Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	402	4th
2:00 PM - 3:00 PM	Honors & Awards Rehearsal	RCC	Ballroom BC	4th
3:00 PM - 4:00 PM	Session Break / Exhibition	RCC	Exhibit Hall AB	1st
3:00 PM - 4:00 PM	Scholarship Trustees	Marriott	Chancellor	1st
3:00 PM - 4:00 PM	Critical Review Committee	Marriott	University Ballroom A	1st
4:00 PM - 5:40 PM	Technical Sessions	RCC	Refer to Page 54	
5:00 PM - 6:00 PM	Scouting Jamboree Committee	RCC	301A	3rd
6:00 PM - 6:30 PM	A&WMA Annual Business Meeting	RCC	304	3rd
6:30 PM - 8:00 PM	Grand Reception	RCC	Main Lobby	3rd
WEDNESDAY - JUNE 24		**VENUE**	**ROOM NAME**	**FLOOR**
7:00 AM - 5:00 PM	Annual Conference Registration	RCC	Lobby	2nd
7:00 AM - 6:30 PM	Technical Program Resource Center	RCC	204	2nd
7:00 AM - 5:00 PM 7:00 AM - 7:30 AM 12:30 PM - 1:00 PM	Monitors Room AM INSTRUCTION PM INSTRUCTION	RCC	205	2nd
7:30 AM - 8:30 AM	AAEES / AEESP / A&WMA Meet & Greet	RCC	301A	3rd
7:30 AM - 8:45 AM	Social Program Breakfast	RCC	202	2nd
8:00 AM - 9:40 AM	Technical Sessions Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	Refer to Page 54	
8:30 AM - 9:30 AM	Exhibitors Meeting	RCC	Exhibit Hall AB	1st
8:30 AM - 9:30 AM	Joint Meeting of the Publications Committee, Editorial Advisory Committee, and Editorial Review Board	Marriott	Congressional	1st
8:40 AM - 2:30 PM	NC State Hunt Library, FREEDM Center, and Civil, Construction, and Environmental Engineering Lab (CCEE LAB) Technical Tour	Bus Departs at 8:40 am at the RCC on South Salisbury Street.		
8:50 AM - 12:15 PM	NC University Hunt Library, Meymandi Concert Hall, and Fletcher Theatre Social Tour	Bus Departs at 8:50 am at the RCC on South Salisbury Street.		
9:00 AM - 5:00 PM	IPEP Exams	Marriott	Chancellor	1st
9:00 AM - 11:00 AM	Career Panel Discussion	RCC	304	3rd
9:30 AM - 11:30 AM	Editorial Review Board	Marriott	Congressional	1st
9:30 AM - 4:00 PM	Exhibition Hours	RCC	Exhibit Hall AB	1st
9:40 AM - 10:20 AM	Session Break / Exhibition	RCC	Exhibit Hall AB	1st
10:20 AM - 12:00 PM	Technical Sessions Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	Refer to Page 54	

DAILY SCHEDULE AT-A-GLANCE

TIME	EVENT	LOCATION		
WEDNESDAY - JUNE 24		**VENUE**	**ROOM NAME**	**FLOOR**
11:15 AM - 12:00 PM	Speed Networking	RCC	304	3rd
12:15 PM - 1:45 PM	Honors & Awards Luncheon	RCC	Ballroom BC	4th
1:30 PM - 4:00 PM	NC Museum of Art and Downtown Museum Tours	Bus Departs at 1:30 pm at the RCC on South Salisbury Street.		
2:00 PM - 3:20 PM	Technical Sessions Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	Refer to Page 54	
2:00 PM - 4:00 PM	EM Editorial Advisory Committee	Marriott	Congressional	1st
2:00 PM - 4:00 PM	ECi Presentations	RCC	304	3rd
2:30 PM - 3:30 PM	Student Chapters Exchange	RCC	301A	3rd
3:00 PM - 4:00 PM	Exhibitor Happy Hour	RCC	Exhibit Hall AB	1st
4:00 PM - 5:40 PM	Technical Sessions Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	Refer to Page 54	
4:00 PM - 5:00 PM	Publications Committee	Marriott	Congressional	1st
4:00 PM	Exhibits Teardown	RCC	Exhibit Hall AB	1st
4:00 PM - 5:00 PM	The Committee for the Professional Development of Women Networking Reception	RCC	Foyer outside 306C	3rd
5:00 PM - 6:00 PM	Student Awards Ceremony & Reception	RCC	304	3rd
6:00 PM - 7:00 PM	Councils' Reception	RCC	402	4th
7:00 PM - 9:30 PM	Student/Young Professionals' Social	Off Site: Natty Greene's		
THURSDAY - JUNE 25		**VENUE**	**ROOM NAME**	**FLOOR**
7:30 AM - 5:00 PM	Annual Conference Registration	RCC	Lobby	2nd
7:30 AM - 5:00 PM	Technical Program Resource Center	RCC	204	2nd
7:00 AM - 5:00 PM 7:00 AM - 7:30 AM 12:30 PM - 1:00 PM	Monitors Room AM INSTRUCTION PM INSTRUCTION	RCC	205	2nd
7:30 AM - 8:45 AM	Social Program Breakfast	RCC	202	2nd
8:00 AM - 9:40 AM	Technical Sessions Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	Refer to Page 54	
8:30 AM - 12:00 PM	IPEP Board of Trustee Meeting	RCC	203	2nd
9:40 AM - 10:00 AM	Session Break	RCC	Main Lobby	3rd
10:00 AM - 11:40 AM	Technical Sessions Mini-Symposium: Regulatory Directions — Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook	RCC	Refer to Page 54	
11:45 PM - 1:15 PM	Technical Coordinating Committee Meetings	RCC	Refer to Page 14	
1:20 PM - 3:00 PM	Technical Sessions	RCC	Refer to Page 54	
3:00 PM - 3:20 PM	Session Break	RCC	Main Lobby	3rd
3:20 PM - 4:40 PM	Technical Sessions	RCC	Refer to Page 54	
4:00 PM - 5:00 PM	IPEP Annual Meeting	RCC	402	4th
4:45 PM - 5:15 PM	2016 ACE Planning Meeting	RCC	301A	3rd
5:15 PM - 6:00 PM	Technical Council Meeting	RCC	301A	3rd

TECHNICAL COUNCIL AND TECHNICAL COORDINATING COMMITTEE MEETINGS

The Technical Council provides the technical expertise to determine and produce the technical programs at annual meetings and specialty conferences; report on state-of-the-art technology and on environmental issues, peer-review articles and publications. The Council is divided into four groups: Air Group, Environmental Management Group, Sustainability, Climate Change, Resource Conservation and Waste Management Group, and Industrial, Government, and Public Sectors Group. These groups are comprised of 10 divisions; the divisions are further divided into technical coordinating committees (TCCs). Stop by the Technical Program Booth in the 2nd Level Lobby near Registration of the Raleigh Convention Center to learn more about opportunities to participate. The following meetings are planned for Technical Council in the Raleigh Convention Center (RCC):

- Technical Council Meeting, Monday, June 22, 2015, 8:00am – 3:00pm, RCC 302B, 3rd Floor
- Non-ACE Programming Task Force, Refer to Final Program Addendum
- ACE2016 Planning Meeting, Thursday, June 25, 2015, 4:45pm – 5:15pm, RCC 301A, 3rd Floor
- Technical Council ACE Wrap-Up Session, Thursday, June 25, 2015, 5:15pm – 6:00pm, RCC 301A, 3rd Floor

The Technical Council Divisions and Technical Coordinating Committees (TCCs) are as follows:

Divisions	Division Names	TCCs
AA	Measurements, Monitoring, and Controls Division	AAM, AAE, AAC
AP	Atmospheric Process Division	APP, APC, APM, APV
EE	Effects & Exposure Division	HEE, RAM, ODR
EP	Program Administration Division	REG, EPE, PUB
ET	Transportation Division	OMS, PLU, CNV
SR	Sustainability and Resource Conservation Division	SUS, SRC
CC	Climate Change Impacts, Mitigation and Adaption Division	CCP, CCI
WM	Waste Management/Processing, Waste-to-Energy and Bioenergy Division	WMB, WMR
IP	Industrial Processes and Sectors Division	CHE, IFB, MIN
GP	Government Facilities and Public Sectors Division	FED, IEA, PWR
ITF	Inter-Committee Task Forces	NAN, PRG

GET INVOLVED! To become involved in one or more of the TCCs, attend one or more of the committee meetings in Raleigh or contact the appropriate Division or TCC Chair, or visit the Technical Council Booth if interested. All A&WMA members are welcome to attend. Division and TCC Meetings have been scheduled as shown below:

Date and Time	Division and/or TCC	Room Number
Tuesday, June 23, 2015, 7:30am-9:00am	**AAE** (Measurements, Monitoring, Emissions Inventory & Applications)	302A
Tuesday, June 23, 2015, 11:45am-1:15pm	**APM** (Atmospheric Modeling & Meteorology), **APP** (Particulate Matter)	301B
	AAM (Measurement Techniques & Instrumentation)	302A
	ODR (Odors)	302B
	HEE (Health Effects and Exposures), **RAM** (Risk Assessment & EHS Management)	302C
	CHE (Chemical Petroleum), **IFB** (Industrial Furnaces & Boilers) **MIN** (Mineral Extraction & Processing)	305A/B
	FED (Federal Facilities), **IEA** (Indigenous Environmental Affairs), **PWR** (Power Generation & Renewable Energy)	305A/B
	SRC (Resource Conservation), **SUS** (Sustainability)	306A
Thursday, June 25, 2015, 11:45am-1:15pm	**NAN** (Nanoparticles Inter-Committee Task Force)	201
	APC (Atmospheric Chemistry), **APV** (Visibility & Radiative Transfer)	301B
	AAC (Control Technologies)	302A
	EPE (Economics, Partnership & Environmental Leadership), **PUB** (Public Participation), **REG** (Regulations, Legal Issues & Permitting)	305A
	CCI (Climate Change Impacts & Adaptation) **CCP** (Climate Change Policy, Strategy & Regulations)	306A
	CNV (Community Noise & Vibration), **OMS** (On & Off Road Mobile Sources) **PLU** (Transportation Policies & Land Use)	306B
	WMB (Waste Resource Recovery, Processing & Bioenergy) **WMR** (Waste Characterization & Site Remediation)	306C

TECHNICAL COORDINATING COMMITTEES

TCC Title	Old TCC Code	New TCC Code	Division	Division Code	Group
Particulate Matter	AB-1	APP	Atmospheric Processes Division	AP	Air Group
Atmospheric Chemistry	AB-2	APC	Atmospheric Processes Division	AP	Air Group
Atmospheric Modeling and Meterology	AB-3	APM	Atmospheric Processes Division	AP	Air Group
Visibility and Radiative Transfer	AB-6	APV	Atmospheric Processes Division	AP	Air Group
Measurement Techniques and Instrumentation	AM-3, AM-4, AO-1, AO-2 & AO-3	AAM	Measurements, Monitoring, and Controls Division	AA	Air Group
Measurements, Monitoring, Emission Inventory and Applications	AM-1,5	AAE	Measurements, Monitoring, and Controls Division	AA	Air Group
Control Technologies	AE-1 & AE-2	AAC	Measurements, Monitoring, and Controls Division	AA	Air Group
Health Effects & Exposure	AT-1, AT-3, EE-1 & AB-7	HEE	Effects & Exposure Division	EE	Environmental Management Group
Risk Assessment & EHS Management	EE-5 & EP-8	RAM	Effects & Exposure Division	EE	Environmental Management Group
Odors	EE-6	ODR	Effects & Exposure Division	EE	Environmental Management Group
Regulations, Legal Issues, and Permitting	EP-1 & EP-3	REG	Program Administration Division	EP	Environmental Management Group
Economics, Partnering, and Environmental Leadership	EP-2	EPE	Program Administration Division	EP	Environmental Management Group
Public Participation	EP-4 & EP-5	PUB	Program Administration Division	EP	Environmental Management Group
On & Off Road Mobile Sources	ET-1	OMS	Transportation Division	ET	Environmental Management Group
Transportation Policies & Land Use	ET-2	PLU	Transportation Division	ET	Environmental Management Group
Community Noise & Vibration	ET-3	CNV	Transportation Division	ET	Environmental Management Group
Sustainability	ES-4	SUS	Sustainability and Resource Conservation Division	SR	Sustainability, Climate Change, Resource Conservation and Waste Management Group
Resource Conservation	WM-1 & ES-1	SRC	Sustainability and Resource Conservation Division	SR	Sustainability, Climate Change, Resource Conservation and Waste Management Group
Climate Change Policy, Strategy, and Regulations	ES-5	CCP	Climate Change Impacts, Mitigation and Adaption Division	CC	Sustainability, Climate Change, Resource Conservation and Waste Management Group
Climate Change Impacts and Adaption	ES-5	CCI	Climate Change Impacts, Mitigation and Adaption Division	CC	Sustainability, Climate Change, Resource Conservation and Waste Management Group
Waste Resource Recovery, Processing, and Bioenergy	WM-3 & WM-4	WMB	Waste Processing, Waste-to-Energy and Bioenergy Division	WM	Sustainability, Climate Change, Resource Conservation and Waste Management Group
Waste Characterization and Site Remediation	WR-1 & WR-2	WMR	Waste Processing, Waste-to-Energy and Bioenergy Division	WM	Sustainability, Climate Change, Resource Conservation and Waste Management Group
Chemical Petroleum	EI-4	CHP	Industrial Processes and Sectors Division	IP	Industrial, Government, and Public Sectors Group
Industrial Furnaces & Boilers	EI-3	IFB	Industrial Processes and Sectors Division	IP	Industrial, Government, and Public Sectors Group
Mineral Extraction & Processing	EI-5 & EI-6	MIN	Industrial Processes and Sectors Division	IP	Industrial, Government, and Public Sectors Group
Power Generation & Renewable Energy	EI-2 & EI-7	POW	Government Facilities and Public Sectors Division	GP	Industrial, Government, and Public Sectors Group
Federal Facilities	EI-1	FED	Government Facilities and Public Sectors Division	GP	Industrial, Government, and Public Sectors Group
Indigenous Environmental Affairs	ITF-11	IEA	Government Facilities and Public Sectors Division	GP	Industrial, Government, and Public Sectors Group
Nanoparticles ITF	ITF-13	NAN		ITFs	Inter-Committee Task Forces
Non-ACE Technical Programs ITF	ITF-12	PRG		ITFs	Inter-Committee Task Forces

GENERAL INFORMATION

Registration Hours
Raleigh Convention Center (Lobby-2nd fl)

Sunday, June 21	7:00 am – 5:00 pm
Monday, June 22	7:00 am – 5:30 pm
Tuesday, June 23	7:00 am – 5:30 pm
Wednesday, June 24	7:00 am – 5:00 pm
Thursday, June 25	7:30 am – 5:00 pm

A&WMA Booth
The A&WMA Booth, consisting of the Resource Center and the Store, will be located beside Registration this year. The hours are 8 am to 5 pm Monday, Tuesday, and Wednesday. Come check out the latest information on the Association and take advantage of the special reduced prices of all of A&WMA's products.

Raleigh Local Host Booth
Raleigh Convention Center (Lobby-2nd fl)

Monday, June 22	7:00 am - 5:00 pm
Tuesday, June 23	7:00 am – 5:00 pm
Wednesday, June 24	7:00 am – 5:00 pm
Thursday, June 25	7:30 am – 5:00 pm

Business Center
There is no Business Center within the Raleigh Convention Center. Please use the business center at your hotel.

Technical Program Booth
Raleigh Convention Center (Lobby-2nd fl)
Technical Program – How Can We Make It Better?
How do I find experts in my field to talk to one-on-one? How can I learn about innovative techniques months before the Annual Conference? How can I help plan a great technical session for next year's Annual Conference and other A&WMA Events? Stop by the Technical Program Booth in the Raleigh Convention Center to learn more from the Technical Council leaders and find out how you can participate in developing the Technical Program. All volunteers are welcome.

Hours:
Tuesday – Thursday 8:00 am – 3:00 pm

Exhibition Hours
Raleigh Convention Center (Exhibition Hall AB)

Monday, June 22	5:00 pm – 6:30 pm
Tuesday, June 23	9:00 am – 5:30 pm
Wednesday, June 24	9:30 am – 4:00 pm

Conference Proceedings
Sponsored by: Lakes Environmental
The conference proceedings containing papers and presentations from ACE 2015 will be available online to all attendees with a Full Registration, Daily Registration, Value Registration, Speaker/Session Chair/Instructor Registration, Government Registration, Sponsor Registration, Technical Registration, or Student Registration. All other attendees and non-attendees may purchase the proceedings after the conference. Attendees will be notified via e-mail when the online proceedings are available and be provided a link and password to log on.

Monitor Room
Raleigh Convention Center (Room 205)
For those of you that have been assigned to monitor a technical session, please report to the monitor room to receive your materials and instructions. Plan to attend the instructional session on the same day as your monitor duties. If you are monitoring a morning session, attend the 7:00 am – 7:30 am training session (Tuesday-Thursday). Afternoon monitors should attend the 12:30 pm – 1:00 pm training session (Tuesday-Thursday).

Technical Program Resource Center
Raleigh Convention Center (Room 204)
Do you have a session that you want to propose for next year's annual conference? Come by the Technical Program Resource Center to share your ideas for the 2016 Technical Program. New ideas for the 2016 annual conference will be accepted until 12:00 pm (noon) on Thursday, June 25th. The Technical Program Resource Center is also available for authors to preview their presentations and session chairs to print out presenter bios.

Tuesday, June 23	11:00 am – 5:00 pm
Wednesday, June 24	8:00 am – 5:00 pm
Thursday, June 25	8:00 am – 5:00 pm

Concessions
Concessions will be opened to grab a bite to eat during lunch times in the exhibit hall.

Tuesday, June 23	10:30 am – 2:30 pm
Wednesday, June 24	10:30 am – 2:30 pm

Session Breaks:
Raleigh Convention Center (Exhibition Hall AB – Tues/Wed & *Main Lobby-3rd Fl - Thurs)

Tuesday, June 23
9:00 am – 10:00 am Continental Breakfast, Sponsored by BMW
3:00 pm – 4:00 pm

Wednesday, June 24
9:40 am – 10:20 am
3:00 pm – 4:00 pm (Exhibitor Happy Hour)

Thursday, June 25*
9:40 am – 10:00 am*
3:00 pm – 3:20 pm*

KEYNOTE PRESENTATION

Monday, June 22 • 2:45 pm – 5:00 pm
Ballroom BC, Raleigh Convention Center, 4th Floor

Sponsored by: 3M

Gina McCarthy
Administrator, U.S. Environmental Protection Agency

Appointed by President Obama in 2009 as Assistant Administrator for EPA's Office of Air and Radiation, Gina McCarthy has been a leading advocate for common-sense strategies to protect public health and the environment. Previously, McCarthy served as the Commissioner of the Connecticut Department of Environmental Protection. During her career, she has worked at both the state and local levels on critical environmental issues and helped coordinate policies on economic growth, energy, transportation, and the environment.

Keynote Session Panel

Donald R. van der Vaart
Secretary, N.C. Department of Environment and Natural Resources

Gov. Pat McCrory named Donald R. van der Vaart Secretary of the N.C. Department of Environment and Natural Resources effective Jan. 1, 2015. Since Aug. 2014, van der Vaart has served as DENR's deputy secretary, and as the department's energy policy advisor. Before becoming deputy secretary and energy policy advisor, van der Vaart worked as an engineering supervisor and later as program manager for the N.C. Division of Air Quality. He also teaches environmental policy and law at N.C. State University. His previous work includes scientific research at Virginia Polytechnic Institute and State University and at Research Triangle Institute. Van der Vaart also has experience in research and regulatory positions for energy and utility companies in the private sector. Van der Vaart holds a doctorate in Chemical Engineering from the University of Cambridge (England), a law degree from North Carolina Central University, a master's degree in Chemical Engineering from N.C. State University, and a bachelor's degree in Chemistry from the University of North Carolina at Chapel Hill. He is a licensed Professional Engineer and attorney in North Carolina. He has published numerous technical and legal articles and holds two patents.

Cari P. Boyce
Vice President, Environmental and Energy Policy
Duke Energy

Cari Boyce serves as vice president of environmental and energy policy for Duke Energy. Her team is responsible for coordinating the development and communication of the company's position on federal and state environmental and energy policy issues, and for assuring that environmental and energy policy are fully integrated and aligned with the company's business operations. She was named to this role in July 2012.

Boyce previously served as vice president of corporate communications for Progress Energy, a position she held since January 2009. Boyce joined Progress Energy in 2006, initially serving in the role of director, external communications.

Prior to her employment at Progress Energy, Boyce served as the director of external affairs for the North Carolina governor's office, where she was responsible for managing the federal and regional offices for the governor, as well as the governor's press office. She has also served as the director of communications for the North Carolina governor; senior advisor for policy and communications for the North Carolina attorney general; and as a legislative assistant in the New York State General Assembly.

A native of Ticonderoga, N.Y., Boyce earned a Bachelor of Arts degree in political science and history from Siena College. She also earned a Master of Education degree from North Carolina State University.

Vickie Patton
General Counsel
Environmental Defense Fund

Vickie Patton serves as Environmental Defense Fund's General Counsel and manages the organization's national and regional clean air programs. For over two decades, she has worked to protect human health and the environment from air pollution. She has been involved in numerous rulemakings under the Clean Air Act and associated cases (including several successful cases before the U.S. Supreme Court), testified before congressional and state legislative committees, and authored a variety of articles on air quality protection and environmental policy. Prior to joining Environmental Defense Fund, she worked in the U.S. Environmental Protection Agency's Office of General Counsel in Washington, D.C., where she provided legal counsel on national air quality initiatives. She has received a number of awards for her work and in 2011 received the Air & Waste Management Association's Richard Beatty Mellon Environmental Stewardship Award.

45TH ANNUAL CRITICAL REVIEW

Air Quality and Climate Connections

Lead author and presenter: Arlene Fiore, Columbia University and Lamont-Doherty Earth Observatory

Co-authors: Vaishali Naik, NOAA Geophysical Fluid Dynamics Laboratory; and Eric Leibensperger, State University of New York at Plattsburgh

Tuesday, June 23 • 9:00 am – 11:45 am
Ballroom BC, Raleigh Convention Center, 4th Floor
Sponsored by: AECOM

Multiple linkages connect air quality and climate change. Many air pollutant sources also emit carbon dioxide (CO_2), the dominant greenhouse gas (GHG). The two main contributors to non-attainment of U.S. ambient air quality standards—ozone (O_3) and particulate matter (PM)—interact with radiation, forcing climate change. PM warms by absorbing sunlight (e.g., black carbon) or cools by scattering sunlight (e.g., sulfates) and interacts with clouds; these radiative and microphysical interactions can induce changes in precipitation and regional circulation patterns. Climate change is expected to degrade air quality in many polluted regions by changing air pollution meteorology (i.e., ventilation and dilution), precipitation, and other removal processes, and by triggering some amplifying responses in atmospheric chemistry, anthropogenic, and natural sources. Together, these processes shape distributions and extreme episodes of O_3 and PM. Global modeling indicates that as air pollution programs reduce sulfur dioxide (SO_2) to meet health and other air quality goals, near-term warming accelerates due to "unmasking" of warming induced by rising CO_2. Air pollutant controls on methane, (CH_4), a potent GHG and precursor to global O_3 levels, and sources with high black to organic carbon ratios could offset near-term warming induced by SO_2 emission reductions, while reducing global background O_3 and regionally high levels of PM. Lowering peak warming requires decreasing atmospheric CO_2, which for some source categories would also reduce co-emitted air pollutants or their precursors. Model projections for alternative climate and air quality scenarios indicate a wide range for U.S. surface O_3 and $PM_{2.5}$, although regional projections may be confounded by inter-annual to decadal natural climate variability. Continued implementation of U.S. nitrogen oxides (NOx) emission controls guards against rising pollution levels triggered either by climate change or by rising global emissions. Improved accuracy and trends in emission inventories are critical for accountability analyses of historical and projected air pollution and climate mitigation policies.

45TH ANNUAL CRITICAL REVIEW

About the Authors

Arlene M. Fiore is an associate professor in the Department of Earth and Environmental Sciences at Columbia University and Lamont-Doherty Earth Observatory. Her research areas include understanding local-to-global sources of regional air pollution, both anthropogenic and natural, as well as connections between climate, global atmospheric chemistry, and air pollution. In addition to scientific publications in these areas, she contributed to the 2006 U.S. Environmental Protection Agency (EPA) Criteria Document and the 2012 Integrated Science Assessment for the Ozone National Ambient Air Quality Standards (NAAQS), led a multi-model study on intercontinental transport of ozone under the UNECE Task Force on Hemispheric Transport of Air Pollution, and contributed to the associated reports in 2007 and 2010. Dr. Fiore was a lead author of Chapter 11 and WG1 Annex II of the Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5). She currently serves on the IGAC/SPARC Chemistry-Climate Modeling Initiative steering committee, is a principal investigator on the NASA Air Quality Applied Sciences Team, and a new member of the National Academy of Science's Board on Atmospheric Sciences and Climate.

Vaishali Naik is a scientist in the Atmospheric Chemistry & Climate Group at NOAA's Geophysical Fluid Dynamics Laboratory. Her research centers on gaining a better understanding of the interactions between the atmospheric chemical composition and climate. She applies global chemistry-climate models and observations to assess how natural and anthropogenic activities perturb the atmospheric composition and climate. Dr. Naik is a contributing author on Chapter 11 and WG1 Annex II of the Intergovernmental Panel on Climate Change Assessment Report 5 (IPCC AR5). She also contributed to the recently conducted Atmospheric Chemistry-Climate Model Intercomparison Project (ACCMIP) that aimed to better quantify the role of short-lived pollutants in the climate system.

Eric M. Leibensperger is an assistant professor in the Center for Earth and Environmental Science at the State University of New York at Plattsburgh. Dr. Leibensperger's research interests include atmospheric chemistry, atmospheric dynamics, and interactions between air quality and climate change. He has extensive experience using observations and modeling results to project and test the impact of climate change on air quality. He has published on the local to hemispheric air quality and climate impacts of U.S. air pollution. In addition to his research pursuits, Dr. Leibensperger is an active educator, teaching introductory and advanced courses on atmospheric science, oceanography, climate change, and scientific communication.

Invited Discussants

Following the review presentation, a panel of invited experts will critique the presentation and the authors' conclusions, and will offer their views on the topic. This year's invited discussants are:

- John D. Bachmann, Vision Air Consulting, LLC, and 2015 Local Host Committee Liaison to the Critical Review Committee;
- J. Jason West, Department of Environmental Sciences and Engineering, University of North Carolina;
- Howard J. Feldman, American Petroleum Institute; and
- David McCabe, Clean Air Task Force.

Join the Discussion

Comments also will be solicited from the floor and from written submissions to the Critical Review Committee Chair. The Chair will then synthesize these points into a Discussion Paper that will be published in the November 2015 issue of Journal of the Air & Waste Management Association (JA&WMA). Comments should be submitted in writing to Michael T. Kleinman, Critical Review Committee Chair, at mtkleinm@uci.edu by no later than July 30, 2015.

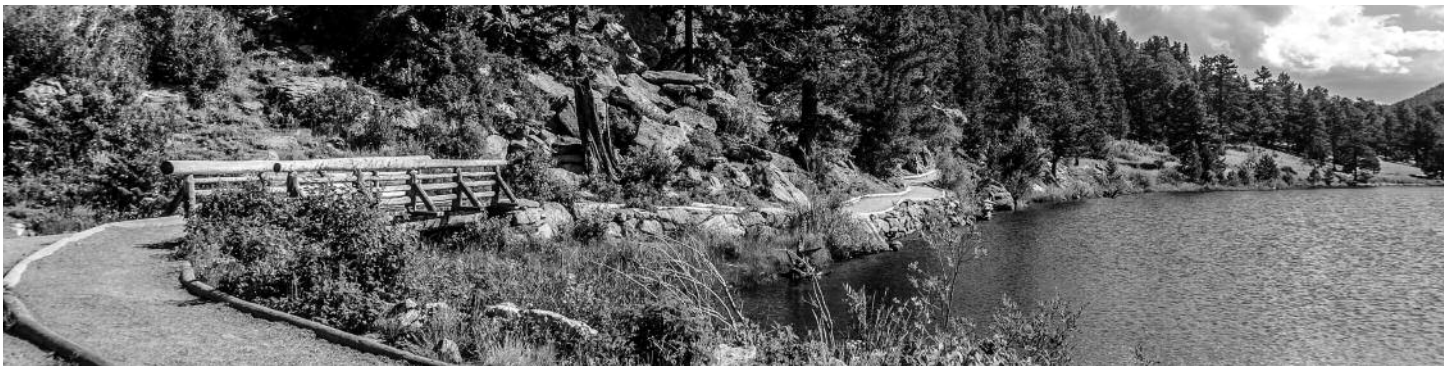
2015 Critical Review Committee

Michael T. Kleinman, Chair
A. Gwen Eklund, Immediate Past Chair (2013–2014)
George Hidy, Past Chair (2009–2012)
Judith Chow, Past Chair (2001–2008)
John Watson, Past Chair (1994–2000)
Sam L. Altshuler
Prakash Doraiswamy
Marcel Halberstadt
Naresh Kumar
Luis Diaz-Robles
Peter Mueller
Eric Stevenson
Abhilash Vijayan
Patricia A. Brush, Technical Council Liaison
John Bachmann, 2015 Local Host Committee Liaison

Get involved with the Critical Review Committee and help further our scientific understanding by attending the Annual Meeting of the Critical Review Committee on Tuesday, June 23, 2015, Room: University Ballroom A, 1st Floor, Raleigh Marriott, at 3:00 pm – 4:00 pm

MINI-SYMPOSIUM:

Regulatory Directions—Environmental Benefits, Climate Change, Social Impacts, and Future Outlook



Tuesday, June 23 - Thursday, June 25

This special mini-symposium is focused on U.S. regulatory policy in air quality and climate change, with an emphasis on current regulatory directions, environmental issues, and climate change impacts. This mini-symposium will examine recent regulatory developments and their implications for both environmental management and the national economy. The mini-symposium will consist of a single track of sequential sessions addressing issues facing federal and state agencies, as well as the regulated community. Included will be discussions of potential future environmental issues and benefits, as well as societal impacts. Topics to be addressed include EPA Priorities, State Agency Concerns, Clean Power Initiatives, Permitting Issues, and Climate Change Impacts. The mini-symposium format offers focused learning opportunities and enhanced interactions with attendees with common interest in these important topic areas.

FOR MORE SYMPOSIUM INFORMATION:
Leo Stander at lstander@nc.rr.com
John Koehler at john.koehler@erm.com

PROFESSIONAL DEVELOPMENT COURSES

All courses will include a course manual and refreshment breaks from 10:00 am–10:30 am and 3:00 pm–3:30 pm. The courses will also include a continental breakfast from 7:00 am–8:00 am, and lunch from 12:00 pm–1:00 pm. Registration is available all day for courses. Visit the main registration area for pricing, full course descriptions, and to register.

Course Title	Instructors	Room	Date	Time
AIR-295: Air Quality Engineering	Mark Rood, Ph.D., P.E., QEP, and Ivan Racheff, Professor of Environmental Engineering, Dept. of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign	CC - Room 306A	Sunday, June 21	8:00am-5:00pm
AIR-299: AERMOD Air Dispersion Modeling	Jesse Thé, Ph.D., P. Eng, President, Lakes Environmental Cristiane Thé, M. Sc.	CC - Room 305B	Sunday, June 21	8:00am-5:00pm
EMGM-285: Environmental Health Risks and Hazard Risk Calculations	Dr. Ryan Dupont, Professor, Civil and Environmental Engineering, Utah Water Research Laboratory, Utah State University Lou Theodore, Professor, Chemical Engineering, Graduate Program Director, Manhattan College	CC - Room 305A	Sunday, June 21	8:00am-5:00pm
EMGM-345: ISO 14001: 2015: Meeting the Requirements of the New Standard	Yogendra Chaudhry, Ph.D., EP, CRSP, Head, Centre for Sustainable Development, Ketek Group Inc.	Course Cancelled	Sunday, June 21	8:00am-5:00pm
WASTE-245: Innovative Strategies and Technologies for Contaminated Site Remediation	Dr. Kevin Finneran, Associate Professor, Environmental Engineering, Department of Environmental Engineering and Earth Sciences, Clemson University	Course Cancelled	Sunday, June 21	8:00am-5:00pm
AIR-173: CALPUFF Introductory Course	Dr. Christelle Escoffier, Independent Air Quality Specialist, Irene Lee, Senior Scientist, Exponent	CC - Room 305A	Monday, June 22	8:00am-5:00pm
AIR-240: Achieving Compliance for Combustion Processes Via Air Pollution Control	Tom McGowan, President and Founder, TMTS Associates Inc.	Course Cancelled	Monday, June 22	8:00am-5:00pm
CTAIR-145: USEPA Alternative Method 082 Certification and Training	Shawn Dolan and Steve Rasmussen, Presidents, Virtual Technology & Green Wire Technical Solutions	Course Cancelled	Monday, June 22	8:00am-5:00pm
EMGM-351: Project Management Essentials for Environmental, Health, and Safety Professionals	David Elam, Jr., CIH, CMQ/OE, PMP, QSTO (I-IV), Summa Consultants, Inc.	Course Cancelled	Monday, June 22	8:00am-5:00pm

Continuing Education

Course and Annual Conference attendees may request a certificate of participation. This certificate may be eligible for Continuing Education Units (CEUs) and in some cases Continuing Legal Education (CLE) and/or Professional Engineering (P.E.) credit.

One-day courses consist of 7 contact hours. Credit for the Annual Conference (Technical Program) will be awarded on a daily basis. To obtain instructions on how to request a certificate of participation, you should visit the registration desk or see your course instructor for the proper application procedure. All certificate requests will be processed after the Annual Conference.

For information regarding Continuing Education credit, please contact Gloria Henning, A&WMA Education Programs Associate at glhenning@awma.org or by phone at 412-904-6021.

STUDENT/YOUNG PROFESSIONAL JOINT EVENTS

This year, ACE 2015 has an entire YP track specifically-designed to jumpstart your technical career or to further expand your career into new areas. Throughout the technical portion of the conference, there will be YP-oriented sessions. These ten sessions will offer a wide variety of air and waste topics in both panel and platform formats. Each session will be kicked off with an introductory presentation from an expert in the field. These presentations will provide the groundwork for the panel discussion or platform presentations in that session. Get the inside view of the history and future of air and waste regulations during panel discussions with Federal and State regulators. In addition to a regulatory overview and an introduction to some of the current hot issues, air topics will include flexible permits, Prevention of Significant Deterioration (PSD) permitting, air dispersion modeling, air permit compliance and air pollution controls. Waste topics will cover assessment and remediation basics as well as recycling and sustainability. Please refer to the technical session program for more information.

Young Professional Mentor Breakfast

Tuesday, June 23 • 8:00 am - 9:00 am
Raleigh Convention Center, Room 304
Price: $15
Sponsored by: A&WMA Mississippi Chapter
This annual professional networking breakfast gives young professionals and recent graduates the opportunity to network and be mentored by an experienced environmental professional. For established professionals this is a great opportunity to connect with the industry's next generation of rising stars. Please note, pre-registration is required for this event. Registration deadline is June 15, 2015. **Advanced Ticket Purchase Required**

Academia 101: How to Apply For and Get a Faculty Position

Tuesday, June 23 • 12:30 pm - 1:30 pm
Raleigh Convention Center, Room 301A
Students and Young Professionals interested in pursuing jobs inacademia are invited to learn about the academic job search process and how to prepare for an academic job. This is also an opportunity to meet with university representatives.

ACE 101: Conference Introductory Panel for Young Professionals

Tuesday, June 23 • 1:30 pm - 2:30 pm
Raleigh Convention Center, Room 301A
Attending a professional conference such as the Air & Waste Management Association (A&WMA) Annual Conference and Exhibition (ACE) 2015 can be a daunting experience for first time attendees. This panel is intended to provide insight from YPs with a few years of ACE experience regarding each of the following: • Ways to meet new people and find others with similar interests • An introduction to the technical councils, technical sessions, and the A&WMA organizational structure • Tips to finding a mentor within the organization • An introduction to the YP program and YPAC • Ideas on maximizing the ACE experience • Other helpful hints. The panel will be comprise of a variety of A&WMA members, mostly YP Advisory Council (YPAC) members, who have attended at least one previous ACE, and thus are familiar with the conference proceedings.

Speed Networking

Wednesday, June 24 • 11:15 am - 12:00 pm
Raleigh Convention Center, Room 304
Don't miss this opportunity to practice your networking skills! Young professionals and students (and professionals) are invited to engage in a fast paced networking exercise. Answer questions, provide perspectives, and help students get the inside track on what it's like being a practicing professional.

Young Professional/Student Networking Reception

Wednesday, June 24 • 7:00 pm - 9:30 pm
Students - $15, Young Professionals - $20, Professionals - $35
Sponsored by: A&WMA Louisiana Section
This is a networking reception geared specifically for young professionals and students. Everyone is invited to network with young professionals, students, and A&WMA leadership over appetizers and drinks at Natty Greene's, a local craft brewery that features twelve staple taps and a rotation of brewhouse exclusives, seasonals, and one-of-a-kind inventions. Registrations will not be accepted at Natty Greene's. **Advanced Ticket Purchase Required**

YOUNG PROFESSIONAL EVENTS

Attention YPs!

As you make your way through the Exhibit Hall, keep an eye out for vendors interested in hiring/networking. Companies interested in connecting with YPs will have an indicator at their booth and in the Final Program.

YP Morning Huddle

Tuesday, June 23 - Thursday, June 25
7:45 am each morning
YPs will meet at the YP Booth to plan the day.

STUDENT EVENTS

Education Council Committee Meeting
Professional Development Division, Higher Education Division, and Public Education Division
Monday, June 22 • 8:00 am - 3:00 pm
Raleigh Convention Center, Room 302C
Get involved with leadership opportunities by actively participating in Education Council Committee meetings. It is a great way to have a significant impact on your profession and to network with your colleagues.

Student Platform Paper Presentations
Tuesday, June 23 – Thursday, June 25
See your fellow students present their research as platform presentations throughout the week.

Student Welcome Reception
Tuesday, June 23 • 11:30 am - 12:30 pm
Exhibit Hall AB
Students participating in the Student Paper, Student Poster Competition, and the Environmental Challenge International (ECi) are invited to meet and network with fellow students from around the world. Poster setup guidelines and ECi rules will be reviewed.

Student and ECi Poster Set Up
Tuesday, June 23 • 2:00 pm - 2:30 pm

Student Poster Competition
Tuesday, June 23 • 2:30 pm - 5:30 pm
Exhibit Hall AB
Visit the exhibit hall to watch as students present their posters to the judges during this year's Student Poster Competition. The competition recognizes student posters to be the best among those considered in the undergraduate, masters, and doctoral categories. Awards for exceptional posters will be provided at the Student Awards Ceremony and Reception on Wednesday, June 24.

ECi Poster Judging
Tuesday, June 23 • 2:30 pm - 5:30 pm
Join the ECi teams as they interact (often in surprising ways) with role players, and present their posters to the judges.

AEESP-AAEES-A&WMA Meet and Greet Lecture and Breakfast
Wednesday, June 24 • 7:30 am - 8:30 am AIR METRICS
Raleigh Convention Center, Room 301A
All academicians (e.g., students, professionals, and contributors to A&WMA's educational programs) are welcome to this great opportunity to hear Dr. Viney Aneja, Professor, Department of Marine, Earth and Atmospheric Sciences at North Carolina State University. He will give a presentation about "Air Quality in North Carolina: A Changing Atmosphere". In addition to networking with colleagues, enjoy a continental breakfast.

Career Panel Discussion
Professional Development Guidance and Tools - Panel Discussion - AAEES-AEESP-YPAC-Local Representative
Wednesday, June 24 • 9:00 am - 11:00 am
Raleigh Convention Center, Room 304
Listen as a panel of young professionals share their career experiences.

ECi Final Presentations
Wednesday, June 24 • 2:00 pm - 4:00 pm
Raleigh Convention Center, Room 304
Watch the top ranking ECi teams present their final problem solutions using the "tweak" they received prior to the conference.

Student Chapter Exchange
Wednesday, June 24 • 2:30 pm - 3:30 pm
Raleigh Convention Center, Room 301A
Join your fellow students, Education Council representatives, and A&WMA staff for the Student Chapter Exchange to network and exchange ideas about A&WMA's Student Chapters. Learn what it means to be a part of a student chapter or get tips on how to form a chapter of your own.

Student Awards Ceremony and Reception
Wednesday, June 24 • 5:00 pm - 6:00 pm
Raleigh Convention Center, Room 304 BOEING
Sponsored by: Boeing
All students and professionals participating with the Student Program are invited to the Student Awards Ceremony and Reception, which will honor exceptional students who have received scholarships, poster awards, platform paper awards, thesis and dissertation awards, and ECi awards. The Exceptional Education Award will also be awarded at this event.

RALEIGH TOURS

Raleigh Area Social Tour
Monday, June 22 10:30 am–1:00 pm
Pre-registration was required for this tour.
Bus departs at 10:30 am at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

Durham Area Social Tour
Tuesday, June 23 9:00 am–4:30 pm
Pre-registration was required for this tour.
Bus departs at 9:00 am at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

NC University Hunt Library, Meymandi Concert Hall, and Fletcher Theatre Social Tour
Wednesday, June 24 8:50 am–12:15 pm
Pre-registration was required for this tour.
Bus departs at 8:50 am at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

NC Museum of Art and Downtown Museum Social Tour
Wednesday, June 24 1:30 pm–4:00 pm
Pre-registration was required for this tour.
Bus departs at 1:30 pm at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

TECHNICAL TOURS

NC DOT Rail Yard and Engine Emissions Testing Technical Tour
Monday, June 22 9:00 am–11:30 am
Pre-registration was required for this tour.
Bus departs at 9:00 am at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

US EPA Technical Tour
Tuesday, June 23 1:00 pm–5:00 pm
Pre-registration was required for this tour.
Bus departs at 1:00 pm at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

NC State Hunt Library, FREEDM Center, and Civil, Construction, and Environmental Engineering Lab (CCEE LAB) Technical Tour
Wednesday, June 24 8:40 am–2:30 pm
Pre-registration was required for this tour.
Bus departs at 8:40 am at the Raleigh Convention Center on South Salisbury Street. **Ticket required**.

NASA Applied Sciences Program

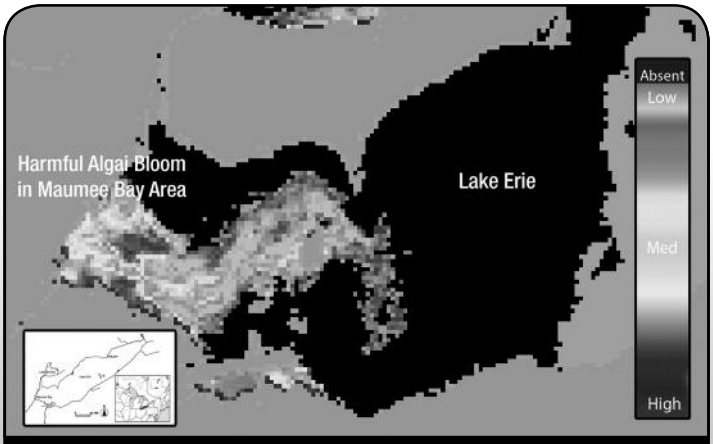
Earth Science Serving Society

National Aeronautics and Space Administration

NASA's Applied Sciences Program partners with public and private organizations on ways to apply data from NASA's environmental satellites and scientific findings in their decision-making activities and services, helping to improve the quality of life and strengthen the economy.

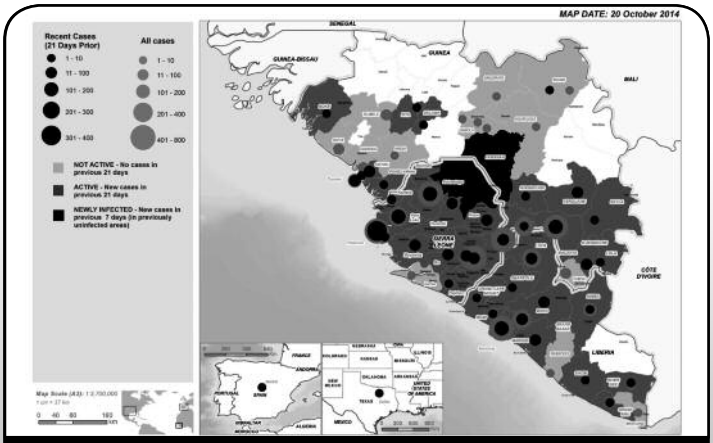
The Applied Sciences Health & Air Quality Program promotes innovation in public and private sector organizations to connect NASA satellite data, model products, and scientific findings to air quality management and policy activities that benefit human health and safety.

Recent Examples of Health & Air Quality Projects



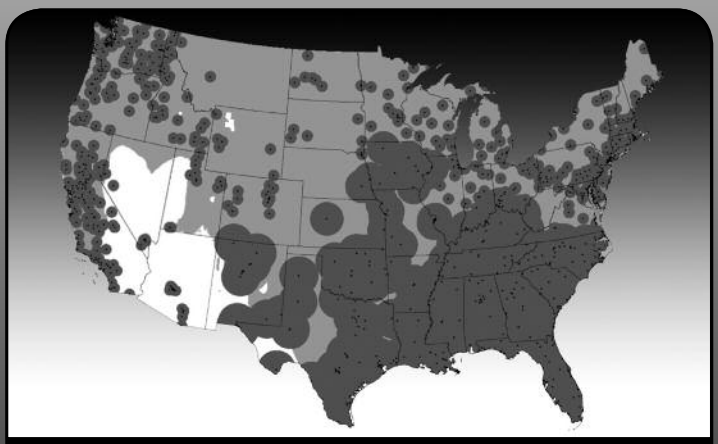
Monitoring and Forecasting Harmful Cyanobacterial Blooms in Lake Erie

Cyanobacterial harmful algal blooms (CyanoHABs) pose a particular risk to drinking water and recreational water supplies due to their potential to produce toxins. The goal of this project was to improve the ability to detect and monitor CyanoHABs and to improve nowcasting and forecasting capabilities in western Lake Erie.



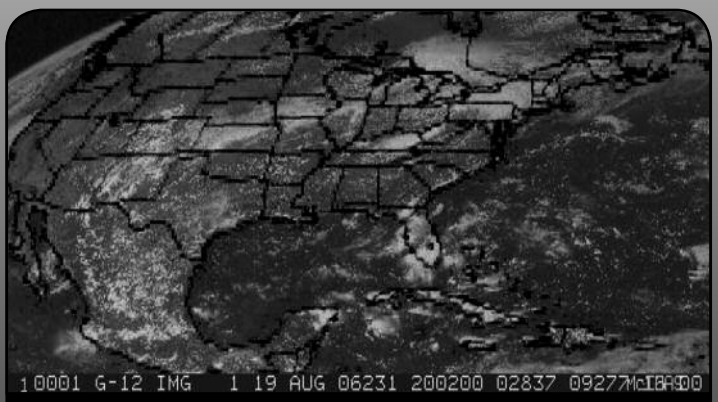
Predicting Zoonotic Hemorrhagic Fever Events Using NASA Earth Science Data

In cooperation with the U.S. Department of Defense, this project has developed an operational predictive monitoring system, based on NASA Earth science observations to detect environmental-related disease emergence signals and risk probabilities of fever events (e.g., Rift Valley Fever, Ebola) in Africa.



AirNow - Improving Air Quality Maps with Satellite Data

AirNow produces a daily Air Quality Index (AQI) from ground measurements and satellite data. The AQI is an indicator of how clean or polluted the air is and what associated health effects may be expected within a few hours or a few days after exposure.



Incorporating Space-Borne Measurements to Improve Air Quality Decision Support Systems

The uncertainties in air quality simulations due to model cloud errors have been recognized as a major problem in State Implementation Plans of state regulatory agencies. This project developed two techniques for minimizing estimates of cloud formation/removal based on satellite observations. The techniques are implemented within the Weather Research and Forecasting model, which is commonly used in regulatory air quality applications.

For more information, visit: appliedsciences.nasa.gov

NETWORKING EVENTS

A&WMA Lake Johnson 5K Fun Run/Walk and Fun Fest

Monday, June 22 • 8:00 am - 12:00 pm
Price: $20
(Bus service to and from the Raleigh Convention Center and Lake Johnson will be available)
Sponsored by: Triangle Air Awareness
Support the A&WMA Scholarship Fund by participating in the 5K Fun Run/Walk and Fun Fest at scenic Lake Johnson. Leaving the convention center at 8:00 am, the 5K Fun Run/Walk will start promptly at 9:00 am (the run is open to all abilities). Enjoy participating in the Run/Walk and/or enjoy the park's other activities with your family like kayaking, sunfish sailboats, paddle boats, canoes, john boats, bird watching, and/or fishing. A shuttle will travel in a loop from Lake Johnson to the Convention Center between 8:00 am and 11:30 am. The last shuttle will leave Lake Johnson promptly at 11:45 am. All of the registration fees will support the A&WMA Scholarship Fund and include transportation. Water activity fees are on-your-own, and all are under $12/hour. In case of inclement weather, registrations will be donated to A&WMA's Scholarship Fund. Sponsors will be advertised with signs at the shuttle pickup areas. For more information contact Richard Simpson at +1-919-707-8476 (Richard.Simpson@ncdenr.gov). **Ticket Required**.

Exhibition Grand Opening Networking Reception*

Monday, June 22 • 5:00 pm - 6:30 pm
Immediately following the Keynote Program, join your fellow attendees and presenters for the Grand Opening Networking Reception in the Exhibit Hall. It's the perfect opportunity to meet with leading environmental professionals showcasing their latest products and services. Enjoy drinks and appetizers while exploring the booths and displays, and don't miss out on a chance to win this year's attendee give-away prize.

Scholarship Raffle Drawing

Tuesday, June 23
During the Grand Reception

Help support future environmental scientists and leaders by participating in the Scholarship Raffle Drawing. Tickets will be sold at a Raffle booth near the registration desk on Sunday, June 21, Monday, June 22 and Tuesday, June 23. In addition, tickets will be sold at the Golf Outing on Monday, June 22 and at the Grand Reception. The cost of the Tickets will be: 1 for $5 or 5 for $20 (Cash only accepted). Winner will be drawn at the Grand Reception. The winner does not need to be present. The winner can pick up his/her prize at the registration desk. All proceeds directly benefit the A&WMA Scholarship Fund.

The Committee for the Professional Development of Women Workshop and Luncheon

Tuesday, June 23 • 10:30 am - 1:15 pm
Raleigh Convention Center, Room 304
Price: $45
Sponsored by: Capital Power
Kick off the conference by attending this interactive event, ***Empowering Women to Achieve Equity in the Workplace***. The session will be led by **Sonja Neiger, Director of the Women's Leadership Institute for the Impact Center**, a non-profit based in Washington, D.C.

Attendees will learn more about the pay gap for women in their profession and explore what holds many women back from addressing pay inequities. The attendees will also have the opportunity to assess the value of their skills in the market and develop strategies to close the gap, whether they're looking for equity in their current role, positioning themselves for a promotion, or considering a job offer. The goal of this pragmatic workshop is to provide useful tools and confidence, empowering the attendees to achieve equity in the workplace.

The Committee for the Professional Development of Women's goal is to draw upon the unique perspectives and talents of women to further the goals of the Association and to mentor women in the profession. Everyone is encouraged to attend!
Ticket Required.

In addition to the luncheon, there will be a networking mixer on Wednesday, June 24 from 4:00 pm - 5:00 pm in the foyer outside 306C, Raleigh Convention Center.

Enjoy a North Carolina Style Grand Reception*

Tuesday, June 23 • 6:30 pm - 8:00 pm
Raleigh Convention Center, Main Lobby
Co-sponsored by: Bay Area Air Quality Management District; N.C. Department of Environment and Natural Resources; U.S. EPA's Air, Climate, and Energy Research Program
Y'all come on down to the Grand Reception on Tuesday evening, and enjoy seeing old friends and having some good North Carolina style BBQ, catered with the best of southern cuisine. Listen to John Bachmann and his band, Alexander Drive, which consists of current and former EPA and NIEHS employees, play some rock and folk music, including some song parodies, often with an environmental theme. Come relax, mingle, and enjoy our southern hospitality! **Ticket Required**.

AEESP-AAEES-A&WMA Meet and Greet Lecture and Breakfast

Wednesday, June 24 • 7:30 am - 8:30 am
Raleigh Convention Center, Room 301A
All academicians (e.g., students, professionals, and contributors to A&WMA's educational programs) are welcome to this great opportunity to hear Dr. Viney Aneja, Professor, Department of Marine, Earth and Atmospheric Sciences at North Carolina State University. He will give a presentation about "Air Quality in North Carolina: A Changing Atmosphere". In addition to networking with colleagues, enjoy a continental breakfast.

OUTREACH ACTIVITIES

A&WMA Scholarship Golf Tournament

Lonnie Poole Golf Course, Raleigh, NC
Sunday, June 21 • 1:00 pm Tee Times Start
Price: $100 per golfer; $360 per foursome
(11:30 am Transportation available/pickup at the convention center)
Sponsored by: RTI International

Before the conference officially kicks-off, A&WMA will hold its Scholarship Golf Tournament at the Lonnie Poole Golf Course located on the Centennial campus of N.C. State University. The course is only a few miles away from downtown Raleigh and a 5-minute drive from the conference hotels. Arnold Palmer designed the course, which opened in 2009; it features challenging holes and breathtaking views of the Raleigh skyline. All proceeds benefit the A&WMA Scholarship Fund. The tournament format is a 4-person scramble with several contests and prize holes. The event includes green fee and cart, range balls, and box lunch. Club rental is available by calling the golf course. **Ticket required**.

Sponsorship Opportunities Available
The tournament will also provide a great venue for sponsors to receive exposure to regional and national businesses and for players to network. Sponsors at all levels will be advertised at the tournament on the golf course, and acknowledged at the awards ceremony after golfing. For more information, contact Dave Reeves at +1-919-316-3739 (dwreeves@rti.org) or John Crenshaw at +1-919-468-7842 (John.Crenshaw@erg.com).

Air Quality Workshop for Educators

Monday, June 22 and Tuesday, June 23 • 8:30 am - 4:15 pm
Marriott Raleigh City Center, Congressional Room
Instructors: Donna Rogers and Jan Cortelyou-Lee
Sponsored by:

A&WMA RTP Chapter

Duke Energy

Triangle Air Awareness

A&WMA, along with EPA, NC Department of Environment and Natural Resources, and Triangle Air Awareness are hosting the *Air Quality Workshop for Educators* as part of A&WMA's Annual Conference & Exhibition. Teachers, pre-service teachers, and environmental educators, including education specialists from state parks, museums, environmental education centers, etc., are invited to attend.

The workshop is intended to introduce attendees to the wealth of environmental education materials available from A&WMA, with a focus on the Association's Environmental Education Resource Guides (EERGs).

Registraion:
Please e-mail Donna Rogers at rogers.donna@epa.gov to register for this workshop.

TOPICS AND ACTIVITIES:
- Learn how EPA manages air quality in the U.S. and a report on North Carolina's air quality
- Identify environmental health effects and risks
- Participate in carbon footprint and sustainable solution activities
- Field Trip to NC Museum of Natural Sciences

BENEFITS:
- Learn EPA's role in environmental research and management
- Experience interactive hands-on activities designed for classroom use
- Receive publications, curricula, and CDs
- Attend conference keynote to hear EPA Administrator, Gina McCarthy (invited)

ALL ABOUT A&WMA AND COUNCILS

At A&WMA we depend on our volunteers to provide the foundation and expertise that sets us apart from other environmental associations. In order to continue to offer conferences, programs and webinars that cover the latest topics, we rely on our members to take an active role in the Association by:

- Sitting on the Board or becoming a Section or Chapter officer
- Writing and presenting a paper at the Annual Conference & Exhibition or at a section or chapter event
- Contributing to a specialty conference
- Developing a Webinar or participating as a panelist
- Teaching a professional development course
- Submitting a technical paper for the Journal, or an article for EM
- Participating in a council or committee

Volunteers can serve on each of our four councils: Technical, Education, Sections & Chapters, or Young Professionals Advisory. Attend a council meeting on-site at the Annual Conference to learn more!

Technical Council

Monday, June 22 8:00 am-3:00 pm
302B (Raleigh Convention Center, 3rd Floor)
Thursday, June 25 5:15 pm-6:00 pm
302B (Raleigh Convention Center, 3rd Floor)

The Technical Council provides the technical expertise to determine and produce the technical programs at annual meetings and specialty conferences; report on state-of-the-art technology and on environmental issues, peer-review articles and publications. The Council is divided into four groups: Air Group, Environmental Management Group, Sustainability, Climate Change, Resource Conservation and Waste Management Group, and Industrial, Government, and Public Sectors Group. These groups are comprised of 10 divisions; the divisions are further divided into technical coordinating committees (TCCs). Stop by the Technical Program Booth on the 2nd level of the Raleigh Convention Center to learn more about opportunities to participate.

Education Council

Tuesday, June 24 8:00 am-3:00pm
302C (Raleigh Convention Center, 3rd Floor)

The Education Council provides input into the development of products and services offered to A&WMA members such as professional development educational needs. The Education Council is made up of three divisions: Professional Development, Higher Education and Public Education. Professional Development is responsible for continuing education programs and services related to electronic learning. Higher Education is responsible for university education, student development, and student membership. Public Education is responsible for developing programs on environmental issues for the members to become more actively involved in environmental education efforts.

Sections & Chapters Council

Monday, June 22 8:00 am-3:00 pm
302A (Raleigh Convention Center 3rd Floor)

The Sections and Chapters Council enables, encourages, and ensures strong sections and chapters to fulfill the core purpose of the Association at the local level while communicating closely with Association leadership. It is comprised of a Chair, Vice Chair, two Committee Chairs, several advisors, and one representative from each Section and Chapter of the Association.

Young Professionals Advisory Council

Monday, June 22 8:00 am-3:00 pm
303 (Raleigh Convention Center, 3rd Floor)

The Young Professional (YP) Advisory Council strives to recruit, retain, and engage YPs as well as advise other councils and the board on services and activities to attract YPs. This Council also facilitates the integration of student members into the Association upon graduation.

CONTINUING EDUCATION CREDITS
Conference attendees may be eligible for continuing education credits (eg. PDHs, CLEs) bases upon their participation in events. See page 21 for more information.

A&WMA'S COMMITMENT TO THE ENVIRONMENT

With pride, the 2015 Annual Conference & Exhibition is being held in one of the **greenest** cities and convention centers. See for yourself….

We can make this the Greenest Annual Conference Ever! How can you be a part of it?

- Register for the Carbon Offset during Registration to offset your Carbon Footprint.
- Use recycled and repurposed materials in your exhibits.
- Take advantage of mass transit to get around or walk. The R-Line in downtown Raleigh is FREE.
- Email your message rather than mailing.
- Recycle in one of the many recyclable bins.
- Reuse the bathroom towel in the hotel room.
- Never leave lights on when you are not in the room.
- Raise the thermostat when you leave the hotel room for long periods of time.
- Leave unopened shampoo, soap, and other items in the hotel unless you are taking them home to use.

Raleigh has embarked on several environmental initiatives to promote conservation and sustainability. Some of these green projects are:

Light-Emitting Diodes in Raleigh - Light-Emitting Diodes (also known as LEDs) represent an emerging solid-state technology that has revolutionized lighting. LEDs produce light more efficiently than standard incandescent bulbs, fluorescent lights, etc…. Since 2006, Raleigh has installed over 40 separate LED projects across the city, including outdoor lighting for city parks, interior lighting, solar LED lighting, streetlights, and lighting in parking decks. These projects are estimated to generate approximately $215,000 per year in energy and maintenance savings for the residents of Raleigh.

Solar Array at E.M. Johnson Water Treatment Plant - Raleigh's E.M. Johnson Water Treatment Plant is now home to one of the state's largest rooftop solar photovoltaic (PV) arrays. This project is made possible by Progress Energy's SunSense Commercial Solar PV program, which encourages the development of renewable energy. The power generated by this array is roughly equal to the annual energy demand of 22 homes.

Fire Station Rainwater Harvesting - Raleigh has initiated a new effort to green several fire stations by installing rainwater harvesting systems and rain gardens. The city is partnering with Wake County to sponsor eleven project locations to receive a network of cisterns aimed at collecting rainwater. The goal of this program is to replace uses of our drinking water with the harvested rainwater collected in the cisterns.

The R-Line - The R-LINE is Downtown Raleigh's free bus service to connect employees, residents, and visitors to retail, restaurants, entertainment venues, and parking in the Central Business District (CBD). Raleigh chose a BRT-style hybrid because it is environmentally friendly. The green and blue colors of the hybrid buses emphasize its unique "green" attribute; they stand for blue air and green earth.

A&WMA'S COMMITMENT TO THE ENVIRONMENT

Five Points Center for Active Adults and Buffaloe Road Aquatic Center Green Roofs - The goal of the Green Roof Program is to substantially reduce stormwater runoff and reduce energy use. The native plants installed on the roof of these facilities will soak up the rainwater reducing initial runoff. In addition, the plants will act as a layer of insulation on top of the roof to reduce heating and cooling costs. The green roof program also serves as a public education and outreach opportunity.

The Raleigh Convention Center is committed to having the most environmentally efficient convention center in the nation. Their recent LEED Silver Certification shows that from safe cleaning products to optimized HVAC systems to water-use reduction, going green is critical to being a responsible member of a community. Green Initiatives at the Raleigh Convention Center:

Redevelopment of a Closed City Landfill during Design - The convention center's design required a mass excavation that produced close to 250,000 cubic yards of soil that needed to be hauled away from the project site. The city was able to utilize a nearby site less than 2 miles away, which was a former/closed landfill. More than 13,000 truckloads of dirt were hauled to the site, dumped, and shaped to form new soccer fields and a general recreational area atop a hill. Not only was this solution environmentally friendly, but no new land had to be purchased or natural habitat destroyed. Approximately 5% recycled content has been incorporated into the building (i.e., 100% of the center's steel is recycled product, and over 89% of the construction services were contracted from within the state).

Water Use Reduction - Through the use of low-flow lavatories, low-flow urinals, and low-flow water closets, the plumbing system demand has been reduced by more than 30% over the more conventional and traditional plumbing fixtures. This equates to an estimated water savings of more than 825,000 gallons/yr.

Energy and Atmosphere - The building is equipped with high efficiency Heating, Ventilating, and Air Conditioning (HVAC) equipment for maximum energy performance with minimum energy consumption. The lighting systems are also eco-friendly and are connected to the building automation system and will turn on and off as people enter or vacate the meeting rooms. The highly efficient HVAC system reduces energy by 20%.

Recycling / Biodegradable Products / Food Practices – The convention center follows these green initiatives: The center has an average 40% landfill diversion rate; Sorting and recycling all glass, metal, plastic, paper, and corrugated cardboard; Uses disposable food service items that are 100% biodegradable. These biodegradable products include cutlery made from cornstarch, clear colored, corn-based cups, plates and bowls made from sugarcane fiber, and hot cups that are lined with plant-based plastic; Donates leftover food to local food banks; Utilizes local food providers within the city, county, and state whenever possible and is an active participant in North Carolina's NC10 initiative, a purchasing program which gives priority to locally-grown, in-season produce and local meat and foodstuffs; Uses non-toxic Green Seal-certified cleaning and dishwashing products in its operations.

A&WMA THANKS ITS ORGANIZATIONAL MEMBERS

Thank you organizational members for your support and participation

3M Environmental Operations
ADA Carbon Solutions
ADEC Division Of Air Quality
AECOM
AET Environmental
AGAT Laboratories
Air Quality Services, LLC
Air Resource Specialists, Inc.
Air Sciences Inc.
Akron Regional AQMD
Alberta Energy Regulator
Alberta Environment
ALL4 Inc.
Allegheny County Health Department
AMEC
American Airlines
American Petroleum Institute (API)
Archer Daniels Midland Company
August Mack Environmental
Babst Calland
Barr Engineering Company
Battelle
Bay Area Air Quality Management District
Bingham McHale LLP
BP Exploration (Alaska), Inc.
Breitling Consulting
Broadbent & Associates, Inc.
California ARB - Cal/EPA Library
Capital Power Corporation
Capital Regional District - Parks & Environmental Services
Carmeuse Lime & Stone
CH2M HILL
Chevron Energy Technology Company
CITGO Petroleum Corporation
City of West Monroe
Civil & Environmental Consultants
C-K Associates, LLC
Clark County
Colorado Springs Utilities
Compliance Assurance Associates, Inc.
Conestoga-Rovers & Associates
Consumers Energy
Cornerstone Environmental Group, LLC
CR CleanAir
Davis Graham & Stubbs LLP
Dillon Consulting Limited
DSG Solutions, LLC
DTE Energy Resources
Duke Energy
EHS Technology Group, LLC
Eli Lilly And Company
Entergy
ENVIRON International Corporation
Environment Canada
Environmental Science Graduate Program at Oklahoma State University
Envirotech Associates Limited
Epsilon Associates, Inc.
ERM
Fishbeck, Thompson, Carr & Huber, Inc.
Flint Hills Resources
GAI Consultants, Inc.
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EXHIBITION

WHAT'S HAPPENING ON THE EXHIBIT FLOOR

The exhibit hall is located in the Exhibit Hall AB (RCC, Exhibit floor)

	Monday	Tuesday	Wednesday
EXHIBIT HALL HOURS	5:00 pm–6:30 pm	9:00 am–5:30 pm	9:30 am–4:00 pm
REFRESHMENT BREAKS		9:00 am–10:00 am	9:40 am–10:20 am
BMW GROUP Plant Spartanburg / Parker Poe		3:00 pm–4:00 pm	3:00 pm–4:00 pm
NETWORKING RECEPTION	5:00 pm–6:30 pm		
EXHIBITOR HAPPY HOUR			3:00 pm–4:00 pm

Exhibition Grand Opening Networking Reception

Monday, June 22 • 5:00 pm - 6:30 pm

Immediately following the Keynote Program, join your fellow attendees and presenters for the Grand Opening Networking Reception in the Exhibit Hall. It's the perfect opportunity to meet with leading environmental professionals showcasing their latest products and services. Enjoy drinks and appetizers while exploring the booths and displays, and don't miss out on a chance to win this year's attendee give-away prize.

Exhibitor Happy Hour

Wednesday, June 24 • 3:00 pm - 4:00 pm

Join us for the last hour in the Exhibit Hall to connect with exhibitors and friends during the Exhibitor Happy Hour, a new event to the 2015 Annual Conference. This gives you one final chance to mingle and get those last-minute business cards to add to your professional network.

ECOprt (Economical Personal Rapid Transit)

In today's world, and especially in the United States, municipal rapid transit systems are fairly rare because nearly all require substantial government subsidies to maintain financial viability. At NC State University, we have led a multi-disciplinary team effort to develop a new personal rapid transit architecture. At issue is that public transportation projects have a steep infrastructure cost due to their large footprint and heavy vehicle loads. Our solution is ecoPRT, an ultra-light weight transit system with small, autonomous vehicles that transport small groups of passengers without stopping. The first prototype vehicle is on display in the exhibit hall. For more information: http://ecoprt.com

EXHIBIT HALL HIGHLIGHTS:

The Hub
The Hub provides a casual environment to meet up with your colleagues, continue conversations between sessions or check in with the office. You can also shake off some extra stress playing games, or kick back and relax with reading materials

Internet Cafe
Sponsored by: RTI
Attendees can stay updated on industry news, keep up with business back in their offices, or tweet about the conference.

Attendee Prize Giveaway
Visit the exhibit hall during the Annual Conference & Exhibition and you could win win a prize for participating.

ECi Competition
The Environmental Challenge International student team competition will not only have poster presentations in the exhibit hall, but will also interact with select exhibitors and technical sessions to ensure students participate in the full spectrum of Annual Conference activities.

Student Poster Competition
The Student Poster Competition recognizes student posters to be the best among those considered in the undergraduate, masters and doctoral categories.

Refreshment Breaks
Tuesday's 9:00 am-10:00 am continental breakfast Sponsored by: BMW Manufacturing
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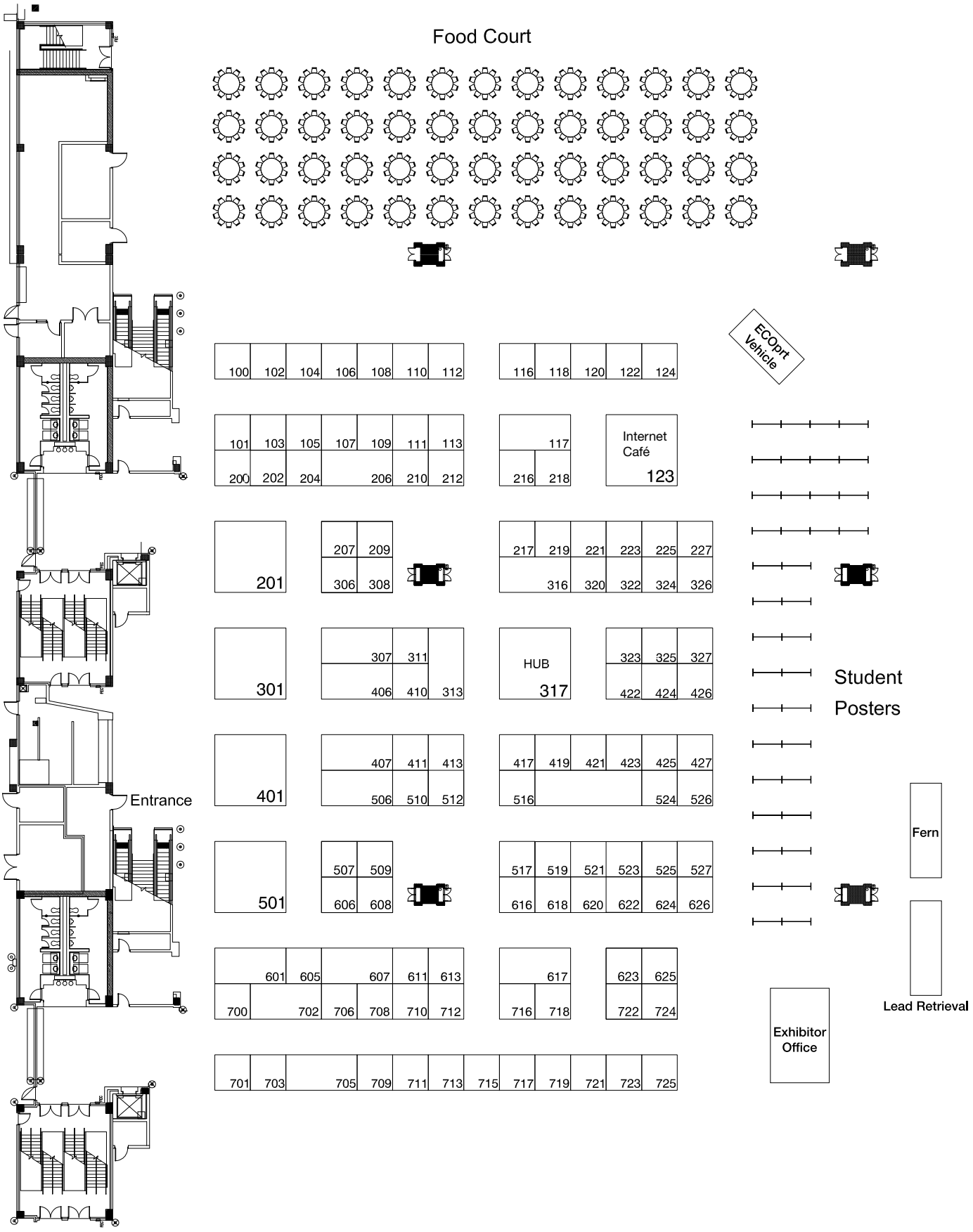
Please join our exhibitors for refreshment breaks in the exhibit hall between technical sessions.

EXHIBIT HALL FLOOR PLAN



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U.S. EPA's Homeland Security Research 706
http://www2.epa.gov/homeland-security-research

The U.S. EPA's Homeland Security Research program aims to provide scientific solutions that improve water utilities' abilities to prepare for and respond to incidents that threaten public health and advance EPA's capabilities to respond to wide area chemical, biological or radiological contamination incidents, including natural disasters. For more information, please visit: www2.epa.gov/homeland-security-research

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TECHNICAL SESSIONS

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LETTER FROM THE TECHNICAL PROGRAM CHAIR AND VICE CHAIR

Members of the Research Triangle Park Chapter, South Atlantic States Section, and Technical Council of the A&WMA have developed an outstanding technical program for the 108th A&WMA Annual Conference and Exhibition (ACE) in Raleigh, North Carolina. The theme for this year's ACE is "Connecting the Dots: Environmental Quality to Climate." This theme was selected to reflect the importance of the connections between climate, air, and waste. The technical program is designed to bring views and information on air and waste topics of essential interest to a wide spectrum of professionals from industry, regulatory agencies, education, law, consulting companies, equipment manufacturers, and public interest groups. Whether you are a newly hired young professional or a seasoned veteran, if you are looking for opportunities to obtain information on the latest regulations, latest technologies and activities associated with climate change, air modeling, air measurement, greenhouse gases, sustainability, waste, environmental and risk management, or many other environmental hot topics, then this year's A&WMA ACE is the place to find them.

Our program starts on Monday afternoon with the Keynote Speaker, Gina McCarthy, Administrator of U.S. Environmental Protection Agency (EPA). She will be followed by a Keynote Panel Session consisting of Donald van der Vaart , Secretary of North Carolina Department of Environment and Natural Resources, Cari Boyce, Vice President, Environmental and Energy Policy for Duke Energy, and Vickie Patton, General Counsel for the Environmental Defense Fund.

The Technical Program continues on Tuesday morning with the 45th Annual Critical Review. The featured speaker for this presentation is Dr. Arlene Fiore of Columbia University and Lamont-Doherty Earth Observatory. Her presentation is entitled "Air Quality and Climate Connections." The poster sessions also occurs on Tuesday morning. Over 100 platform and panel sessions follow on Tuesday afternoon and continue through Thursday afternoon. This year's Technical Program includes tracks covering climate change issues, coal ash remediation, air quality program perspectives and requirements, waste management issues, air quality modeling, ambient air and emissions monitoring, and energy production issues.

The Technical Program includes a multi-session Mini-Symposium comprised of a series of platform and panel sessions related to our theme. This symposium provides discussions of recent regulatory developments and implications for both environmental management and the national economy. Specifically, the Mini Symposium sessions include discussions of EPA priorities, State Agency concerns, clean power initiatives, climate change impacts, recent US Supreme Court decisions, and permitting issues.

In addition to the ACE presentations, technical tours and Professional Development Courses are available to enhance your technical repertoire. The technical tours, which were organized by the Local Host Committee, will begin and end at the Raleigh Convention Center. The tours include NC DOT Rail Yard and Engine Emissions Testing facilities, the EPA research facilities, and the NCSU Hunt Library, FREEDM Center, and the Civil, Construction, and Environmental Engineering Lab. Details regarding the technical tours and Professional Development Courses, which are conducted by members of the Education Council, are provided elsewhere in this Final Program.

Of course no technical program can be considered complete if it does not recommend visits with sponsors and exhibitors in the Exhibit Hall. There you will be able to check out the newest products, discuss the latest developments, and observe emerging technologies that are being showcased. You will also be able to interact with colleagues and other experts from the business, scientific, and regulatory communities.

We expect attendees for this year's A&WMA ACE to come from around the world. What better place to showcase the A&WMA than Raleigh, North Carolina, one of the three cities that comprise the Research Triangle – an area that encompasses the largest concentration of environmental research in the world. The Local Host Committee has worked long and hard to make this meeting not only technically sound, but also an enjoyable and memorable experience for you and your families. We hope you take advantage of your opportunities to stroll around the city and are able to enjoy many of the local attractions.

We are convinced that you will find this year's 108th A&WMA Annual Conference and Exhibition an unforgettable experience and that you will enjoy true Southern hospitality.

Sara Head
2015 Technical Program Chair
Vice President, AECOM

Leo Stander
2015 Technical Program Vice Chair
Professional Engineer

TECHNICAL SESSIONS

Tuesday, June 23, 2015					
Industry Focus	**Session ID**	**Session Title**	**TCC(s)**	**Session Format**	**Room**
9:00 am - 5:00 pm		**Exhibit Hall Opens**			
9:00 am - 11:45 am		**Critical Review**			**Ballroom BC**
10:00 am - 11:45 am		**Technical Poster Session**			**Mezzanine**
1:20 pm - 3:00 pm					
▲	MINI-TuesPM1	EPA Priorities 2015-2016	REG	Panel	402
☁	AIRS-TuesPM1	AERMOD Modeling - Technical Issues	APM	Platform	303
☁	AIRS-TuesPM1	Atmospheric Chemistry and Ozone Issues - Part 1	APC	Platform	301B
☁	AIRS-TuesPM1	Monitoring Hazardous Air Pollutants Pollutants in Ambient Air	AAE	Platform	302A
☁	AIRS-TuesPM1	Particulate Matter Source Apportionment	APP	Platform	302B
	H&EE-TuesPM1	Air Pollution Exposure and Health Effects - Part 1	HEE	Platform	302C
	O&GS-TuesPM1	Emissions Deterninations in the Oil & Gas Industry	CHE	Platform	305B
♻	SUST-TuesPM1	Resource Conservation - Recycling, Diversion and Zero Waste	SRC	Platform	306A
	TRAN-TuesPM1	Near Road Air Quality	OMS	Platform	306B
	WAST-TuesPM1	Municipal Waste Management, Landfills and Landfill Gas	WMB	Platform	305A
	YOUN/WAST-TuesPM1	Hazardous Waste Characterization, Treatment and Site Remediation	WMR-YP	Platform	306C
3:00 pm-4:00 pm		**Session Break**			
4:00 pm-5:40 pm					
▲	MINI-TuesPM2	State Agency Perspectives on Environmental Issues	REG	Panel	402
☁	AIRS-TuesPM2	AERMOD Modeling - Case Studies	APM	Platform	303
☁	AIRS-TuesPM2	Ambient Air Monitoring for Criteria Pollutants	AAE	Platform	302A
☁	AIRS-TuesPM2	Control of NOx Emissions	AAC	Platform	301B
☁	AIRS-TuesPM2	Particulate Matter Measurements and Emissions	APP	Platform	302B
	FEDS-TuesPM2	Air Quality Work in Indian Country	IEA	Panel	305A
	FEDS-TuesPM2	Environmental Compliance at Federal Facilities and Public Sectors	FED	Platform	305B
	H&EE-TuesPM2	Air Pollution Exposure and Health Effects - Part 2	HEE	Platform	302C
	REGU-TuesPM2	Improving Public Participation in the Air Quality Regulatory Process	PUB	Platform	201
♻	SUST-TuesPM2	Zero Waste Systems - Economics, Funding and Payback	SRC	Panel	306A
	TRAN-TuesPM2	Transportation, Energy and Climate Change	PLU	Platform	306B
	YOUN/REGU-TuesPM2	Waste Regulations - The Basics	REG-YP	Panel	306C

Program Key			Program Key		
	Track ID	**Industry/Environmental Focus**		**Track ID**	**Industry/Environmental Focus**
☁	AIRS	Air-Measurements and Basic Science	♻	SUST	Sustainability
	EDUC	Education		TRAN	Transportation
	ENER	Renewable Energy		WAST	Waste Management
	FEDS	Federal		LOCA	Local Topic
	H&EE	Health & Environmental Effects		YOUN	Young Professionals
	INDU	Heavy Industry and General Manufacturing		POWR	Power Generation
▲	MINI	Mini-Symposium on Regulatory Directions		NANO	Nanoparticles
	O&GS	Oil & Gas		CLIM	Climate Change
	REGU	Regulatory			

CRITICAL REVIEW

AIR QUALITY AND CLIMATE CONNECTIONS

Lead author and presenter: Arlene Fiore, Columbia University and Lamont-Doherty Earth Observatory

Co-authors: Vaishali Naik, NOAA Geophysical Fluid Dynamics Laboratory; and Eric Leibensperger, State University of New York at Plattsburgh

Tuesday, June 23 • 9:00 am – 11:45 am
Room: Ballroom BC

TECHNICAL POSTERS

Tuesday, June 23, 2015

Chair: David Minott, Arc5 Environmental Consulting, LLC
10:00 am – 11:45 am

Technical Poster Area: 3rd Level Foyer (near Room 305A)
Technical Poster Presentation Room: 305A

AIR QUALITY MODELING AND CHEMISTRY

Evaluation of SCICHEM for NO_2 Near-Field NSR and PSD Regulatory Applications
Paper#:385
R. Chris Owen and Andy Hawkins, EPA; Doris Jung, Colorado DPHE; Leland Villalvazo, San Joaquin Valley APCD; Chris Misenis and Roger Brode, EPA/OAQPS

Analyzing the Effects of Horizontal Resolution on Long-Term Coupled WRF-CMAQ Simulations
Paper#:418
Chuen Meei Gan, Jonathan Pleim, Rohit Mathur, Christian Hogrefe, Jia Xing, David Wong and Robert Gilliam, EPA

Application of WRF-Chem Model to Simulate PM_{10} Concentrations Over Bogota
Paper #:392
Anikender Kumar, Nestor Rojas, Luis Belalcazar and Rodrigo Jimenez, Universidad Nacionale de Colombia

Developing and Using GIS Tools in Residual Risk Assessments
Paper#:428
Darcie Smith and Mark Morris, EPA

AMBIENT MONITORING AND MEASUREMENTS

Fenceline Measurements of Speciated VOCs Using Passive Sorbent Tubes Deployed Around Oil and Natural Gas Production Pads in Colorado and Texas
Paper#:84
Adam Eisele, Michael Miller, Donald Smith, Eben Thoma, Shaibal Mukerjee, Karen Oliver and Don Whitaker, EPA

3D Representation of Typical Ambient Particles in Suburban Maryland: A New Method to Study Seasonal Variability of Aerosol Optical Properties
Paper#:248
Diana Ortiz-Montalvo and Joseph Conny, National Institute of Standards and Technology

Ammonium and Inorganic Species in Fractionated Suspended Particulate Matter from Broiler House with Rice Hull Beddings
Paper#:305
Nanh Lovanh, John Loughrin and Phil Silva, USDA - Agricultural Research Service

CASTNET 'Small Footprint' Filter Pack Only Sites
Paper#:387
Christopher Rogers, Kevin Mishoe, Marcus Stewart, Selma Isil and Kemp Howell, AMEC Foster Wheeler; Ralph Baumgardner and Melissa Puchalski, EPA

A Statistical Comparison of Active and Passive Ammonia Measurements Collected at Clean Air Status and Trends Network (CASTNET) Sites
Paper#:419
Melissa Puchalski, EPA; Christopher Rogers and Kevin Mishoe, AMEC Foster Wheeler; Ralph Baumgardner, EPA

Ambient $PM_{2.5}$ Monitoring: PSD Permitting Risk and Risk Mitigation
Paper#:596
Richard Osa, Andrew Rengel and Douglas Dziubla, ERM

Variability of Particle Number, Black Carbon, and PM_{10}, $PM_{2.5}$, and PM_1 Levels in Santiago de Chile: Influence in Urban Air Quality
Paper#:557
Francisco Cereceda-Balic, Universidad Técnica Federico Santa Maria, Chile

TRANSPORTATION EMISSIONS AND IMPACTS

Measurement and Modeling of Near-Road & Near-Port Air Quality
Paper#:142
Parikshit Deshmukh, ARCADIS-US

Analysis of NO_x Emissions from Transit Buses in Cold Idle Mode using Artificial Neural Network
Paper#:176
Hamid Omidvarborna, Ashok Kumar and Dong-Shik Kim, The University of Toledo

Measuring the Impact of Port of Charleston Activities on Local Air Quality
Paper#:324
Sue Kimbrough, Gayle Hagler, Timothy Barzyk, Vladilen Isakov, Jonathan Steffens, Ryan Brown and Alan Powell, EPA

TECHNICAL POSTERS

Size Characterization of Particulate Matter Released from Transit Buses
Paper#:371
Ashok Kumar and Sudheer Kumar Kuppili, The University of Toledo

Impacts of Emissions Changes from the Transportation Sector on Future U.S. Air Quality
Paper#:388
Patrick Campbell, North Carolina State University; Fang Yan and Zifeng Lu, University of Chicago, Argonne National Laboratory; Yang Zhang, North Carolina State University; David Streets, University of Chicago, Argonne National Laboratory

An integrative Modeling Approach for Predicting Exposures to Traffic Pollution during Commuting
Paper#:511
Ryan Michael, University of South Florida

Using Extractive FTIR to Measure N_2O from Medium Heavy Duty Vehicles Powered with Diesel and Biodiesel Fuels
Paper#:552
Edgar Thompson, EPA

EMISSION CONTROLS

Strategies for MACT/GACT Compliance for Oil & Gas Industry
Paper#:327
Neil Ramchandani and Ramesh Narasimhan, ERM

The Evaluation of Green Belt Efficiency in Dust Emission Control at ArcelorMittal Tubarão Coal Yard After Improvements
Paper#:507
Bernardo Silva, ArcelorMittal Tubarão

GREENHOUSE GAS IMPACTS AND CAPTURE

Air Quality Models to Address Air Pollution and Climate Change in Central America
Paper#:146
Amy Thomas, Battelle; Amy Huff, Pennsylvania State University; Steve Gomori and Sam Evans, Battelle

Post-Combustion CO_2 Capture with Zeolite in Fluidized Bed
Paper#:187
Jiansyun Li, Fengsheng Su, Chungsying Lu and Chienhsiang Liao, National Chung Hsing University, Taiwan

Operation of an Anaerobic Digester with a Supplemental Carbon Dioxide Sink
Paper#:390
John Loughrin and Nanh Lovanh, USDA - Agricultural Research Service

Feasibility Study of Algae-Based CO_2 Capture
Paper#:449
Marc Menetrez, EPA

INDOOR AIR QUALITY MODELING AND CONTROLS

Controlling VOCs with Indoor Air Biofilters: Field Results
Paper#:254
Alan Darlington, Nedlaw Living Walls; David Llewellyn and Michael Dixon, University of Guelph

Screening Model for Estimating Indoor Air SVOC Concentrations from Indoor Article Emissions
Paper#:397
Arun Varghese, Heidi Hubbard, Cara Henning and Tao Hong, ICF International

AIR EMISSIONS FROM CONSUMER GOODS

Management Strategies of Consumer Product VOCs in Korea
Paper#:125
Young Sunwoo, KonKuk University, South Korea

LANDFILL GAS GENERATION AND ENERGY

Using Spatial Analysis to Determine Priority Landfill Gas to Energy (LFGTE) Projects Across the United States
Paper#:249
Meaghan McGrath, RTI International

Charting the Landfill Gas Recovery Decline and Pollutant Emissions Reductions at a Closed Landfill
Paper#:494
Nicholas Guarriello and Robert Dick, SCS Engineers

HAZARDOUS WASTE TREATMENT AND REMEDIATION

Immobilization of Nitro Explosives and Metals in Biochar-Amended Soils and Mine Tailings
Paper#:51
Seok-Young Oh, Hyun-Su Yoon and Yong-Deuk Seo, University of Ulsan, South Korea

A Low Cost, Real-Time VOC Detection Device for Vapor Intrusion and Outdoor Air Application
Paper#:396
Li Han, Robert Truesdale and David Ensor, RTI International

WASTE CONVERSION TECHNOLOGIES

Inclined Indirect Flaming Pyrolysis Rotary Gasifier (IIFPRG) for Waste to Energy Applications
Paper#:253
Paul Amodeo, SUNY Cobleskill

TECHNICAL SESSIONS

Tuesday, June 23, 2015

EPA Priorities for 2015-2016
Mini-Symposium
Room: 402

Tuesday, June 23, 2015 1:20 PM
Panel – TCC: REG1
Chair: David Jordan, ERM

As we approach the end of the second term of the Obama Administration, EPA is continuing its work on a number of important regulatory initiatives under the Clean Air Act. President Obama's executive order on Climate Change directs EPA to complete rulemaking to control greenhouse gas emissions from both new and existing electric utility generating plants. Ms. McCabe will provide an update of EPA's progress in the rulemaking process for these standards. Congressional oversight and legal challenges bring into question whether EPA will be able to implement these standards by deadlines contained in President Obama's executive order. EPA's ongoing review of National Ambient Air Quality Standards (NAAQS) is expected to continue to be a priority for EPA, with potential changes to the ozone NAAQS under consideration. EPA continues to develop guidance for State Implementation Plans and New Source Review (NSR) for $PM_{2.5}$ and SO_2. Although rulemaking for Maximum Achievable Control Technology (MACT) standards for hazardous air pollutants from most source categories have been implemented, potential revisions to certain of these standards are being considered by EPA. The panel will provide insights into EPA's current regulatory priorities with feedback from state/local regulators, industry, and public interest groups on these initiatives.

Panelists:

- Janet McCabe, Assistant Administrator of EPA's Office of Air and Radiation
- Sheila Holman, North Carolina Department of Environment and Natural Resources, Division of Air Quality
- A. Preston Howard, North Carolina Manufacturers Alliance

AERMOD Modeling - Technical Issues

Track: AIRS
Room: 303

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: APM1
Chair: Gale Hoffnagle, TRC Environmental Corporation
Vice-Chair: Michael Hammer, Lakes Environmental Software

1:20 PM
Updating a Method of Developing AERMOD Inputs for Buoyant Line Plumes
Paper#:451
David Long, American Electric Power Service Corporation

1:40 PM
An In-Depth Look into AERMET's Sub-hourly Meteorological Data Processing
Paper#:421
Michael Newman and Matthew Jones, TRC Environmental Corporation

2:00 PM
Assessing Potential Climate Change Impacts on Small Scale Air Dispersion Modelling Practices in Ontario – A Case Study with AERMOD
Paper#:24
Hong Liu, Dillon Consulting; Jinliang Liu, Ontario Ministry of the Environment

2:20 PM
Evaluation of Low Wind AERMOD Modeling Approaches for Tall-Stack Databases
Paper#:122
Robert Paine and Olga Samani, AECOM

2:40 PM
Sensitivity of AERMOD Model Results to Mixing Height
Paper#:186
Christine Haman and George Schewe, Trinity Consultants

3:00 PM
AERMOD Results Using Standard and Mesoscale Model Meteorological Data
Paper#:290
Anthony Schroeder, Qiguo Jing and Gang Wang, Trinity Consultants

TECHNICAL SESSIONS

Air Pollution Exposure and Health Effects - Part 1

Track: H&EE
Room: 302C

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: HEE1
Chair: Jim Morrow, J.W. Morrow Consulting
Vice-Chair: Suresh Santanam, Syracuse Center of Excellence

1:20 PM
Impact of Poor Air Quality on Chronic Respiratory Problems Among the Elderly
Paper#:416
James Blando, Manasi Sheth-Chandra and Muge Akpinar-Elci, Old Dominion University

1:40 PM
Commuter Exposure to Ultrafine Particulate Matter Using Different Transport Modes in Bogota, Colombia
Paper#:509
Nestor Rojas, Universidad Nacional de Colombia; Mayra López-Valdovinos, Instituto Tecnológico de Colima; Camilo Bernal, Gesoltec; Tatiana Avila, Universidad Nacional de Colombia

2:00 PM
Exposure Assessment of Children's Exposure to Ambient O_3 and $PM_{2.5}$ in Hong Kong
Paper#:563
Wenwei Che, Hong Kong University of Science & Technology; H. Christopher Frey, North Carolina State University; Alexis Lau, Hong Kong University of Science & Technology

2:20 PM
Characteristics of Criteria Air Pollutants in Manali industrial Area, Tamilnadu
Paper#:189
Smaranika Panda and S.M. Shiva Nagendra, Indian Institute of Technology Chennai, India

2:40 PM
Ultrafine Particles in City Environments
Paper#:566
Prashant Kumar, University of Surrey

Atmospheric Chemistry and Ozone Issues - Part 1

Track: AIRS
Room: 301B

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: APC1
Chair: Yi Li, Colorado State University
Vice-Chair: Philip Silva, USDA - Agricultural Research Service

1:20 PM
Ozone and Precursor Trends Implications for Air Quality Management
Paper#:101
G.M. Hidy, Envair; Eric Edgerton, Atmospheric Research & Analysis, Inc.; Charles Blanchard, Envair; Karsten Baumann, Atmospheric Research & Analysis, Inc.

1:40 PM
Discussion of Efforts Done in Egypt to Phase Out the Foam Chemicals as Part of the ODS Phase Out Under the Montreal Protocol
Paper#:303
Ezzat Lewis H. Agaiby and Mounir Labib, Egyptian Environmental Affairs Agency

2:00 PM
Influence of Boundary Conditions on Simulated U.S. Air Quality
Paper#:331
Christian Hogrefe, George Pouliot, Jia Xing, K. Wyat Appel, Shawn Roselle and Rohit Mathur, EPA

2:20 PM
Further Analysis of the Role of Transport Ozone, $PM_{2.5}$, Visibility and Deposition in the Western U.S.
Paper#:343
Ralph Morris, Ramboll ENVIRON

TECHNICAL SESSIONS

Emissions Determinations in the Oil & Gas Industry

Track: O&GS
Room: 305B

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: CHE1
Chair: Charles Lippert, Mille Lacs Band of Ojibwe

1:20 PM
Assessment of Uncertainties when Constructing the Intensity of an Overcast Sky Obstructed by an Attenuating Atmospheric Plume
Paper#:74
Bradley Conrad and Matthew Johnson, Carleton University

1:40 PM
Measurements of Black Carbon Soot Formation within Turbulent Flames
Paper#:522
David Sawires and Matthew Johnson, Carleton University

2:00 PM
Assessment of Air Emissions from Oil and Natural Gas Well Pads Using Mobile Remote and Onsite Direct Measurements
Paper#:551
Halley Brantley, Eben Thoma, Bill Squier and Adam Eisele, EPA

2:20 PM
The Statistics of Super-Emitters: Modeling Heavy-Tailed Distributions of Environmental Pollutants with Power Laws
Paper#:191
Marc Mansfield, Utah State University

2:40 PM
Control of Hazardous Air Pollutant Emissions from Crude Oil and Condensate Storage Tanks Using Thermal-Swing Adsorption
Paper#:23
Oluwatosin Oyelakin, TAMUK

Monitoring Hazardous Air Pollutants in Ambient Air

Track: AIRS
Room: 302A

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: AAE1
Chair: Praveen Srirama, CEMRC
Vice-Chair: Asami Tanimoto, CDM Smith

1:20 PM
Feasibility Assessment of a Submillimeter Wave Spectroscopic Sensor For Measuring Carbonyls in Ambient Air
Paper#:517
Thomas Kelly, Battelle

1:40 PM
Petroleum Refinery Fenceline Monitoring Requirements for Benzene: Implementing a Successful Program
Paper#:309
David Elam, TRC Environmental Corporation

2:00 PM
Optimization of EPA Method TO-11a for the Measurement of Carbonyls in Ambient Air
Paper#:256
Ian MacGregor, Battelle; David Shelow, EPA; Elizabeth Hanft, Battelle

2:20 PM
Integrated Use of a Scanning Open-Path FTIR with Multiple Open-Path and Closed Path Analyzers to Determine Emissions from Field-Scale Inorganic Fertilizer Treatments
Paper#:161
Cheng Hsien Lin, Richard Grant, Clifford Johnston and Austin Pearson, Purdue University

2:40 PM
An Overview of NASA Health and Air Quality Applications
Paper#:86
John Haynes, Ali Omar and Sue Estes, NASA

TECHNICAL SESSIONS

Municipal Waste Management, Landfills and Landfill Gas

Track: WAST
Sponsored by: Nexsen Pruet
Room: 305A

NEXT CHALLENGE. NEXT LEVEL.
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Tuesday, June 23, 2015 1:20 PM
Platform – TCC: WMB1
Chair: David Greene, SCS Engineers
Vice-Chair: Melanie Sattler, University of Texas at Arlington

1:20 PM
A Municipal Solid Waste Collection Model for Estimating Costs and Emissions
Paper#:434
Megan Jaunich, James Levis, Morton Barlaz and Joseph DeCarolis, North Carolina State University

1:40 PM
Evaluation of the CLEEN (Capturing Landfill Emissions for Energy Needs) Model
Paper#:202
Melanie Sattler, University of Texas at Arlington

2:00 PM
Integrated Environmental and Economic performance of Energy Recovery from MSW landfills for Electricity Generation
Paper#:222
Reza Broun and Melanie Sattler, University of Texas at Arlington

2:20 PM
Landfill Gas Combustion: Evaluating Health Risks and Neighborhood Concerns
Paper#:258
Neil Peters, ARM Group Inc.

2:40 PM
Transitioning to a Sustainable Waste Management System in the Emirate of Abu Dhabi
Paper#:272
Keith Weitz and Ahmed El-Said Rady, RTI International

Near Road Air Quality

Track: TRAN
Room: 306B

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: OMS1
Chair: Helen Ginzburg, Parsons Brinckerhoff
Vice-Chair: Yevgen Nazarenko, McGill University

1:20 PM
Estimating Human Exposures to Traffic-Related Pollution Using an Integrated Transportation and Air Pollution Modeling Framework: Application to the Tampa Region
Paper#:308
Sashikanth Gurram, Amy Stuart and Abdul Pinjari, University of South Florida

1:40 PM
A Holistic Evaluation Tool for Assessing Transportation Externalities
Paper#:401
Suriya Vallamsundar and Jane Lin, University of Illinois at Chicago

2:00 PM
Assessment of Near-Source Air Pollution at a Fine Spatial Scale Utilizing a Mobile Monitoring Approach
Paper#:317
Jonathan Steffens, Sue Kimbrough, Vladilen Isakov, Timothy Barzyk, Ryan Brown, Alan Powell and Gayle Hagler, EPA

2:20 PM
Abu Dhabi Case Study: How Improved Environmental Permitting, Assessment and Best Management Practices are Contributing to Sustainable Transportation
Paper#:263
Fadi Elayyan, Hani Abdalla, RTI International; Dr. Shaikha Al Dhaheri, Jamal Al Zaidaneen,Environment Agency-Abu Dhabi; Dr. Soon-Sik Lee, Etihad Rail

2:40 PM
Mobile Exhaust Particulate Emissions Measurement Using a Small Footprint Integrated PEMS
Paper#:798
Gurdas Sandhu, North Carolina State University

TECHNICAL SESSIONS

Particulate Matter Source Apportionment

Track: AIRS
Room: 302B

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: APP1
Chair: Philip Hopke, Clarkson University
Vice-Chair: Kim Oanh, Asian Institute of Technology, Thailand

1:20 PM
Concentration, Composition and Apportionment of $PM_{2.5}$ Adjacent to the I-710 Freeway in Long Beach, CA
Paper#:119
Delbert Eatough, Jaron Hansen, Paul Cropper and Emily Burrell, Brigham Young University; Rob Farber

1:40 PM
Source Apportionment of $PM_{2.5}$: Partial Least Squares as a Compliment to Positive Matrix Factorization
Paper#:47
Yasmany Mancilla and Alberto Mendoza-Dominguez, Monterrey Institute of Technology and Higher Education, Mexico

2:00 PM
Source Apportionment of PAHs in Temuco, Chile, Using Receptor Modeling and High-Volume $PM_{2.5}$ Sampling.
Paper#:361
Luis Diaz-Robles, University of Santiago of Chile; Cristian Figueroa, Catholic University of Temuco; Ernesto Pino-Cortés, University of Santiago of Chile; Francisco Cubillos-Montecinos, University of Santiago of Chile; Alberto Vergara-Fernández, College of Engineering, Universidad de Los Andes, Chile; Francisco Cereceda-Balic, Universidad Técnica Federico Santa Maria, Chile

2:20 PM
Source Apportionment of $PM_{2.5}$ in Beijing During 2012-2013
Paper#:424
Yungang (Carl) Wang, ERM

2:40 PM
Assessment of Source Apportionment by Positive Matrix Factorization Analysis on Fine and Coarse Particulate Matter in Industrial Areas in Kaduna, a Commercial City in Northern Nigeria
Paper#:395
Sunday Orogade, Department of Water Resources and Environmental Engineering, Ahmadu Bello University Zaria, Nigeria

3:00 PM
Application of Positive Matrix Factorization Analysis in Characterization of $PM_{2.5}$ and $PM_{2.5-10}$ Emission Sources From the Premises of Obafemi Awolowo University Teaching Hospital, Ile-Ife, Nigeria
Paper#:382
Philip Hopke, Clarkson University; Kayode Owoade, Obafemi Awolowo University

Resource Conservation - Recycling, Diversion and Zero Waste

Track: SUST
Room: 306A

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: SRC1
Chair: Chih Chao, Tunghai University, Taiwan
Vice-Chair: Sam Vigil, Cal Poly State University, San Luis Obispo

1:20 PM
City of San Antonio-Residential Recycling Compliance & Inspection Program
Paper#:403
Aleisha Knochenhauer, City of San Antonio Solid Waste Management Dept.

1:40 PM
Opportunities of Neighborhood Based Sustainable Food Waste Management
Paper#:500
Ning Ai, University of Illinois at Chicago

2:00 PM
A Multi-Stage Life-Cycle Optimization Framework for Sustainable Waste Management Planning
Paper#:211
Megan Jaunich, James Levis, Joseph DeCarolis, Ranji Ranjithan and Morton Barlaz, North Carolina State University

TECHNICAL SESSIONS

Hazardous Waste Characterization, Treatment and Site Remediation

Track: YOUN/WAST
Room: 306C

Tuesday, June 23, 2015 1:20 PM
Platform – TCC: WMR-YP1
Chair: Gene McCall, McCall Environmental

1:20 PM
Overview of Remediation Technologies and Future Directions
Paper#:600
Eugene McCall, McCall Environmental

1:40 PM
Sustainable Bioremediation Strategies for Chlorinated Solvents
Paper#:299
Kevin Finneran, Clemson University, Dept. of Environmental Engineering & Earth Sciences

2:00 PM
Evaluation of Trichloroethylene Removal in a Biotrickling Filter under Acidic Conditions
Paper#:140
Dhawal Chheda and George Sorial, University of Cincinnati

2:20 PM
The Art and Science of Conducting Environmental Site Assessments
Paper#:726
Edmund Henriques, S&ME Inc.

State Agency Director Perspectives on Environmental Issues
Mini-Symposium

Room: 402

Tuesday, June 23, 2015 4:00 PM
Panel – TCC: REG2
Chair: Charles Carter, Nexsen Pruet
Vice-Chair: Sheila Holman, North Carolina Department of Environment and Natural Resources

Moderated by Charles Carter of Nexsen Pruet PLCC, who also currently serves as the Air Quality Committee Chairman of the North Carolina Environmental Management Commission, this panel will consist of officials from various state agencies to discuss significant issues facing their agencies and the facilities they regulate. Topics will include: EPA's Clean Power Plan and State responses for Section 111(d) plans; EPA's proposed new ozone standard and new nonattainment area planning as a result of the new standard; the final State Implementation Plan (SIP) call on excess emissions during start up, shut down and malfunction events, and addressing EPA SIP deficiency findings; implementation of the short term sulfur dioxide and nitrogen dioxide standards; and waste issues such as EPA's revised definition of solid waste and its impact on recycling and reuse.

Panelists:

- Michael Dowd, Air Division Director, Virginia Department of Environmental Quality
- John Evans, North Carolina Department of Environment and Natural Resources
- Elizabeth Dieck, South Carolina Department of Health and Environmental Control
- Keith Baugues, Assistant Commissioner of Air Quality for the Indiana Department of Environmental Management
- Other invited panelists include officials from Tennessee, Georgia, Alabama, and Florida

TECHNICAL SESSIONS

Improving Public Participation in the Air Quality Regulatory Process

Track: REGU
Room: 201

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: PUB1
Chair: Jayme Graham, Allegheny County Health Department

4:00 PM
Sensor Technology and Performance Characteristics
Paper#:37
Ron Williams, Russell Long, Melinda Beaver, Rachelle Duvall, Amanda Kaufman, Gayle Hager, Sue Kimbrough, Eben Thoma, William Mitchell, Tim Hanley and JoAnn Rice, EPA; Sam Garvey, Alion Science and Technology

4:20 PM
Citizen Technology Today
Paper#:66
Shawn Dolan, Randi Ryan, Virtual Technology, LLC

4:40 PM
Reaching Underserved Populations through Partnerships: Lessons from Focused Education and Outreach Initiatives to Latinos Students and Older Adults by the North Carolina Division of Air Quality
Paper#:96
Shannon Culpepper, Jonathan Navarro and Teresa Colon, North Carolina Department of Environment and Natural Resources. Division of Air Quality

5:00 PM
Village Green Air Monitoring
Paper#:426
Esteban Herrera, EPA

Air Quality Work in Indian Country

Track: FEDS
Room: 305A

Tuesday, June 23, 2015 4:00 PM
Panel – TCC: IEA1
Chair: Charles Lippert, Mille Lacs Band of Ojibwe

Join members of the National Tribal Air Association (NTAA) to discuss their work to advance air quality in Indian Country. This panel discussion will include recent advances in air quality policy and practice that Tribes have made. NTAA Executive Committee officials will also provide best practices for environmental professionals to work with Tribes on air quality issues in Indian Country.

Panelists:

- Angela Benedict, NTAA Region 2
- Ralph McCullers, NTAA Region 4

AERMOD Modeling - Case Studies

Track: AIRS
Room: 303

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: APM2
Chair: Michael Newman, TRC Environmental Corporation
Vice-Chair: Ron Petersen, CPP, Inc.

4:00 PM
AERSCREEN: Screening Tool Sensitivity for AERMOD
Paper#:145
George Schewe and Brian Otten, Trinity Consultants

4:20 PM
Comparison of AERMOD, CFD-RANS and Wind Tunnel for Simple Building Configurations
Paper#:495
Anke Beyer-Lout, Ron Petersen and Anthony Bova, CPP, Inc.

4:40 PM
Modeling Ship Painting Operations Inside a Drydock Using AERMOD's Volume, Area, and Open Pit Algorithms
Paper#:365
David Phong, Kurt Kurzenhauser, Catherine Mukai, Ted Bowie and Michael Keinath, Ramboll ENVIRON

5:00 PM
Impact of a Hazardous Waste Incinerator on Concentrations and Profiles of Atmospheric PCDD/Fs in China
Paper#:72
Chao Wang, Xiaodong Li, Qi Wang, Yueling Gu, Xuan Zao, Tianjiao Wang, Tong Chen, Jianhua Yan and Kefa Cen, National Key Lab of MOE Clean Energy and Environmental Engineering, Zhejiang University, Hangzhou, China

TECHNICAL SESSIONS

Transportation, Energy and Climate Change

Track: TRAN
Room: 306B

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: PLU1
Chair: Howard Brazil, Metropolitan Transportation Commission
Vice-Chair: Roger Wayson, Wyle Aerospace

4:00 PM
Energy Use and Emissions Rates for a Plug-In Hybrid Electric Vehicle Based on Real-World Measurements
Paper#:295
Xiaohui Zheng, Jiangchuan Hu and H. Christopher Frey, North Carolina State University

4:20 PM
Strategies for Complying with Increasingly Strict Air Emission Regulations as Related to Mobile Fleet Sources in Southern California
Paper#:539
Randa AbuShaban, Chuck Forman, James Colston, and Lisa Rothbart, Orange County Sanitation District

4:40 PM
Life Cycle Assessment for the Bus Rapid Transit System TransMilenio and Comparison With Other Means of Passenger Transportation
Paper#:127
Yohén Cuéllar Álvarez, Luis Belalcazar, and Rodrigo Buitrago, Universidad Nacional de Colombia

5:00 PM
Implications of Wireless Communication System for Traffic Operations on Vehicle Emissions
Paper#:336
Qing Li, Fengxiang Qiao and Lei Yu, Texas Southern University

Waste Regulations - The Basics

Track: YOUN/REGU
Room: 306C

Tuesday, June 23, 2015 4:00 PM
Panel – TCC: REG-YP1
Chair: Daphne Neel, South Carolina Dept. of Health and Environmental Control Bureau of Land and Waste Management
Vice-Chair: Robert Hodges, South Dept. of Health and Environmental Control Bureau of Land and Waste Management

This session will begin with focus on the history and evolution of waste regulations with a functional overview of the regulations developed for implementation of CERCLA and RCRA. Panelists will provide a more in depth view of issues currently being addressed under both of these acts. Representatives from South Carolina and North Carolina will discuss State-specific waste programs not addressed under RCRA or CERCLA.

Panelists:

- Daphne Neel, SCDHEC-Bureau of Land and Waste Management
- Alan Farmer, EPA Region 4, RCRA Division
- Franklin Hill, EPA Region 4, Superfund Division
- Robert Hodges, SCDHEC Bureau of Land and Waste Management
- Linda Culpepper, NCDENR-Division of Waste Management

TECHNICAL SESSIONS

Zero Waste Systems: Economics, Funding and Payback

Track: SUST
Room: 306A

Tuesday, June 23, 2015 4:00 PM
Panel – TCC: SRC2
Chair: Maggie Clarke, Beyond Waste Solutions
Vice-Chair: Chih Chao, Tunghai University, Taiwan

Waste-To-Energy and landfills represent technologies that one can visualize and execute calculations on financial returns, making it easier to attract investments. A city might want to undertake zero waste, but a WTE company has complete information on cost for each year and how much of the waste stream they can take. Zero waste, on the other hand, is a concept and policy approach, which requires a mixture of legislative, billing, programmatic, and technological measures including legislative prevention initiatives (bans, design for environment, EPR), improved billing (e.g., Pay-as-you-throw), reuse (centers, exchanges, etc.), recycling and composting (collection, processing), involving public-private partnerships, advanced education, mandates, enforcement, etc. to make it happen. There is no zero waste company or any calculation of costs and because participation is a wild card, the amount and type of discards taken by each program, legislative initiative, is also uncertain. In order to know when a breakeven would take place for any particular town is very important information. In the absence of compelling mandates with fines, and without information on return on investment, most towns might not risk undertaking zero waste. This panel will discuss respective viewpoints, experiences and proposals for a mechanism to make it easier to visualize costs and benefits of zero waste over time, calculate return on investment, compare disposal alternatives, etc.

Panelists:

- Maggie Clarke, Beyond Waste Solutions
- Muriel Williman, Orange County Solid Waste Management Dept.
- Chih Chao, Tunghai University, Taiwan

Particulate Matter Measurements and Emissions

Track: AIRS
Room: 302B

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: APP2
Chair: Michael Meyer, Partilogical, LLC
Vice-Chair: Julia Lester, Ramboll ENVIRON

4:00 PM
Tempospatial Variation and Chemical Composition of Fine Particles ($PM_{2.5}$) at the Matsu Islands
Paper#:49
Yen Lun Su, Cheng-Chih Chang, Tsung-Chang Li and Chung-Shin Yuan, National Sun Yat-sen University, Taiwan

4:20 PM
Spatial and Temporal Variability of $PM_{2.5}$ and PM_1 Concentrations and Analysis of Related Impact Factors in Guangzhou
Paper#:217
Dawen Yao and Yonghong Liu, Sun Yat-sen University, China

4:40 PM
Chemical Speciation of $PM_{2.5}$ in Southwest Ohio
Paper#:404
Kaiqi Li and Mingming Lu, University of Cincinnati; Anna Kelley, Hamilton County

5:00 PM
Particulate Matter Size Measurement Emission Sampling Methods
Paper#:128
James Serne, TRC Environmental Corporation

5:20 PM
Texture Characterization of Fine Particles Released During Combustion Process by Fractional Brownian Motion Analysis
Paper#:474
Eduardo Herrera Peraza, CIMAV; Carmen Julia Navarro Gómez, JMAS; Ivan Templeton, Roberto Camarillo, Elias Ramirez, Guillermo Gonzalez, Jorge Carrillo, Ramón Gomez, Alfredo Campos, Luis Lozoya and Damaris Acosta, CIMAV

5:40 PM
Use of a Multi Wavelength Integrating Nephelometer to Determine Particle Mass Concentration and Size
Paper#:321
Herbert Schloesser, American Ecotech, L.C.

TECHNICAL SESSIONS

Control of NOx Emissions

Track: AIRS
Room: 301B

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: AAC1
Chair: Arijit Pakrasi, CB&I
Vice-Chair: Minh Pham, SCAQMD

4:00 PM
Effects of Manganese Oxide Impregnation and Flue Gas Conditions on Simultaneous Control of Hg(0) and NO from Coal-Fired Utility Flue Gases Using SCR Catalysts
Paper#:180
Sheng-Hsuan Hsiao and Chun-Hsiang Chiu, National Taipei University of Technology; Hong-Ping Lin, Department of Chemistry, National Cheng-Kung University; Shiao-Shing Chen, Institute of Environmental Engineering and Management, National Taipei University; Hsing-Cheng Hsi, National Taiwan University; Tien-Chin Chang, National Taipei University of Technology

4:20 PM
A Kinetic Study of SCR of NOx by NH_3 Over γ Fe_2O_3 Nano-Catalyst
Paper#:201
Hui Liang, Xianbin Zha and Keting Gui, Key Laboratory of Energy Thermal Conversion and Control of Ministry of Education (Southeast University), Nanjing

4:40 PM
Catalytic Emission Control for Biofuel-Powered Stationary Engines
Paper#:307
Rita Aiello, Johnson Matthey

5:00 PM
DUPLEX™ Technology Demonstrates Sub 5 ppm NOx and CO without SCR, FGR, or High Excess Air
Paper#:63
Joseph Colannino, ClearSign

Environmental Compliance at Federal Facilities

Track: FEDS
Room: 305B

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: FED1
Chair: Frank Castaneda, U.S. Air Force, Center for Engineering & the Environment
Vice-Chair: David Kumar, U.S. Air Force/A4C

4:00 PM
RICE NESHAP Compliance Assessment at Three U.S. Navy Sites
Paper#:450
Greg Pagett and Sean Mulligan, AMEC Foster Wheeler

4:20 PM
Refrigerant Compliance in the U.S. Air Force - Findings, Recommendations and Solutions
Paper#:501
Brent Allred, Northrop Grumman Information Systems

4:40 PM
Best Management Practices for Compliance Assessments in the U.S. Air Force
Paper#:799
Will Rottgering, Northrop Grumman

5:00 PM
Results of an Automated PTE Model at U.S. Air Force Facilities
Paper#:352
Stuart Wallace and Crystal Josey, AECOM

TECHNICAL SESSIONS

Air Pollution Exposure and Health Effects - Part 2

Track: H&EE
Room: 302C

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: HEE2
Chair: Suresh Santanam, Syracuse Center of Excellence
Vice-Chair: Jim Morrow, J.W. Morrow Consulting

4:00 PM
Sensor Messaging: Guidance for Interpretation of Short Term Concentration Readings
Paper#:82
Kristen Benedict, EPA

4:20 PM
National Review of Ambient Air Toxics Observations
Paper#:328
Madeleine Strum, EPA; Mike McCarthy, Sonoma Technology, Inc.; Rich Scheffe, EPA

4:40 PM
Evaluating Retrospective Neighborhood Exposure to Asbestos from a Former Manufacturing Facility
Paper#:534
Stephen Zemba, CDM Smith

5:00 PM
Abu Dhabi Emirate Electromagnetic Radiation Screening Study
Paper#:237
Ahmed Rady, Samer Akl and Fadi Elayyan, RTI International; Vincent Maisto, EI Group

5:20 PM
Annoyance Due to Air Pollution: Survey Study in Vitoria Region – Brazil
Paper#:436
Milena M. Melo, Instituto Federal do Espírito Santo, Estrada da Tartaruga; Jane Meri Santos and Neyval C. Reis Junior, Universidade Federal do Espírito Santo, Department of Environmental Engineering, Vitoria, Brazil; Valderio Reisen and Antônio Fernando P. Silva, Universidade Federal do Espírito Santo, Department of Statistics, Vitoria, Brazil

Ambient Air Monitoring for Criteria Pollutants

Track: AIRS
Room: 302A

Tuesday, June 23, 2015 4:00 PM
Platform – TCC: AAE1
Chair: Praveen Srirama, CEMRC
Vice-Chair: Richard Osa, ERM

4:00 PM
An Inter-Comparison of Ozone Measurement Methods
Paper#:292
Alan Leston, Air Quality Research & Logistics, LLC; Will Ollison, American Petroleum Institute (API)

4:20 PM
Speciated Reactive Nitrogen Measurements Using Chemiluminescence
Paper#:386
Christopher Rogers, Kevin Mishoe, Marcus Stewart and Kemp Howell, AMEC Foster Wheeler; Gregory Beachley and Melissa Puchalski, EPA

4:40 PM
Evaluation and Comparison of Chemiluminescence and UV Photometric Methods for Measuring Ozone Concentrations in Ambient Air
Paper#:546
Russell Long, Melinda Beaver, Rachelle Duvall, Eric Hall and Surender Kaushik, EPA; Keith Kronmiller, Michael Wheeler and Samuel Garvey, Alion Science and Technology

5:00 PM
Community Air Sensor Network (CAIRSENSE) Project: Lower Cost, Continuous Ambient Monitoring Methods
Paper#:113
Wan Jiao and Gayle Hagler, EPA National Risk Management Research Laboratory; Ron Williams, EPA National Exposure Research Laboratory; Bobby Sharpe, Arcadis US; Ryan Brown and Daniel Garver, EPA Region 4; Robert Judge, EPA Region 1; Motria Caudill, EPA Region 5; Joshua Rickard, EPA Region 8; Michael Davis, EPA Region 7; Lewis Weinstock, EPA/OAQPS/AQAD/AAMG; Susan Zimmer-Dauphinee and Ken Buckley, Georgia Environmental Protection Division

5:20 PM
NIST Calibration of Vendor Prime Mercury Generators
Paper#:150
James Norris, NIST

5:40 PM
Spatial Clustering of Urban and Rural Community Monitoring Sites in the United States by Criteria Air Pollutant Concentrations
Paper#:114
Laura Datko Williams, Breanna Alman, Rachel Housego and Steven Dutton, EPA

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TECHNICAL SESSIONS

Wednesday, June 24, 2015

Industry Focus	Session ID	Session Title	TCC(s)	Session Format	Room
8:00 am-9:40 am					
▲	MINI-WedsAM1	Greenhouse Gas Regulations	REG	Platform	306A
☁	AIRS-WedsAM1	Atmospheric Chemistry - Deposition and Transport	APC	Platform	302A
☁	AIRS-WedsAM1	Fugitive Dust	APP	Platform	306C
☁	AIRS-WedsAM1	Modeling Fine Particulates	APM	Platform	302C
☁	AIRS-WedsAM1	Next Generation Source Measurements I	AAM	Platform	302B
☁	AIRS-WedsAM1	Stack Gas Measurement Studies	AAE	Platform	301B
🔍	H&EE-WedsAM1	Odor Issues and Solutions	ODR	Platform	201
🚚	TRAN-WedsAM1	Clean Transportation's 3-Legged Stool: Economy, Environment and Education	EPE-REG	Panel	306B
⚖ 🗑	REGU/WAST-WedsAM1	Coal Ash Disposal, Containment, Spills and Reuse	REG-WMB	Panel	303
🚚	TRAN-WedsAM1	Transportation Emission Monitoring	OMS	Platform	305B
🗑	WAST/ENER-WedsAM1	Liquid Biofuels	WMB	Platform	305A
🍃 ♻	YOUN/SUST-WedsAM1	Waste Recycling and Sustainability Programs	SRC-YP	Panel	206
9:40 am-10:20 pm		**Session Break**			
10:20 am-12:00 pm					
▲	MINI-WedAM2	Clean Power Initiatives	PWR	Platform	306A
☁	AIRS-WedAM2	Indoor Air Quality Studies	AAM	Platform	301B
☁	AIRS-WedAM2	Model Comparison Studies	APM	Platform	302C
☁	AIRS-WedAM2	Next Generation Source Measurements II	AAM	Platform	302B
🌐	CLIM-WedAM2	Climate Change Impacts and Adaptation	CCI	Platform	306B
🔍	H&EE-WedAM2	Air and Odor Emissions from Animal Production	ODR	Platform	201
⚖	REGU-WedAM2	Air Toxics Regulations and Policies - Development and Implementation	REG	Panel	303
🚚	TRAN-WedAM2	Alternative Fuels	OMS	Platform	305B
🚚	TRAN-WedAM2	Community Noise and Vibration	CNV	Platform	302A
🗑	WAST-WedAM2	Green Remediation - The Push for More Sustainable Remedies	WMR	Panel	306C
🗑	WAST/ENER-WedAM2	Air Emission Issues in the Biofuel Industry	WMB	Panel	305A
🍃 ☁	YOUN/AIRS-WedAM2	Air Pollution Control Basics and Future Trends	AAC-YP	Platform	206
2:00 pm-3:20 pm					
▲	MINI-WedPM1	Climate Change Impacts	CCI	Platform	306A
☁	AIRS-WedPM1	1-Hour NAAQS Modeling Issues	APM	Platform	302C
☁	AIRS-WedPM1	Atmospheric Chemistry and Ozone Issues - Part 2	APC	Platform	302A
☁	AIRS-WedPM1	Carbonaceous Particulate Matter	APP	Platform	302B
🔍	H&EE-WedPM1	Risk Management: Topics in Safety, Emergency Response and Risk Assessment	RAM	Platform	201
⚖	REGU-WedPM1	Clean Air Act Regulatory Developments	REG	Platform	306B
⚖	REGU-WedPM1	New Source Review and Title V GHGs Permitting Issues	REG	Panel	303
⚖	REGU-WedPM1	Work for Free: Leveraging Technical Skills to Contribute to Local and Professional Communities	PUB	Panel	301B
🚚	TRAN-WedPM1	Modeling Transportation Emissions	OMS	Platform	305B
🗑	WAST-WedPM1	Anaerobic Digestion - Food Waste and Greases ("FOG")	WMB	Platform	305A
🗑 🔍	WAST/H&EE-WedPM1	Site Assessment and Vapor Intrusion	WMR-RAM	Platform	306C
🍃 ☁	YOUN/AIRS-WedPM1	Air Pollution 101A - Acid Gases, Nitrogen Oxides and Volatile Organic Compounds	AAC-YP	Panel	206
3:20 pm-4:00 pm		**Session Break**			
4:00 pm-5:40 pm					
▲	MINI-WedPM2	NSR Reform: Recent Developments and Issues	REG	Panel	306A
☁	AIRS-WedPM2	Control of Mercury and VOC Hazardous Air Pollutants	AAC	Platform	302B
🏛	FEDS-WedPM2	Strategic Sustainability Performance at Federal Facilities and Public Sectors	FED	Platform	301B
🔍	H&EE-WedPM2	Risk Assessment/Management: Recent Experience	RAM	Platform	201
🔍 🗑	H&EE/WAST-WedPM2	Vapor Intrusion Temporal Variability: How Bad Is It and How Can We Manage It	RAM-WMR	Panel	306C
🔥	O&GS-WedPM2	Flare Emissions from Oil & Gas Operations	CHE	Platform	302C
💡	POWR-WedPM2	Utility and Boiler Compliance in the Public Sector	PWR-IFB	Platform	302A
⚖	REGU/INDU-WedPM2	Innovative Approaches to NAAQS Compliance	REG-INDU	Panel	306B
⚖	REGU-WedPM2	Views from Enforcement Defense Counsel: What to Make of EPA's NextGen Enforcement	REG	Panel	303
🚚	TRAN-WedPM2	Emission Estimates, MOVES and Other Models	OMS	Platform	305B
🗑	WAST-WedPM2	Digestion, Torrefaction, and Other Conversion Technology Systems	WMB	Platform	305A
🍃 ⚖	YOUN/AIRS-WedPM2	Air Dispersion Models and Modeling Issues	APM-YP	Platform	206

TECHNICAL SESSIONS

Wednesday, June 24, 2015

Greenhouse Gas Regulations
Mini-Symposium
Room: 306A

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: REG3
Chair: John Koehler, ERM

8:00 AM
Overview of the Mini Symposium – Regulatory Directions: Environmental Benefits, Climate Change, Societal Impacts, and Future Outlook
Paper#:593
John Koehler, ERM

8:20 AM
The Clean Air Act and the Basis for Regulation of Greenhouse Gases
Paper#:27
John King, Breazeale, Sachse & Wilson

8:40 AM
Air Quality under State-Level Limits or Regional Trading to Regulate CO_2 from Existing Power Plants
Paper#:111
Rebecca Saari and Noelle Selin, Massachusetts Institute of Technology

9:00 AM
Tailoring for a Perfect Fit: Strategies for Air Quality Permitting Under the GHG Tailoring Rule
Paper#:528
Estee Lafrenz, Kleinfelder

9:20 AM
Greenhouse Gas BACT Trends for Simple Cycle and Combined Cycle Turbines
Paper#:480
David Shotts, ERM

9:40 AM
The U.S. Supreme Court Decision on the Tailoring Rule and Issues Affecting Regulation of Greenhouse Gas Emissions from Landfills
Paper#:370
Cynthia Hibbard, CDM Smith

Atmospheric Chemistry - Deposition and Transport
Track: AIRS
Room: 302A

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: APC2
Chair: Barbara Zielinska, Desert Research Institute
Vice-Chair: Francisco Cereceda-Balic, Universidad Técnica Federico Santa María, Chile

8:00 AM
Importance and Evaluation of Acid Rain and Atmospheric Dust in the Gulf of Mexico (2003-2013)
Paper#:280
Rodolfo Sosa, Humberto Bravo, Ana Luisa Alarcon, María del Carmen Torres, Pablo Sanchez, Monica Jaimes, Elias Granados, Rocio Bautista and Cecilia Vargas, Universidad Nacional Autónoma de México (UNAM)

8:20 AM
Deposition and Transport Evaluation of Polycyclic Aromatic Hydrocarbons (PAHs) on Snow Samples from Chilean Andes and Antarctic Peninsula
Paper#:558
Francisco Cereceda-Balic, V.Vidal, P.Carmona, M.Funes, J.Acuna, J. Zuniga, J.P. Munoz, P. Llanos and C. Reinoso, Universidad Técnica Federico Santa María, Chile

8:40 AM
Environmental Impact Derived from Atmospheric Deposition of Heavy Metals on Soils Around the Industrial Area of Puchuncaví, Chile
Paper#:559
Francisco Cereceda-Balic, S. Salmanighabeshi, M. R. Palomo-Marín, E. Bernalte, F. Rueda-Holgado, C. Miró Rodríguez, X. Fadic-Ruiz, V. Vidal-Cortez and E. Pinilla-Gil, Universidad Técnica Federico Santa María, Chile

TECHNICAL SESSIONS

Coal Ash Disposal, Containment, Spills and Reuse

Track: REGU/WAST
Room: 303

Wednesday, June 24, 2015 8:00 AM
Panel – TCC: REG-WMB1
Chair: Leo Stander
Vice-Chair: Susan Thorneloe, EPA

Recent news articles have included detailed and extensive descriptions of spills at the Duke Energy Dan River Steam Station near Eden, North Carolina, and the TVA Kingston Fossil Plant in Roane County, Tennessee. Much has been done to clean up after these disasters and much more is planned to prevent them in the future. This panel discussion will provide information on what happened, what environmental effects were encountered and are being monitored, what cleanup measures are underway, what mitigating measures are planned to prevent a reoccurrence at these sites and other sites around the country, what environmental requirements exist, and possible uses for coal ash.

Panelists:

- Kathryn Nash, Tennessee Valley Authority
- Thomas Reeder, North Carolina Department of Environment and Natural Resources
- William Langley, Dept. of Civil and Environmental Engineering UNC–Charlotte
- Frank Behan, EPA, Office of Resource Conservation and Recovery
- George Namie, Leidos Engineering, LLC

Clean Transportation's 3-Legged Stool: Economy, Environment, and Education

Track: TRAN
Room: 306B

Wednesday, June 24, 2015 8:00 AM
Panel – TCC: EPE-REG1
Chair: Anne Tazewell, North Carolina State University

Reducing greenhouse gas emissions in the transportation sector requires change in the types of vehicles driven, the fuels put in those vehicles, and the number of vehicle miles traveled. Representing these changes are the expanding suite of alternative fuel vehicle options, the alt fuels themselves (biodiesel, electricity, ethanol, natural gas, and propane), fuel efficiency and conservation tools, idle reduction technology and policy, and vehicle right-sizing. The North Carolina Clean Energy Technology Center at North Carolina State University will facilitate an expert panel to present best practices and tools for building the three legs of the Clean Transportation stool: Economy, Environment, and Education. Panelist topics and speakers will illustrate how federal agencies and state programs are working together to leverage resources and drive more efficiency into the transportation system:

Panelists:

- Diane Truchetta, Federal Highway Administration Office of Natural Environment
- Marcy Rood Werpy, Argonne National Lab, Center for Transportation Research
- Alan Powell, EPA Region 4
- Margo Oge, former Director of EPA's Office of Transportation and Air Quality

Fugitive Dust

Track: AIRS
Room: 306C

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: APP3
Chair: Charles McDade, University of California, Davis
Vice-Chair: Rob Farber

8:00 AM
Control of Large Area Wind Erosion in Desert Settings
Paper#:48
Chatten Cowherd

8:20 AM
Remove Excess Recoverable Beach Sand, Raze Wind Blown Dust from Solar Farms, Barren Drought Lands, Abandoned Farm Fields in the CA Western Mojave Desert
Paper#:399
Rob Farber

TECHNICAL SESSIONS

Liquid Biofuels

Track: WAST/ENER
Room: 305A

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: WMB2
Chair: Melanie Sattler, University of Texas at Arlington
Vice-Chair: David Minott, Arc5 Environmental Consulting, LLC

8:00 AM
Generating a Spatial Database of U.S. Bioethanol Feedstock Production, for Use in Evaluating the Ecological Impacts of Feedstock Production
Paper#:384
Christopher Holder and Josh Cleland, ICF International; Stephen LeDuc, EPA National Center for Environmental Assessment; Zac Andereck, Deloitte; Chris Hogan, Fearless Solutions; Kristen Martin, Montana Department of Environmental Quality

8:20 AM
Characterizing Life Cycle GHG Emission from Trap Grease-to-Biodiesel Production Pathway
Paper#:137
Qingshi Tu and Mingming Lu, University of Cincinnati

8:40 AM
Biodiesel and Activated Carbons Production from the Spent Coffee Grounds
Paper#:206
Yang Liu, Mingming Lu and Qingshi Tu, University of Cincinnati

9:00 AM
Characterization of Soot Emitted from Combustion of Soybean Biodiesel in a Laboratory Chamber
Paper#:178
Hamid Omidvarborna, Dong-Shik Kim and Ashok Kumar, The University of Toledo

9:20 AM
Understanding Potential Air Emissions from a Cellulosic Biorefinery Producing Renewable Diesel Blendstock
Paper#:50
Yimin Zhang, National Renewable Energy Laboratory; Jason Renzaglia and Mae Thomas, Eastern Research Group; Garvin Heath, National Renewable Energy Laboratory

Modeling Fine Particulates

Track: AIRS
Room: 302C

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: APM3
Chair: Abhishek Bhat, Trinity Consultants
Vice-Chair: Ashok Kumar, The University of Toledo

8:00 AM
Recent Experience and Challenges of Primary $PM_{2.5}$ Increment Modeling
Paper#:117
Qi Zhang, Laura Fennell, Sarah VanderWielen, James Red, Rance Jett, and David Downard, Providence

8:20 AM
Intercomparison of Three Approaches for Estimating Single-Source Impacts on Secondary $PM_{2.5}$ and Ozone
Paper#:406
James Kelly, EPA

8:40 AM
SMOKE Implementation and CMAQ Preliminary Evaluation for Temuco, Chile
Paper#:362
Luis Diaz-Robles, Marcela Astudillo, Gino Olivares, Guillermo Vega, Nicolás Escárate and Ernesto Pino-Cortés, University of Santiago, Chile

9:00 AM
Evaluation of Prescribed Burning Emissions and Impacts on Air Quality: Case Studies in the Lake Tahoe Basin
Paper#:266
L.-W. Chen, Xiaoliang Wang, and Mark Green, Desert Research Institute

9:20 AM
Evaluation of Multiple Sources and Operating Scenarios for $PM_{2.5}$ Compliance – A Case Study
Paper#:209
Leah Blinn, CB&I

TECHNICAL SESSIONS

Odor Issues and Solutions

Track: H&EE
Room: 201

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: ODR
Chair: Ray Porter, Porter Odor Science
Vice-Chair: Anna Bokowa, Environmental Odour Consulting

8:00 AM
Odor Control at a Krill Oil Plant
Paper#:151
Joe Duckett, SNC - Lavalin

8:20 AM
Bio-Oxidation - An Emerging Technology for Odor/VOC Treatment
Paper#:405
Nathan Hess and Robert Miller, Process Combustion Corporation; Rakesh Govind, University of Cincinnati

8:40 AM
Explore an Approach to Determine Odour Emissions from Water Surfaces
Paper#:20
Hong Liu, Dillon Consulting; Anna Bokowa, Environmental Odour Consulting

9:00 AM
Odor Evaluations at Waste Management Facilities
Paper#:306
Timothy Mitchell, Civil & Environmental Consultants, Inc.

9:20 AM
Odor Nuisance Lawsuits – The Next Wave of Litigation Against Manufacturers: Courts are Limiting Recovery But Risk Remains
Paper#:271
Steve Weber, Parker Poe Adams & Bernstein LLP

Stack Gas Measurement Studies

Track: AIRS
Room: 301B

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: AAE2
Chair: Leonard Nelms, Tetra Tech, Inc.

8:00 AM
Current Status of EPA Verification Program for EPA Protocol Gases
Paper#:467
Robert Wright, EPA

8:20 AM
Wet Stack Filterable $PM_{2.5}$ Emission Test Method
Paper#:440
John Richards and Tom Holder, Air Control Techniques, P.C.

8:40 AM
PAHs Emissions Generated from the Combustion of Eucalyptus Globulus, Pinus Radiata, Acacia Melanoxylon, and Obliqua Nothofagus on Real Conditions using Chilean Wood Stoves
Paper#:350
Luis Diaz-Robles, Ernesto Pino-Cortés, Antonia Latapiat, Nicolás Bianchi, Rolando Vega, and Francisco Cubillos-Montecinos, University of Santiago, Chile

9:00 AM
Comparison of Nitrogen Oxides and Hydrocarbon Exhaust Concentration Detection Methods for Portable Emission Measurement Systems Applied to Locomotive Engines
Paper#:55
Jiangchuan Hu, Brandon Graver and H. Christopher Frey, North Carolina State University

9:20 AM
Evaluation of Small Sensors for Criteria Air Pollutants in Citizen Science-Based Aambient Networks
Paper#:88
Rachelle Duvall, Russell Long and Melinda Beaver, EPA; Keith Kronmiller and Michael Wheeler, Alion Science & Technology

9:40 AM
Using FTIR to Measure Stack Emissions – Reviewing Available Stack Testing Methodologies
Paper#:527
Jim Cornish, Gasmet Technologies

TECHNICAL SESSIONS

Transportation Emission Monitoring

Track: TRAN
Room: 305B

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: OMS2
Chair: Gurdas Sandhu, EPA
Vice-Chair: Brandon Graver, North Carolina State University

8:00 AM
Analysis of Long-Term, High Time-Resolution Measurement of Gaseous and Particulate Pollution Near the Ports of New York and New Jersey
Paper#:112
Gayle Hagler, EPA/NRMRL/APPCD; Richard Peltier, University of Massachusetts-Amherst; Ronald Henry, University of Southern California

8:20 AM
Effect of Engineer Behavior on Passenger Locomotive Emissions
Paper#:185
Brandon Graver and H. Christopher Frey, North Carolina State University

8:40 AM
Real-time On Road Emission Measurements of CO, HC and NO for CNG/ Gasoline Bi-Fuel Vehicles
Paper#:205
Xiaoyan Huang, University of Calgary; Yang Wang, Peking University Shenzhen Graduate School; Ke Du, University of Calgary

9:00 AM
Evaluating the Effect of Traffic States on Vehicle Emissions in Urban Area Based on Floating Car Data
Paper#:214
Yongzhao Chen, Yonghong Liu and Xiaofang Lin, Sun Yat-sen University, Guangzhou, Guangdong, China; Jianzhang Huang, Guangdong Provincial Engineering Research Center for Traffic Environmental Monitoring and Control, Guangzhou, Guangdong, China

9:20 AM
Measurement of Automotive Emissions During Cold Starts, Hot Starts, and Idling for a Vehicle Fleet Typical of Urban and Rural Utah
Paper#:444
Clay Woods, Utah State University; Joe Thomas, NCAST - Weber State University; Randy Martin, Utah State University

9:40 AM
Characterization of the Near-Source Population Around Five Candidate Ports on the Eastern Seaboard and Gulf Coast Using a Multi-Modal Freight Transport Perspective
Paper#:99
Halley Brantley, EPA and NCSU; Gayle Hagler, EPA/NRMRL/APPCD; Sue Kimbrough, Vlad Isakov and Timothy Barzyk, EPA ORD; Saravanan Arunachalam and Brian Naess, UNC Institute of the Environment

Next Generation Source Measurements Part I

Track: AIRS
Room: 302B

Wednesday, June 24, 2015 8:00 AM
Platform – TCC: AAM15
Chair: Eben Thoma, EPA/NRMRL/APPCD
Vice-Chair: Ray Merrill, EPA

8:00 AM
Measurements of Fugitive Emissions Using the Solar Occultation Flux Method
Paper#:244
Johan Mellqvist, Chalmers University of Technology

8:20 AM
Application of Differential Absorption Lidar in Support of New Rules on Fugitive Emissions from Refineries
Paper#:92
Rod Robinson, National Physical Laboratory

8:40 AM
Dual Max-DOAS Measurements of Area Averaged Formaldehyde and Nitrogen Dioxide Fluxes from Petrochemical Facility in Los Angeles, CA
Paper#:174
Olga Pikelnaya, Laki Tisopulos, Philip Fine and Andrea Polidori, South Coast AQMD; Jochen Stutz, University of California Los Angeles

9:00 AM
Development of Mobile Measurement Method Series OTM 33
Paper#:311
Jason DeWees, EPA-OAQPS; Eben Thoma, EPA/NRMRL/APPCD

9:20 AM
Compact Eyesafe Lidar System (CELiS), Rapid Detection and Quantification of Fugitive Particulate Emissions Using a 1.5 um Wavelength Lidar
Paper#:58
Kori Moore, Alan Bird, Michael Wojcik and Robert Lemon, Space Dynamics Laboratory, Utah State Research Foundation

TECHNICAL SESSIONS

Waste Recycling and Sustainability Programs

Track: YOUN/SUST
Room: 206

Wednesday, June 24, 2015 8:00 AM
Panel – TCC: SRC-YP1
Chair: Richard Chesley, South Carolina Department of Health and Environmental Control, Bureau of Land and Waste Management
Vice-Chair: Scott Mouw, North Carolina Division of Environmental Assistance and Customer Service

Recycling is not what is used to be. State and local governments are looking to reduce costs by maximizing recovery of material with a growing emphasis on reuse, producer responsibility, and measurement. This session will address how North Carolina and South Carolina have developed programs and partnerships to increase the quality and quantity of recyclable material collected.

Richard Chesley (South Carolina Department of Health and Environmental Control) and Mr. Scott Mouw (North Carolina Division of Environmental Assistance & Customer Service) will highlight recent state initiatives including RecycleMoreSC, organics diversion, market development and new target audiences such as state agencies, colleges/universities and businesses.

Mr. Ronnie Grant (Sonoco Recycling), a key processor in both states, will discuss how the recycling industry has worked to collect more material and promote the economic impact of recycling in the Carolinas.

Ms. Esther Murphy (Horry County Solid Waste Authority) and Mr. Blair Pollock (Orange County, NC) will illustrate how local governments are maximizing costs through improved collection and recovery.

Panelists:

- Richard Chesley, South Carolina Department of Health and Environmental Control
- Scott Mouw, North Carolina Division of Environmental Assistance and Customer Service
- Ronnie Grant, Sonoco Recycling
- Esther Murphy, Horry County (South Carolina) Solid Waste Authority Inc.
- Blair Pollock, Orange County (North Carolina) Solid Waste Planner

Clean Power Initiatives Mini-Symposium

Room: 306A

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: PWR1
Chair: Rick Osa, ERM
Vice-Chair: Ali Farnoud, Trinity Consultants

10:20 AM
Implementation and Compliance Challenges Associated with the Clean Power Plan (111(d) Regulations) - A Western Perspective
Paper#:172
Joseph Rubino, Stanley Consultants

10:40 AM
Forecasting Potential Impacts from the Clean Power Plan
Paper#:431
Tree Raine, Carlos Szembek and Robert Fraser, ERM

11:00 AM
North Carolina's Electric Power Plants: A Decade of Transformation
Paper#:165
Sushma Masemore and Paula Hemmer, North Carolina Division of Air Quality

11:20 AM
Low Carbon Technology Options for Natural Gas Electricity Production
Paper#:554
Gurbakhash Bhander and Chun-Wai Lee, EPA; Matthew Hakos and Jeffrey Coburn, RTI International

11:40 AM
Characterization of Regional Marginal Abatement Cost Curves for NOx that Incorporate Control Measures, Renewable Energy, Energy Efficiency and Fuel Switching
Paper#:326
Dan Loughlin, Kathy Kaufman and Alexander Macpherson, EPA

TECHNICAL SESSIONS

Air Emission Issues in the Biofuel Industry

Track: WAST/ENER
Room: 305A

Wednesday, June 24, 2015 10:20 AM
Panel – TCC: WMB3
Chair: Howard Gebhart, Air Resource Specialists, Inc.
Vice-Chair: Debra Mulrooney, DuPont

Programs are in place in the United States and other countries to ensure that transportation fuels sold in the marketplace contain a minimum volume of renewable fuel. In recent years, manufacturing sites have been built to produce ethanol and other biofuels to meet these goals. Newer plants are also coming on-line that employ non-traditional feedstocks including non-grain agricultural crops, woody biomass, and waste materials including municipal solid waste. As the U.S. regulations continue to require ever increasing percentages of renewable fuels for operating the nation's transportation fleet, the renewable fuels industry continues to expand. This panel will review current air emission and permitting topics in the renewable fuels industry. This panel is a continuation of panel discussions at previous A&WMA annual meetings. The panelists will address the following topics:

- Regulations driving the consumption of renewable fuels such as the federal Renewable Fuel Standard and California's Low-Carbon Fuel Standard.
- The greenhouse gas (GHG) footprint for plants producing renewable fuels and related GHG emission issues.
- State and Federal environmental compliance issues and concerns facing current biofuel producers.
- Challenges encountered in the environmental permitting for new generation biofuels plants using non-traditional feedstocks.
- Reports on the progress for constructing and operating new generation biofuel plants using non-traditional feedstocks.
- New advancements in emissions monitoring for biofuel plants.

This panel should provide information and discussion of the many air emission related topics unique to bio-refineries and the manufacture of bio-based materials. The panel will focus on the new generation plants being developed to produce cellulosic biofuel.

Panelists: (Invited)

- Howard Gebhart – Air Resource Specialists, Inc.
- Mae Thomas, P.E. - Eastern Research Group, Inc.
- Iona Branscum, PE – POET, LLC
- Debbie Mulrooney – DuPont
- Sioux Agnew – Abengoa Bioenergy Corporation
- Jim Toolen – Trace Environmental

Next Generation Source Measurements Part II

Track: AIRS
Room: 302B

Wednesday, June 24, 2015 10:20 AM
Platform TCC: AAM16
Chair: Ray Merrill, EPA_
Vice-Chair: Eben Thoma, EPA/NRMRL/APPCD

10:20 AM
Using Eddy Covariance to Quantify Methane Emissions from a Dynamic Heterogeneous Area
Paper#:310
Jiahong Li, LI-COR Biosciences; Roger B. Green, Waste Management; Dale A. Magnusson and Jim Amen, LI-COR Biosciences; Eben D. Thoma, EPA; Dayle K. McDermitt, Liukang Xu and George Burba, LI-COR Biosciences

10:40 AM
Aircraft and Mobile Surface Measurements of Fugitive Methane Emissions from Southern California Landfills
Paper#:506
Samuel Vigil, Cal Poly State University, San Luis Obispo

11:00 AM
Investigating the use of Tunable Diode Laser Absorption Spectroscopy to Quantify Venting Losses from Fixed Roof Hydrocarbon Storage Tanks
Paper#:526
Simon Festa-Bianchet, Carleton University; Matthew Johnson, Carleton Unversity; Stephen Schoonbaert, Carleton University

11:20 AM
Development and Evaluation of a Lightweight Sensor System for Aerial Emission Sampling from Open Area Sources
Paper#:40
Xiaochi Zhou, Student Service Contractor, EPA ORD; Brian Gullett and William Mitchell, EPA ORD; Johanna Aurell, University of Dayton Research Institute

11:40 AM
Demonstration of CO_2, CH_4 and $PM_{2.5}$ Detection using DIAL (Differential Absorption Lidar): Development of Advanced Air Monitoring Technology for Alberta
Paper#:57
Michael Wojcik and Robert Lemon, Space Dynamics Laboratory, Utah State University Research Foundation; Blake Crowther, Synopsys, Inc.; Prasad Valupadas, Long Fu, Bonnie Leung, Zhang Yang and Quamrul Huda, AEMERA; Allan Chambers, Alberta Innovates-Technology Futures

TECHNICAL SESSIONS

Model Comparison Studies

Track: AIRS
Room: 302C

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: APM4
Chair: Anke Beyer-Lout, CPP, Inc.
Vice-Chair: Pete Catizone, TRC Environmental Corporation

10:20 AM
Exploration of the Effects of Mixing Height on Monitored and Modelled SO_2 Concentrations From a Tall Stack
Paper#:334
Peter Rehbein, RWDI AIR Inc.

10:40 AM
SLAB and AERMOD Non-deterministic Worst Case Release Scenario Modeling
Paper#:312
Matthew Jones and Michael Newman, TRC Environmental Corporation

11:00 AM
Sensitivity of Model Predicted Concentrations to CALMET and AERMET Generated Meteorological Fields for Complex River Valley Flow
Paper#:492
Abhishek Bhat, George Schewe and Milena Borissova, Trinity Consultants

Indoor Air Quality Studies

Track: AIRS
Room: 301B

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: AAM2
Chair: Richard Leone, AMEC Foster Wheeler

10:20 AM
The Influence of Temperature on the Fate and Transport of Phthalates in Indoor Environments: a Case Study
Paper#:179
Chenyang Bi, The University of Texas at Austin

10:40 AM
Community Deployment of Low-Cost Indoor Particulate Monitors
Paper#:208
M. Beatrice Dias, Michael Taylor and Illah Nourbakhsh, CREATE Lab, Carnegie Mellon University

11:00 AM
Emission of Phthalates and Phthalate Alternatives from Vinyl Flooring and Crib Mattress Covers: The Influence of Temperature
Paper#:245
Ying Xu and Yirui Liang, University of Texas

11:20 AM
Bringing the Kitchen to the Lab: Data Analysis and Method Development for Lab Simulation of In-Field Operation of Biomass Cook Stoves.
Paper#:520
Ryan Repoff, North Carolina State University

TECHNICAL SESSIONS

Green Remediation – the Push for More Sustainable Remedies

Track: WAST
Room: 306C

Wednesday, June 24, 2015 10:20 AM
Panel – TCC: WMR1
Chair: Kim Marcus. ERM
Vice-Chair: Gary Elliott, Lafarge North America

For more than a decade there has been a movement to implement and enhance sustainable practices associated with manufacturing, transportation, packaging, and design in all industrial sectors. The implementation of sustainable practices associated with remediation efforts has evolved much more slowly. This panel focuses on the many different aspects and considerations associated with Green Remediation. Aspects will include a discussion of:

- Understanding and embracing the concept and need for Green Remediation,
- Developing management and procurement procedures to meet goals,
- Total project review and considerations: asking and answering the question – how do we remediate this site in the most sustainable possible way that meets the regulatory requirements and doesn't break the bank?
- Determining and decision-making based on life cycle cost.
- Identifying the areas where saving can be made – such as: Energy, Transportation, Remedy selection.

Examples of the various aspects of the process and implementation will be discussed.

Panelists:

- Kim Marcus, ERM
- Rick Keenan, Golder Associates Inc.
- Dave Harvey, Greenbrier (invited)

Climate Change Impacts and Adaptation

Track: CLIM
Room: 306B

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: CCI1
Chair: Flint Webb, Leidos
Vice-Chair: Jim Ryckman, U.S. Air Force Materiel Command

10:20 AM
Climate Change and Mining
Paper#:278
Sean Capstick, Salahuddin Mohammad and Janya Kelly, Golder Associates

10:40 AM
Remedial Approach Designed with Potential Adverse Weather Conditions in Mind: A Case Study of an Impacted Creek
Paper#:802
Carol D. Northern, Alison Levinson and Kristen R. Rivera, EarthCon Consultants, Inc.

11:00 AM
Adaptation to Climate Change for the Nile River in Egypt
Paper#:134
Mounir Labib, Egyptian Environmental Affairs Agency; Alan Gertler, Desert Research Institute

11:20 AM
National Plans for the Utilization of Renewable Energy in Egypt
Paper#:131
Mounir Labib, Egyptian Environmental Affairs Agency-Third National Communication Project; Alan Gertler, Desert Research Institute

TECHNICAL SESSIONS

Community Noise and Vibration

Track: TRAN
Room: 302A

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: CNV1
Chair: Robert Mentzer Jr., HMMH Inc.
Vice-Chair: George Noel, USDOT/Volpe Center

10:20 AM
Testing of In-vehicle Noises when Driving on Freeways with Different Pavement Types
Paper#:338
Qing Li, Fengxiang Qiao and Lei Yu, Texas Southern University

10:40 AM
Rooftop Noise Impact Investigation to the Community
Paper#:530
Alfredo Rodrigues, Frank Babic and Mohammed Salim, AMEC Foster Wheeler

11:00 AM
Noise Reduction Effects due to Various Acoustic Barriers during Infill Development Process
Paper#:340
Fengxiang Qiao, Boya You, Qing Li, Wu Ying and Lei Yu, Texas Southern University

11:20 AM
Use of Common Pavement Parameters for Noise Prediction
Paper#:454
Roger Wayson, Wyle Aerospace

Air and Odor Emissions from Animal Production

Track: H&EE
Room: 201

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: ODR2
Chair: Steven Trabue, USDA – Agricultural Research Service
Vice-Chair: Michael McGinley, St. Croix Sensory, Inc.

10:20 AM
Sulfur Compound Concentrations at Swine and Poultry Facilities
Paper#:170
Philip Silva, Nanh Lovanh, and John Loughrin, USDA – Agricultural Research Service

10:40 AM
Impact of Crude Protein Levels and Source on Air and Odor Emissions from Swine Operations.
Paper#:52
Steven Trabue and Brian Kerr, USDA – Agricultural Research Service

11:00 AM
Reducing Ammonia Emission from a Swine Farm by Treating its Manure with a Full-Scale Treatment System
Paper#:85
Kyoung Ro, Matias Vanotti, and Ariel Szogi , USDA – Agricultural Research Service

TECHNICAL SESSIONS

Air Pollution Control Basics and Future Trends

Track: YOUN/AIRS
Room: 206

Wednesday, June 24, 2015 10:20 AM
Platform TCC: AAC-YP1
Chair: Lee Genoble, Genoble Engineering, Inc.
Vice-Chair: Ashley Sapyta, S&ME, Inc.

10:20 AM
The Basics of Air Pollution Control Technology
Paper#:43
Arthur Genoble, Genoble Engineering, Inc.

10:20 AM
Ammonia-based Flue Gas Desulfurization Technology and Commercial Experience
Paper#:56
Regis D'Angelo, Michael Walsh and Amy Evans, Marsulex Environmental Technologies, Corp

10:40 AM
Baghouse Technology and Design Fundamentals
Paper#:420
Stephen Klocke, Mikropul-Nederman; William Gregg, Mikropul-Nederman,

11:00 AM
Activated Carbon Injection for Mercury Control in Flue Gases: A Technology Review and Update
Paper#:262
Sheila Glesmann and Joe Wong, ADA Carbon Solutions; Michael Thiel, Nol-Tec Systems, Inc.

11:20 AM
An Overview of Regenerative Thermal Oxidizer Features, Components and Capabilities
Paper#:598
Kyle Momenee, Anguil Environmental Systems, Inc.

Air Toxics Regulations and Policies - Development and Implementation

Track: REGU
Room: 303

Wednesday, June 24, 2015 10:20 AM
Panel – TCC: REG4
Chair: Paul Siebert, Weston Solutions, Inc.

In response to the time consuming and litigated process of individually listing hazardous air pollutants and developing risk-based National Emission Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR 61, the Clean Air Act Amendments of 1990 (CAAA) established a technology-based approach. The CAAA required development of NESHAPs for Source Categories emitting hazardous air pollutants (HAPs) based on the available air pollution control technology. Most of the MACT standards promulgated first addressed only major or point sources of HAPs, although some also addressed area sources that do not exceed that threshold. More recently, a number of area source standards have been promulgated. EPA has been under court-ordered schedules for many major (point) and area source MACT standards. In addition, a number of recent court rulings have vacated or remanded MACT standards, in part or in whole, returning them to EPA for revisions, generally regarding exclusion of certain categories of sources from consideration. Finally, Section 112(f) of the CAA requires EPA to evaluate the residual risks remaining after the application of MACT standards. If the technology-based MACT standards have not sufficiently reduced health risk, additional standards must be promulgated to reduce the residual risk in order to provide an ample margin of safety to protect public health or to prevent adverse environmental effects. This panel session will present views of EPA, State agencies, industry and environmental advocates on the status, directions and expectations regarding MACT standards. Representatives of EPA, state and other environmental agencies, industry and environmental advocacy groups will present and discuss the status of MACT standards, with particular emphasis on the current issues of the Boiler MACT, RICE MACT, area sources, ongoing court cases, and residual risk.

Panelists:

- Joshua Marteny, Dixon Environmental
- Debra Mulrooney, DuPont
- Wanda Pemberton, EPA

TECHNICAL SESSIONS

Alternative Fuels

Track: TRAN
Room: 305B

Wednesday, June 24, 2015 10:20 AM
Platform – TCC: OMS3
Chair: Guido Schattanek, Parsons Brinckerhoff
Vice-Chair: Helen Ginzburg, Parsons Brinckerhoff

10:20 AM
Summary of Real-World Emission Rates and Vehicle Activity Data for a CNG Bus Fleet
Paper#:87
Phil Lewis, Chuanhai Zhu and Yongwei Shan, Oklahoma State University

10:40 AM
Real World Performance of the Battery Electric Bus and its Life Cycle Energy and Environmental Benefits
Paper#:124
Boya Zhou, School of Environment, Tsinghua University, China

11:00 AM
Evaluation of the Effect of Biofuels on Exhaust Emissions of Diesel Locomotives
Paper#:177
H. Christopher Frey, Brandon Graver and Jiangchuan Hu, North Carolina State University

11:20 AM
Comparison of Hybrid Electric Vehicle and Conventional Gasoline Vehicle Energy Use and Emissions Based on Real-world Measurements
Paper#:203
Maryam Delavarrafiee and H. Christopher Frey, North Carolina State University

11:40 AM
Bus Rapid Transit Systems: Diesel or Electricity? A Case Study in Bogota, Colombia
Paper#:251
Luis Belalcazar, Nestor Rojas, Helmer Acevedo, Patricia Davila, Aura Rojas and Luis Carlos Galindo, Universidad Nacional de Colombia, sede Bogotá, Columbia

Climate Change Impacts
Mini-Symposium

Room: 306A

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: CCI2
Chair: Howard Balentine, AECOM
Vice-Chair: Flint Webb, Leidos

2:00 PM
Global Climate Change: A Monumental Mitigation Challenge
Paper#:73
Frank Princiotta, EPA/NRMRL/APPCD

2:20 PM
Climate Change and Social Change - A Comparison of Regulatory Reform and Socio-Cultural Response to Climate Change Policy in Europe and the United States
Paper#:471
Jane Cudney-Black and Kevin Eldridge, Weston Solutions, Inc.

2:40 PM
Rising Transportation Sector Greenhouse Gas Emissions in Metropolitan Areas, Can they be Stopped?
Paper#:373
Gregory Rowangould, Amir Poorfakhraei and Mohammad Tayarani, University of New Mexico

3:00 PM
Chasing Black Swans: Climate Change - Risk Identification, Adaptation, and Resilience
Paper#:155
Ronni L. Wilcock, Denise Newbould, Venkat S. Kolluru and Shwet Prakash, ERM

TECHNICAL SESSIONS

Anaerobic Digestion - Food Waste and Greases (FOG)

Track: WAST
Room: 305A

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: WMB4
Chair: David Greene, SCS Engineers
Vice-Chair: Lee Lundberg, Bedrock Enterprises, Inc.

2:00 PM
How to Train Your Digester - Using Step and Pulse Feeding of Grease Waste to Increase Community Resistance and Methane Yield by up to 336%
Paper#:560
Ling Wang, North Carolina State University

2:20 PM
Anaerobic Digestion of Food Waste: Impact of Mixing Speed
Paper#:230
Sophia Ghanimeh, Norte Dame University - Louiaze; Mutasem El-Fadel, American University of Beirut; Pascal Saikaly, King Abdullah University of Science and Technology; Dana Al-Sanioura, American University of Beirut

2:40 PM
The Food Waste Diversion and Incentive Evaluation Framework for Food Waste Diversion in the US
Paper#:15
Matthew Franchetti, The University of Toledo

New Source Review and Title V GHGs Permitting Issues

Track: REGU
Room: 303

Wednesday, June 24, 2015 2:00 PM
Panel – TCC: REG7
Chair: Gurinder Saini, RTP Environmental Associates
Vice-Chair: Raj Rao, EPA

Prevention of Significant Deterioration (PSD) requirements for Greenhouse Gas (GHG) emissions have been changing in last few years. There are a number of interesting issues in terms of permitting applicability and implementation where many questions remain and few answers are available. This panel will explore these issues, including the following: How the GHGs regulated under the PSD program after the U.S. Supreme Court decision on Tailoring Rule? Is there any significance to GHGs Plantwide Applicability Limit (PAL)? What have been the recent experiences in permitting involving GHG BACT? Does carbon capture and sequestration (CCS) currently represent Best Available Control Technology (BACT) for any category of stationary sources?

Panelists:

- Fern Paterson, Parker Poe Adams & Bernstein LLP
- Scott Turner, Nixon, Peabody LLP

1-Hour NAAQS Modeling Issues

Track: AIRS
Room: 302C

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: APM5
Chair: George Schewe, Trinity Consultants
Vice-Chair: Eldewins Haynes, City of Charlotte, NC

2:00 PM
Potential Implications of the SO_2 Data Requirements Rule
Paper#:477
Meghan Barber, All4 Inc.

2:20 PM
Meeting the 1-Hour NO_2 NAAQS - A Case Study for a Midwest Agricultural Plant
Paper#:167
Scott Miller, Cornerstone Environmental Group, LLC

2:40 PM
Dealing with Implementation of the 1-hour SO_2 NAAQS: Challenges and Options
Paper#:121
Robert Paine and David Heinold, AECOM

TECHNICAL SESSIONS

Atmospheric Chemistry and Ozone Issues - Part 2

Track: AIRS
Room: 302A

Wednesday, June 24, 2015 2:00 PM
Platform TCC: APC3
Chair: Francisco Cereceda-Balic, Universidad Técnica Federico Santa María, Chile
Vice-Chair: Vera Samburova, Desert Research Institute

2:00 PM
Development of a GC-MS Monitor for In-Field Detection of Fine Particulate Organic Compounds
Paper#:91
Delbert Eatough, Paul Cropper and Jaron Hansen, Brigham Young University; Robert Cary, Sunset Laboratory, Inc.

2:20 PM
Importance and Assessment of Benzene and Toluene Concentrations As Well As Its Relationship in the Atmosphere of Mexico City
Paper#:291
Rodolfo Sosa, Humberto Bravo, Pablo Sánchez and Monica Jaimes, Universidad Nacional Autónoma de México (UNAM); Armando Retama, Secretaria del Medio Ambiente; Ana Luisa Alarcon, María del Carmen Torres, Jairo Vazquez and Elias Granados, UNAM

2:40 PM
Measurements of Ozone Precursors in the Lake Tahoe Basin, USA
Paper#:448
Barbara Zielinska and Alan Gertler, Desert Research Institute; Andrzej Bytnerowicz, U.S. Forest Service, Pacific Southwest Research Station; Mark McDaniel and Sandra Theiss, Desert Research Institute; Joel Burley, St. Mary's College

3:00 PM
Analysis of Polycyclic Aromatic Hydrocarbons in Gaseous- and Particle- Phase Emissions from Peat Fuel Combustion Under Controlled Conditions
Paper#:550
Vera Samburova, Madhu Gyawali, and Reddy Yatavelli, Desert Research Institute; Rajan Chakrabarty, Washington University in St. Louis; Adam Watts, Joseph Knue, Anna Cunningham, Jessica Connolly, Andrey Khlystov, Hans Moosmuller, and Barbara Zielinska, Desert Research Institute

3:20 PM
Examining the Role of Anthropogenic Emissions in Combination with Biogenic Emissions on Air Quality in Houston-Galveston-Brazoria and Dallas-Fort worth Areas
Paper#:457
Raghava Kommalapati and Samarita Sarker, Center for Energy & Environmental Sustainability, Prairie View A&M University; Xinhua Shen, University of Northern Iowa; Akhil Kadiyala, and Ziaul Huque, Center for Energy & Environmental Sustainability, Prairie View A&M University

Carbonaceous Particulate Matter

Track: AIRS
Room: 302B

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: APP4
Chair: Ann Dillner, University Of California, Davis
Vice-Chair: Charles McDade, University of California, Davis

2:00 PM
Measurement of Polycyclic Aromatic Hydrocarbons Near a Major Roadway
Paper#:260
Dennis Mikel, EPA

2:20 PM
Source Apportionment of Black Carbon and Seasonal Variation at the Regional Integrating Sites for Two Hot Emission Regions in China Based on Carbon Isotopes
Paper#:319
Kuangyou Yu and Ke Du, University of Calgary; Junjun Deng and Zhenyu Xing, Institute Of Urban Environment, CAS; August Andersson and Örjan Gustafsson, Stockholm University, Sweden

2:40 PM
Contribution of Organic Nitrogen to Secondary PM at a Semi-Rural site in the Southeastern US
Paper#:423
Quentin Malloy, RKM Jayanty, Prakash Doraiswamy and Jonathan Thornburg, RTI International

TECHNICAL SESSIONS

Clean Air Act Regulatory Developments

Track: REGU
Room: 306B

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: REG5
Chair: David Jordan, ERM

2:00 PM
An Exploration of EPA's Cost-Benefit And Regulatory Impact Analyses
Paper#:28
John King, Breazeale, Sachse & Wilson

2:20 PM
The National Ambient Air Quality Standards: How Did We Get Here and What Comes Next?
Paper#:380
Kurt Kissling, Pepper Hamilton LLP

2:40 PM
Upcoming Changes to RMP and PSM Regulations and How EPA's Recent Enforcement Initiative Could Change This Regulatory Landscape
Paper#:521
Matthew Traister, O`Brien & Gere

3:00 PM
Recent Regulatory and Legal Developments Impacting The Environment
Paper#:29
John King, Breazeale, Sachse & Wilson

Modeling Transportation Emissions

Track: TRAN
Room: 305B

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: OMS4
Chair: Suriya Vallamsundar, University of Illinois at Chicago
Vice-Chair: Greg Rowangould, University of New Mexico

2:00 PM
Lessons Learned from Field Measurements of On-road and Non-road Vehicles Using Portable Emissions Measurement Systems
Paper#:9
H. Christopher Frey, North Carolina State University

2:20 PM
Network Level Impacts of Major Freeway Reconstruction Project on Vehicular Emissions
Paper#:325
Shams Tanvir, Nagui Rouphail, and Bastian Schroeder, Institute for Transportation Research and Education

2:40 PM
Modeling of Real Time Emission Related to Vehicle Speed and RPM on Driving Mode
Paper#:344
Fengxiang Qiao, Wu Ying and Lei Yu, Texas Southern University

3:00 PM
Comparison of Real-World Emissions and Fuel Economy to the Certification Test Emission Rates and Rated Fuel Economy for Light Duty Gasoline Vehicles
Paper#:192
Tanzila Khan and H. Christopher Frey, North Carolina State University

TECHNICAL SESSIONS

Risk Management: Topics in Safety, Emergency Response and Risk Assessment

Track: H&EE
Room: 201

Wednesday, June 24, 2015 2:00 PM
Platform TCC: RAM1
Chair: Heidi Rous, PCR Services Corporation
Vice-Chair: Scott Weaver, ERM

2:00 PM
Show Me the Data: Improving Results of RTR Residual Risk Assessments
Paper#:126
Ted Palma, EPA

2:20 PM
Assessing the Health Burden of Fine Particulate Air Pollution from Multiple Sources
Paper#:289
Ya-Ru Li and Jacqueline MacDonald Gibson, University of North Carolina, Chapel Hill

2:40 PM
Evaluating the Ecological and Public Health Risks Imposed by the Concrete Products Manufacturing Industrial Sector in Abu Dhabi Emirate
Paper#:250
Jennifer Lloyd, Research Triangle Institute; Mark Turner, Samer Akl, Mohammad Al Ashram, Saif Dulaimi, RTI International - Abu Dhabi; Khalid Gelle, Environment Agency Abu Dhabi

3:00 PM
Use of AERMOD Modeling System to predict Toxic Thresholds at a Community Living Center
Paper#:496
Abhishek Bhat, Ali Farnoud and Susan Barnes, Trinity Consultants

3:20 PM
Highway Lichen Diversity
Paper#:12
Gary Perlmutter, North Carolina State University

Site Assessment and Vapor Intrusion

Track: WAST/H&EE
Room: 306C

Wednesday, June 24, 2015 2:00 PM
Platform – TCC: WMR-RAM1
Chair: Chris Lutes, CH2M HILL
Vice-Chair: Harish Rao, Rao Consulting Services

2:00 PM
Avoiding Buyer's Remorse through the Review of Changing Regulations and Requirements during Property Transactions to Minimize Risk
Paper#:255
Rachel Carlson, CH2M Hill; Tim Sturdavant, Hexcel Corporation

2:20 PM
The Translation of Vapor Intrusion Data to Risk Management Information
Paper#:605
Mike Marcus, S&ME, Inc.

2:40 PM
Horizontal Vapor Intrusion Protection Wells (HVIPWs). Most Effective Alternative for Protection Against Indoor Air Quality Issues at Operating Industrial Facilities
Paper#:439
Tori Anderson, Mike Sequino and Kevin Martin, Directional Technologies, Inc.

3:00 PM
TCE and Vapor Intrusion, a World Growing More Complex
Paper#:408
Todd Fracassi and William Walsh, Pepper Hamilton LLP

TECHNICAL SESSIONS

Air Pollution Control - Acid Gases, Nitrogen Oxides, and Volatile Organic Compounds

Track: YOUN/AIRS
Room: 206

Wednesday, June 24, 2015 2:00 PM
Panel – TCC: AAC-YP2
Chair: Arijit Pakrasi, CB&I
Vice-Chair: Minh Pham, SCAQMD

Under the Clean Air Act, the EPA establishes national ambient air quality standards (NAAQS) for six common air pollutants including carbon monoxide (CO), ground level ozone (O_3), lead, nitrogen oxides (NOx), sulfur dioxide (SO_2), and particulate matter (PM, PM_{10} and $PM_{2.5}$) to protect public health and the environment. In parallel with this effort, the EPA, states, and local air pollution agencies have developed and set increasingly stringent emission standards to reduce the emissions of primary air pollutants NOx, SOx, PM, PM_{10}, $PM_{2.5}$, as well as volatile organic compound (VOC), a precursor of ozone, and other types of acid gases from numerous types of industrial, commercial and residential sources. In this section, the panel will discuss the control technologies for acid gases, NOx, and VOC including but not limited to thermal and catalytic oxidizers, wet and dry gas scrubbers, selective catalytic reduction, non selective catalytic reduction, and selective non catalytic reduction. Examples of the real world performance levels and issues at the refineries, power plants, chemical and industrial plants will be discussed.

Work for Free? Leveraging Technical Skills to Contribute to Local and Professional Communities

Track: REGU
Room: 301B

Wednesday, June 24, 2015 2:00 PM
Panel – TCC: PUB2
Chair: Christine Ng, Ramboll ENVIRON

Many environmental professionals share technical expertise beyond their workplace environment in service to their communities and non-profit organizations. Skills-based volunteering, as this is more broadly known, uses knowledge gained from educational and work experience in a volunteer opportunity. It can strengthen a professional's commitment to their field as well as raise the public's awareness of his or her area of expertise. The concept of pro bono work is well established in the legal profession, but skills-based volunteering is less recognized in the engineering and scientific fields. This panel presentation seeks to engage new and seasoned practitioners alike in thinking about ways to contribute their time and skills to their broader professional community and to the public. This panel will feature speakers who are active in leadership and volunteer roles in professional organizations, including the Air and Waste Management Association, and community groups, as well as speakers who have performed pro bono work through their companies. Drawing from their personal experience, the panelists will speak on the following topics:

- Motivations for getting involved in volunteering
- Selection of appropriate volunteer opportunities and organizations
- Synergies between work and volunteer activities
- Time management
- Development of organizational and communication skills
- Networking and career development advantages
- Employer support and benefits
- Establishing the scope and schedule for pro bono work
- Obstacles to volunteering

Panelists:

- Michael Keinath, Ramboll ENVIRON
- Clara Poffenberger, Clara Poffenberger Environmental Law and Policy
- Tiffany Dillow, Dixon Environmental
- Rebecca Dodder, EPA/ORD

NSR Reform: Recent Developments and Issues
Mini-Symposium

Room: 306A

Wednesday, June 24, 2015 4:00 PM
Panel – TCC: REG6
Chair: Colin Campbell, RTP Environmental Associates
Vice-Chair: Kenneth Weiss, ERM

NSR permitting will be affected by EPA policy regarding greenhouse gases and implementation policy on a number of issues, including the $PM_{2.5}$ National Ambient Air Quality Standard, the aggregation rule, and other issues. A panel of experts spanning local, state and federal permitting authorities will discuss major developments in NSR, point out ways that facility operations could be affected by these developments, and identify issues that remain unsettled. A number of recent court decisions in particular has affected EPA's NSR program and policies, and will be discussed by the panel.

Panelists:

- John Evans, North Carolina Department of Environment and Natural Resources
- Vera Kornylak, EPA OAQPS
- Raj Rao, NSR Group Leader, EPA OAQPS
- William L. Wehrum, Partner, Hunton & Williams LLP

Strategic Sustainability Performance at Federal Facilities

Track: FEDS
Room: 301B

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: FED1
Chair: David Kumar, U.S. Air Force/A4C
Vice-Chair: Frank Castaneda, U.S. Air Force, Center for Engineering & the Environment

4:00 PM
Air Force-Specific Standardized Potential to Emit (PTE) Approach
Paper#:97
Frank Castaneda, U.S. Air Force, Center for Engineering & the Environment; James McClain and Daniel Wood, Solutio Environmental, Inc.

4:20 PM
Case Study in Enterprise Compliance Assurance
Paper#:351
Stuart Wallace, AECOM

4:40 PM
Sustaining a Proficient Air Quality Compliance Program
Paper#:354
James McClain, Solutio Environmental, Inc.; Frank Castaneda, U.S. Air Force Center for Engineering & the Environment; James McClain, Solutio Environmetal, Inc.

5:00 PM
The DoD New XML Schema for SDS Data Submission
Paper#:61
Shawn Dolan, Virtual Technology LLC

TECHNICAL SESSIONS

Views from Enforcement Defense Counsel: What to Make of EPA's NextGen Enforcement

Track: REGU
Room: 303

Wednesday, June 24, 2015 4:00 PM
Panel – TCC: REG16
Chair: Clara Poffenberger, Clara Poffenberger Environmental Law and Policy
Vice-Chair: Alex Zacaroli, Haynes and Boone LLP

EPA's NextGen Enforcement isn't just about new technology, e-reporting, desk penalty assessments and settlements or environmental projects. Enforcement defense often involves litigation and always involves consideration of litigation risks and potential litigation outcomes. Enforcement defense counsels are watching EPA's proclamations about new tools with an eye towards such risks and potential outcomes. Panel members are experienced defense counsel and will discuss what EPA's NextGen enforcement might mean in court and how companies can prepare themselves and reduce litigation and enforcement risks, including risks associated with citizen suits and ambiguous environmental regulations. Panel members will discuss trends in civil and criminal environmental enforcement at the state and federal level.

Panelists:

- Julie Domike, Haynes and Boone, LLP
- Scott Dismukes, Eckert Seamans, Cherin & Mellott, LLC
- Eric Groten, Vinson and Elkins, LLP
- Suzanne Murray, EPA

Utility and Boiler Compliance in the Public Sector

Track: POWR
Room: 302A

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: PWR-IFB1
Chair: Ravinder Joseph, Austin Energy
Vice-Chair: Gwen Eklund, AECOM

4:00 PM
The Boiler GACT and Energy Efficiency Strategies: When Regulations Are Supplemented With Voluntary Actions
Paper#:157
Paula Hemmer, Adeola Olatosi, Robin Barrows and Sushma Masemore, North Carolina DENR Division of Air Quality; Hebert Eckerlin and Stephen Terry, North Carolina State University; Terry Albrecht and Russ Jordan, Waste Reduction Partners

4:20 PM
Process Implementation Guidance for Powdered Sorbents at Electric Generating Units
Paper#:162
Heather Byrne, Carbonxt; Cliff Brown, Novinda; Daryl Lipscomb, Albemarle; Sheila Glesmann, ADA Carbon Solutions; Rich Mimna, Calgon Carbon

4:40 PM
$PM_{2.5}$ Emission Factors for Arizona Sand-Producing Plants
Paper#:215
John Richards and Todd Brozell, Air Control Techniques, P.C.

5:00 PM
The MATS Conundrum - How does Section 111(d) impact Old Smokey Power?
Paper#:120
Peter Belmonte, ERM

TECHNICAL SESSIONS

Vapor Intrusion Temporal Variability: How Bad is It? How Can We Manage It?

Track: H&EE/WAST
Room: 306C

Wednesday, June 24, 2015 4:00 PM
Panel – TCC: RAM-WMR1
Chair: Chris Lutes, CH2M HILL
Vice-Chair: Robert Truesdale, Research Triangle Institute

There are currently few published long-term vapor intrusion case studies in commercial buildings and the influence of atypical preferential pathways has been cited as a reason for the high degree of variability in residential case studies. Current practice often assesses vapor intrusion by comparing the maximum of a small number of 8- to 24-hour time averaged samples to conservative screening levels. To capture longer term maximum concentrations, current practice is to sample on a seasonal sampling schedule, with uncertainty being managed through preemptive mitigation when we are unsure about the temporal variability of indoor air concentrations. This panel will address these topics with short presentations interspersed with discussion, including: a review of the measured degree of temporal variability based on available literature; how has temporal variability been reflected in current (state and federal) regulations and are there alternative approaches from other fields (i.e. industrial hygiene, toxicology, statistics); since vapor intrusion phenomena can have nonlinear relationships to some meteorological variables do we expect climate change to have a significant long-term effect; do currently feasible sampling strategies involving Summa canisters, passive samplers, etc., perform well enough in describing temporal variability for decision making given other uncertainties in cancer and non-cancer risk assessments; and how can information from real time instruments best be integrated with extractive samples to manage temporal variability.

Panelists (invited):

- Delonda Alexander, North Carolina Department of Environment and Natural Resources
- Roger Brewer; Hawaii Department of Health
- Helen Dawson, PhD, Geosyntec Consultants
- Jacqueline MacDonald Gibson, PhD, University of North Carolina, Chapel Hill
- Chase Holton, PhD Candidate, Arizona State University and CH2M HILL
- Kelly Pennell PhD, PE, Department of Civil Engineering, University of Kentucky
- Henry Schuver, DPh, EPA ORCR

Risk Assessment/Management: Recent Experience

Track: H&EE
Room: 201

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: RAM2
Chair: Heidi Rous, PCR Services Corporation
Vice-Chair: Scott Weaver, ERM

4:00 PM
Risk Screening and Analysis of a Specific Industrial Facility in Abu Dhabi Emirate
Paper#:252
Jennifer Lloyd and Jesse Baskir, RTI International - RTP; Khalid Gelle, Environment Agency-Abu Dhabi; Mohammad Al Ashram, Samer Akl and Mark Turner, RTI International - Abu Dhabi

4:20 PM
Replacing the Weibull Distribution Failure Rate Model
Paper#:118
R. Dupont, Utah State University; Frank Ricci, Princeton University; Louis Theodore, Theodore Tutorials

4:40 PM
Upcoming Changes to EPA's Risk Management Program: Implications for Industry, Emergency Responders and Communities
Paper#:77
David Heinold and Douglas Smith, AECOM

5:00 PM
Proactive and Reactive Emergency Response to Environmental Pollution in Abu Dhabi Emirate
Paper#:412
Ahmed Rady, RTI International; Dr. Humaid Al-Kindi, Environment Agency Abu Dhabi

5:20 PM
The Role of the Investigation Reporting Module in Environmental Emergency Management in Abu Dhabi Emirate
Paper#:413
Ahmed Rady and Mark Turner, RTI International; Dr. Humaid Al-Kindi and Suzan Al Ghanem, Environment Agency Abu Dhabi

TECHNICAL SESSIONS

Innovative Approaches to NAAQS Compliance Demonstrations

Track: REGU/INDU
Room: 306B

Wednesday, June 24, 2015 4:00 PM
Panel – TCC: REG-INDU1
Chair: Chris Nelson, 3M Company

State-level policy on National Ambient Air Quality Standard (NAAQS) compliance and related air dispersion modeling analyses continue to evolve. A successful air quality modeling demonstration can be difficult to achieve due to data limitations, such as a lack of reliable emission factors, or unique source characteristics. Panelists in this session will discuss novel applications of air dispersion modeling tools and ambient air quality monitoring to satisfy requirements for NAAQS compliance.

Panelists:

- Tina Mumm, 3M Company
- Jim Sullivan, Minnesota Pollution Control Agency
- Sergio Guerra, Minnesota Pollution Control Agency
- George Schewe, Trinity Consultants
- Clay Raasch, Trinity Consultants

Control of Mercury and VOC Hazardous Air Pollutants

Track: AIRS
Room: 302B

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: AAC1
Chair: Sharon Sjostrom, Advanced Emissions Solutions, Inc.

4:00 PM
Fluidized Bed Carbon Technology for VOC abatement
Paper#:18
Kevin Whitall, TKS Industrial

4:20 PM
A High Reactive Hydrate for Environmental Compliance
Paper#:95
Pat Mongoven, Mississippi Lime

4:40 PM
Mercury deposition to the Tampa Bay area: Source influences from the 2012 USF deposition experiment
Paper#:497
Ryan Michael, University of South Florida

Digestion, Torrefaction, and Other Conversion Technology Systems

Track: WAST
Room: 305A

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: WMB5
Chair: David Minott, Arc5 Environmental Consulting, LLC
Vice-Chair: Sam Vigil, Cal Poly State University, San Luis Obispo

4:00 PM
Evaluating the Air Quality, Climate Change, and Economic Impacts of Biogas Management Technologies
Paper#:98
Michael Kosusko, EPA/ORD/NRMRL/APPCD; Robert Williams, University of California at Davis; Laura Moreno, University of California at Berkeley; Charlotte Ely, EPA Region 9

4:20 PM
Effect of Inoculum Source on the Rate and Extent of Anaerobic Biodegradation
Paper#:129
Joseph Weaver and Morton Barlaz, North Carolina State University

4:40 PM
Recovery of Anaerobic Digesters Upon Hydraulic Shock Loading Through Addition of Compost Leachate
Paper#:476
Sophia Ghanimeh, Norte Dame Univ - Louiaze; Mutasem El-Fadel, American University of Beirut; Pascal Saikaly, King Abdullah University of Science and Technology

5:00 PM
Regulatory Challenges Associated with Permitting Waste Conversion Technology Projects
Paper#:447
George Namie, Leidos Engineering, LLC

5:20 PM
Torrefaction of Waste Bamboo Chopsticks to Produce Bio-Char
Paper#:377
Ching-Yuan Chang, Chia-Chi Chang, Yen-Hao Chen, Min-Hao Yuan and Dar-Ren Ji, Graduate Institute of Environmental Engineering, National Taiwan University; Chungfang Ho Chang, Chung Yuan Christian University; Je-Lueng Shie, Department of Environmental Engineering, National Yilan University, Taiwan; Yi-Hung Chen, Department of Chemical Engineering and Biotechnology, National Taipei University, Taiwan; Farching Lin and Chun-Han Ko, School of Forestry and Resource Conservation, National Taiwan University

TECHNICAL SESSIONS

Emission Estimates, MOVES and Other Models

Track: TRAN
Room: 305B

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: OMS5
Chair: George Noel, USDOT/Volpe Center
Vice-Chair: Gurdas Sandhu, North Carolina State University

4:00 PM
Comparison of Real-World and MOVES Estimated Emissions for Heavy-Duty Diesel Refuse Trucks
Paper#:332
Gurdas Sandhu and H. Christopher Frey, North Carolina State University; Shannon Bartelt-Hunt and Elizabeth Jones, University of Nebraska-Lincoln

4:20 PM
Methodology for Using AEDT and MOVES for Airport Air Quality Analyses
Paper#:81
George Noel, USDOT/Volpe Center

4:40 PM
MOVES2014 Project-Level Sensitivity Analysis: Impacts of On-Road Fleet Composition and Operation Aggregation on Emission Results
Paper#:285
Haobing Liu, Yanzhi Xu, Christopher Toth, Michael Rodgers, and Randall Guensler, Georgia Institute of Technology

5:00 PM
The Spatial Emissions Estimator (SEE): An On-Road Emission Inventory Tool With Ability to Account for Road Grade
Paper#:277
Allison DenBleyker, Scott Fincher, John Koupal, Sandeep Kishan, andAlan Stanard, Eastern Research Group, Inc.; David Kall and Tarannum Rima, Cambridge Systematics, Inc.; Graciela Lubertino, Chris Van Slyke and Chi Ping Lam, H-GAC

5:20 PM
Development of an Open-source Transportation Air Quality System
Paper#:411
Bryan Matthews and Michael Hammer, Lakes Environmental Software

Emissions from Flares and Oil & Gas Operations

Track: O&GS
Room: 302C

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: CHE1
Chair: Charles Baukal, John Zink Company, LLC
Vice-Chair: Ensan Elayoubi, Saudi Aramco

4:00 PM
Quantifying Volatile Organic Compound Emissions from the Eagle Ford Shale
Paper#:286
Geoffrey Roest and Gunnar Schade, Texas A&M University

4:20 PM
Assessment of Potential Effects of Entrained Salt and Hydrochloric Acid Water Solutions on Efficiency and Emissions of Gas Flares
Paper#:525
Melina Jefferson and Matthew Johnson, Carleton University; Larry Kostiuk, University of Alberta; Darcy Corbin, Carleton University; Alireza Vali, University of Alberta

4:40 PM
Emissions Characteristics of Tight Gas and Tight Oil Developments in Alberta
Paper#:532
Matthew Johnson and David Tyner, Carleton University

5:00 PM
EPA's Regulation of Methane Emissions from the Oil and Gas Sector: Old Tools and New Applications
Paper#:281
Carlos Romo, Baker Botts

5:20 PM
Monte Carlo Analysis of Hazardous Air Pollutant Emissions from Industrial Flares
Paper#:427
Kevin Marr, Nicolas Ponchaut and Harri Kytomaa, Exponent

TECHNICAL SESSIONS

Air Dispersion Models and Modeling Issues

Track: YOUN/AIRS
Room: 206

Wednesday, June 24, 2015 4:00 PM
Platform – TCC: APM-YP1
Chair: Jesse Thé, Lakes Environmental Software
Vice-Chair: Russ Lee, RF Lee Consulting

4:00 PM
Overview of Air Dispersion Modeling in the United States - Uses and Types of Models
Paper#:442
Michael Hammer, Jesse Thé and Cristiane Thé, Lakes Environmental Software

4:20 PM
Use of Probabilistic Statistical Techniques in AERMOD Modeling Evaluations
Paper#:207
Sergio Guerra, CPP, Inc.; Jesse Thé, Lakes Environmental Software

4:40 PM
Sensitivity Analysis of the WRF Model Applied to AERMOD
Paper#:435
Michael Hammer, Cristiane Thé and Jesse Thé, Lakes Environmental Software

5:00 PM
Using Air Dispersion Models to Conduct Retrospective Air Quality Analyses
Paper#:320
Marissa Maier, Ramboll ENVIRON

EnviroSuite

A Pacific Environment Technology Company

Predictive, Real-time, Historical

Environmental Intelligence

EnviroSuite is a modular cloud-based solution for Compliance Assurance Monitoring, troubleshooting and proactive management. It handles odor complaints, fenceline monitoring, emissions, permit compliance, community engagement for environmental justice, and other needs. EnviroSuite gathers and displays real-time data and stores it in a repository for automated reporting. It forecasts future conditions and sends automated guidance for proactive management. Developed in Australia, EnviroSuite is now being used in mines, ports and industrial facilities to prevent exceedances and manage compliance.

Come and speak to us at booth 102

kristin.zeise@envirosuite.com **www.envirosuite.com**

TECHNICAL SESSIONS

Thursday, June 25, 2015

Industry Focus	Session ID	Session Title	TCC(s)	Session Format	Room
8:00 am-9:40 am					
▲	MINI-ThuAM1	Recent U.S. Supreme Court Decisions: Is the Past a Prologue	REG	Panel	306A
☁	AIRS-ThuAM1	Case Studies Using Optical Remote Sensing	AAM	Platform	302A
☁	AIRS-ThuAM1	Developments in State and Federal Emission Inventories	AAE	Platform	305B
☁	AIRS-ThuAM1	Laboratory Sampling Bundled with Real-time Monitoring to Provide Better Data at Lower Cost	AAE	Panel	301B
☁	AIRS-ThuAM1	Methane Regulatory and Policy Perspectives	REG	Panel	303
☁	AIRS-ThuAM1	National and Regional Particulate Matter Measurements	APP	Platform	306B
☁	AIRS-ThuAM1	Ozone Modeling Studies	APM	Platform	302B
☁	AIRS-ThuAM1	Proposed Revisions to the EPA Guideline on Air Quality Models (40 CFR Part 51, Appendix W) – Discussion of Proposed Changes, Additions and Updates	APM	Panel	302C
🌐	CLIM-ThuAM1	Climate Change Policy, Strategy and Regulations	CCP	Platform	306C
⚛	NANO-ThuAM1	Regulatory Developments for Nanomaterials	NAN	Panel	201
🗑	WAST-ThuAM1	Wastewater and Residuals Treatment	WMB	Platform	305A
🍃 ⚖	YOUN/REGUThuAM1	Air Regulations - The Basics and Hot Topics	REG-YP	Panel	206
9:40 am-10:00 pm		**Session Break**			
10:00 am-11:40 pm					
▲	MINI-ThuAM2	Micro to Macro: Decision Making Impacts on Climate and Environment at Nano, Local, Regional and Global Scales	CCI	Panel	306A
☁	AIRS-ThuAM2	Current Studies in Air Measurements	AAM-AAE	Platform	302B
☁	AIRS-ThuAM2	Innovative Air Quality Modeling Techniques	APM	Platform	302C
☁	AIRS-ThuAM2	Methane Emission Studies and Control Opportunities	AAM	Panel	303
☁	AIRS-ThuAM2	Preparing Emission Inventory Data - Case Studies	AAE	Platform	305B
☁	AIRS-ThuAM2	Time-resolved Fenceline Techniques	AAM	Platform	302A
☁	AIRS-ThuAM2	Topics in Visibility	APV	Platform	301B
⚛	NANO-ThuAM2	Nanomaterials Latest on Measurement and Analysis	NAN	Panel	201
💡 🏭	POWR/ENERThuAM2	Achieving Compliance with More Stringent Emission Limits in the Power Sector	PWR	Platform	306B
⚖	REGU-ThuAM2	Environmental Air Laws, Rules and Court Updates	REG	Panel	305A
♻ 🌐	SUST/CLIM-ThuAM2	GHG Emission Controls	SUS	Platform	306C
🍃 ⚖	YOUN/REGU-ThuAM2	Air Permit Compliance	REG-YP	Platform	206
1:20 pm-3:00 pm					
☁	AIRS-ThuPM1	Advances and Applications in Lagrangian Modeling	APM	Platform	306A
☁	AIRS-ThuPM1	Atmospheric Chemistry and Ozone Issues - Part 3	APC	Platform	302B
☁	AIRS-ThuPM1	Fenceline Monitoring with Passive Samplers		Platform	302A
🌐	CLIM-ThuPM1	New Tools, Techniques and Partnerships to Reduce Emissions of Short-Lived Climate Pollutants	CCI	Panel	306C
📖	EDUC-ThuPM1	A&WMA Environmental Education Resource Guides - EERGs Mini Train-the-Trainer Workshop	EdC	Panel	302C
🏛	FEDS-ThuPM1	Emergent and Most Pressing Environmental Compliance Issues Facing DoD Installations	FED	Panel	305B
⚛	NANO-ThuPM1	Nanotechnology Research Developments	NAN	Platform	201
🛢	O&GS/INDU-ThuPM1	Emissions Monitoring in the Oil & Gas Production and Refining Industries	O&GS	Platform	306B
⚖	REGU-ThuPM1	Air Quality Regulatory and Permitting Issues in Abu Dhabi	REG	Platform	301B
⚖	REGU-ThuPM1	AirNow and AirNow International - Bringing Realtime Air Quality Data to the Public Worldwide	REG	Panel	303
⚖	REGU-ThuPM1	Compliance and Permitting Challenges under the Clean Air Act	REG	Platform	305A
🍃 ⚖	YOUN/REGU-ThuPM1	Air Permitting Flexibility	REG-YP	Panel	206
3:00 pm-3:20 pm		**Session Break**			
3:20 pm-4:40 pm					
☁	AIRS-ThuPM2	Atmospheric Chemistry and Ozone Issues: Modeling	APC	Platform	302B
☁	AIRS-ThuPM2	Particulate Matter Measurement and Monitoring	AAM	Platform	302A
🌐	CLIM-ThuPM2	Factors Influencing Climate Change	CCP	Platform	306C
⚖	REGU-ThuPM2	Biopower Air Quality Regulatory and Permitting Issues	REG	Platform	302C
⚖	REGU-ThuPM2	ISO 14001:2015 Standard Revision - Impacts and Challenges	REG	Panel	306A
⚖	REGU-ThuPM2	Permitting Problems and Solutions	REG	Panel	305A
⚖	REGU-ThuPM2	Regulatory Challenges Facing the Small Business Sector and the Pathway Towards Compliance	REG	Panel	303
⚖	REGU-ThuPM2	Updating the QA-QC Guidelines for Smoke School Programs	REG	Panel	201
♻	SUST-ThuPM2	Sustainability Programs, Models and Reporting Standards	SUS	Platform	305B
🍃 ⚖	YOUN/REGU-ThuPM2	PSD Permitting - The Basics	REG-YP	Platform	206

Thursday, June 25, 2015

Recent U.S. Supreme Court Decisions: Is the Past a Prologue?
Mini-Symposium
Room: 306A

Thursday, June 25, 2015 8:00 AM
Panel – TCC: REG15
Chair: Roger Martella, Sidley Austin

In mid-2014, the U.S. Supreme Court issued two significant environmental decisions; both reversed decisions of the Court of Appeals, at least in part, and both addressed EPA's authority under the Clean Air Act. In 2015, another air case was argued before the Supreme Court and a decision is expected just as the A&WMA Annual Conference gets underway. All three cases address EPA's authority under the Clean Air Act. On the other hand, EPA is expected to take action in several significant areas of the Clean Air Act and under the Clean Water Act before the end of 2016. How could these decisions constrain EPA actions? What are the potential consequences of EPA action in light of these court decisions? What can we expect from the Court of Appeals or other federal courts in light of the recent Supreme Court decisions? Sidley Austin has been involved in several environmental cases before the Supreme Court over the years as have other members of the panel. The decisions to be discussed include Supreme Court decisions on the Cross-State Air Pollution Rule, the Greenhouse Gas Stationary Source Permit Rules, the Mercury and Air Toxics Standards, as well as the Waters of the U.S. decisions that EPA must address in its rule-making this year. All speakers on this panel have experience directly working on cases before the US Supreme Court or actually arguing cases before the Supreme Court. All speakers have insight into what the recent decisions can mean for future EPA rulemaking and expected legal challenges.

Panelists:

- Roger Martella, Moderator, Sidley Austin
- Peter Keisler, Partner, Sidley Austin
- Jeff Bossert Clark, Kirkland and Ellis
- Speaker from the West Virginia Attorney-General Office (invited)

Case Studies Using Optical Remote Sensing
Track: AIRS
Room: 302A

Thursday, June 25, 2015 8:00 AM
Platform – TCC: AAM3
Chair: Len Nelms, Tetra Tech, Inc.
Vice-Chair: Ken Walsh, Leidos

8:00 AM
Measurement of Oil and Gas Well Pad Enclosed Combustor Emissions Using Optical Remote Sensing Technologies
Paper#:231
Mark Modrak, ARCADIS

8:20 AM
Performance Evaluations and Quality Validation System for Optical Gas Imaging Cameras That Visualize Fugitive Hydrocarbon Gas Emissions
Paper#:288
Tracey Footer, Eastern Research Group, Inc. (ERG); Jason DeWees, EPA-OAQPS; Eben Thoma, EPA/NRMRL/APPCD; Bill Squier, EPA; Cary Secrest, EPA; Adam Eisele, EPA

8:40 AM
Optical Gas Imaging Standards for Sensitivity and Detection of Gases
Paper#:544
Brent Lammert, Jonas Sandsten, Ulf Wållgren,; Märta Barenthin Syberg and Henning Hagman, FLIR Systems, AB

9:00 AM
New Optical Gas Imaging Technology for Quantifying Fugitive Emission Rates
Paper#:261
Yousheng Zeng and Jonathan Morris, Providence Photonics

TECHNICAL SESSIONS

Climate Change Policy, Strategy and Regulations

Track: CLIM
Room: 306C

Thursday, June 25, 2015 8:00 AM
Platform – TCC: CCP1
Chair: Deanne Hughes, Third Branch Engineering LLC
Vice-Chair: Stan Hayes, Ramboll ENVIRON

8:00 AM
Establishment of a Climate Change Research Center (CCRC) in Egypt
Paper#:135
Mounir Labib, Egyptian Environmental Affairs Agency

8:20 AM
Pursuing Local Government Carbon Neutrality without Buying Offsets
Paper#:283
Conor Reynolds, George Friedrich, Jason Emmert and Ali Ergudenler, Metro Vancouver

8:40 AM
Environmental Issues Arising from Mexican Energy Reform: New Regulations, Presidential Permits and Lifecycle GHGs
Paper#:282
Carlos Romo, Baker Botts

9:00 AM
Challenges of Adapting the Existing Regulatory and Planning Environment to Greenhouse Gas Emissions – Scope, Boundaries, and Lifecycle
Paper#:45
John Henkelman, Patrick Sullivan, and Raymond Huff, SCS Engineers

Air Regulations - The Basics and Hot Topics

Track: YOUN/REGU
Room: 206

Thursday, June 25, 2015 8:00 AM
Panel – a TCC: REG-YP1
Chair: Thomas Flynn, South Carolina Department of Health and Environmental Control
Vice-Chair: Brian Barnes, South Carolina Department of Health and Environmental Control

The protection of public health is one of the hallmarks of the Clean Air Act (CAA). Established in 1970 and amended in 1977 and 1990 by Congress, the CAA provides the framework for all existing state and federal air pollution programs.

The purpose of the first part of this panel is to discuss the basics of the CAA both as an introduction to new air quality management personnel and as a new perspective to more experienced air professionals. A representative from the South Carolina Department of Health and Environmental Control (DHEC) will give a state's perspective on the history of the CAA and how it is implemented each day. DHEC is a unique state agency that provides state regulatory authority for environmental issues and health regulations. This interface between public health officials and environmental professionals gives DHEC the unique opportunity to be attuned to the public health protections provided by the CAA.

The second half of the session will focus on various issues that impact public health, but are not necessarily covered by the authority granted to the USEPA and the states by the CAA. A panel of experts from South Carolina and USEPA Region 4 will discuss some of these issues and how their respective organizations handle them. Topics that will be discussed include emissions from prescribed and wild fires; community involvement; personal sensor monitoring; mobile source initiatives; emergency response and risk communications strategies that can be used to address these situations. Regulations contained within the Energy Policy Act of 2005, the American Recovery and Reinvestment Act (ARRA), and Department of Transportation requirements in the Moving Ahead for Progress in the 21st Century Act (MAP-21) are having significant impacts on air emissions and public health.

Panelists:

- Thomas Flynn, South Carolina Department of Health and Environmental Control (SCDHEC)
- Lawra Boyce, SCDHEC
- Fran Marshall, SCDHEC
- Brian Barnes, SCDHEC
- Ryan Brown, EPA Region 4
- Daniel Garver, EPA Region 4

TECHNICAL SESSIONS

Developments in State and Federal Emission Inventories

Track: AIRS
Room: 305B

Thursday, June 25, 2015 8:00 AM
Platform – TCC: AAE2
Chair: Chun Yi Wu, Minnesota Pollution Control Agency
Vice-Chair: Tammy Manning, NCDENT-DAQ

8:00 AM
A New Paradigm for Air Emissions Reporting to the EPA and States
Paper#:383
Marc Houyoux, Sally Dombrowski, Ron Evans and Bob Schell, EPA OAQPS;Henry Darwin and Michael Burton, Arizona DEQ; Kong Chiu and Timothy Antisdel, EPA

8:20 AM
Quality Assurance and Quality Control for State Air Toxics Emission Inventories
Paper#:553
Chun Yi Wu, Minnesota Pollution Control Agency

8:40 AM
Using the Mandatory Reporting Rule to Improve the EPA's Solid Waste Emissions Inventory
Paper#:443
Katherine Bronstein, Research Triangle Institute; Rachel Schmeltz, EPA

9:00 AM
Development of Future Year Projections for EPA's 2011 Emissions Modeling Platform
Paper#:149
Alison Eyth, EPA

9:20 AM
EPA's SPECIATE 4.4 Database: Development and Uses
Paper#:102
Michael Kosusko, EPA/ORD/NRMRL/APPCD; Prakash Bhave, International Centre for Integrated Mountain Development, Kathmandu, Nepal; Ying Hsu, Jonathan Dorn and Frank Divita, Abt Associates; Alexis Zubrow, EPA Region 1

Methane Regulatory and Policy Perspectives

Track: AIRS
Room: 303

Thursday, June 25, 2015 8:00 AM
Panel – TCC: AAE3
Chair: Len Nelms, Tetra Tech, Inc.
Vice-Chair: Howard Feldman, API

Interest in methane emissions, particularly from the oil and gas industry, has grown rapidly over the last few years. Both interim and final data from recent studies involving field measurements of methane emissions have been reported, while some studies are still ongoing. As these data are released, the EPA and several state environmental agencies have begun reviewing the new information and comparing the results to emission inventories and other existing data. Policy is being developed to guide future regulatory actions based on both currently available information and these new studies. New regulations have been promulgated is some states and are being considered by other states and the EPA to address concerns about the methane emissions identified.

This panel will provide an opportunity for discussing the policies and regulations being developed in response to current research studies and will offer insights from industry, non-governmental and regulatory personnel regarding their concerns in setting policy for future methane emission reductions.

TECHNICAL SESSIONS

Ozone Modeling Studies

Track: AIRS
Room: 302B

Thursday, June 25, 2015 8:00 AM
Platform – TCC: APM7
Chair: Ralph Morris, Ramboll ENVIRON
Vice-Chair: Justin Walters, Southern Company

8:00 AM
Adapting SAPRC Chemistry Mechanism with Low Temperature Conditions for Simulating Ozone during Winter in Uintah Basin
Paper#:316
Huy Tran, Trang Tran and Marc Mansfield, Utah State University; Jaron Hansen and Sambhav Kumbhani, Brigham Young University

8:20 AM
EPA's Updated Ozone Attainment Test
Paper#:483
Brian Timin, EPA/OAQPS

8:40 AM
Future Year Ozone Source Attribution Modeling Studies for the Eastern and Western United States
Paper#:11
Susan Collet, Toyota

9:00 AM
Preliminary Evaluation of the Community Multiscale Air Quality (CMAQ) Model Version 5.1 to Be Released in Fall 2015
Paper#:438
K. Wyat Appel, Sergey Napelenok, Christian Hogrefe, George Pouliot, Brian Eder, Kristen Foley and Shawn Roselle, EPA Atmospheric Modeling and Analysis Division, NERL, ORD

9:20 AM
A Comparison of Observed and Simulated 1990 – 2010 U.S. Ozone Trends
Paper#:389
Kristen Foley, Christian Hogrefe, Jia Xing, Chuen Meei Gan, David Wong, Jonathan Pleim and Rohit Mathur, EPA; Shawn Roselle, EPA/ORD/NERL/AMAD; Heather Simon and Adam Reff, EPA

National and Regional Particulate Matter Measurements

Track: AIRS
Room: 306B

Thursday, June 25, 2015 8:00 AM
Platform – TCC: APP5
Chair: R.K.M Jayanty, RTI International
Vice-Chair: Prakash Doraiswamy, RTI International

8:00 AM
An Overview of AQS $PM_{2.5}$ Chemical Speciation Data and Ways to Improve Network Results
Paper#:556
Richard Tropp, Desert Research Institute

8:20 AM
Review and Update of the Data Validation Procedures for the $PM_{2.5}$ Chemical Speciation Network
Paper#:342
Prakash Doraiswamy, R.K.M. Jayanty, Jesse Deal, Linda Andrews and Edward Rickman, RTI International

8:40 AM
Chemical Speciation Network Assessment Information Made Publicly Available via a Novel Website
Paper#:298
Thomas Kelly, Battelle

9:00 AM
Temporal Trends in Mineral Dust Concentrations at Rural and Remote Sites Across the United States
Paper#:163
Jenny Hand, Colorado State University; Bret Schichtel, National Park Service; Kristi Gebhart, National Park Service; Nicole Hyslop, University of California; Warren White, University of California; William Malm, Colorado State University

9:20 AM
Effect of Wildfires on the Air Quality of Northern South America
Paper#:469
Luis Belalcazar and Nestor Rojas, Universidad Nacional de Colombia; Andreas Beckert, University of Hamburg, Germany

TECHNICAL SESSIONS

Regulatory Developments for Nanomaterials

Track: NANO
Room: 201

Thursday, June 25, 2015 8:00 AM
Panel – TCC: NAN1
Chair: Yevgen Nazarenko, McGill University
Vice-Chair: Tom Morahan, Greystone Strategies

Nanomaterials and nanotechnology offer important societal benefits that are already implemented in commercial products. At the same time, the growing use of engineered nanomaterials may lead to environmental and human exposures and, consequently, may pose a risk of associated health and environmental effects. Nanotechnology-specific regulations and guidance are now emerging in the U.S. and internationally, all of which are intended to prevent or minimize potential nanomaterials' unintended impacts. The scope and applicability of certain existing regulations have also been expanded or revised to include engineered nanomaterials. These regulations are influencing the development and commercialization of nanotechnologies. The panel discussion will focus on recent and expected regulatory developments pertinent to nanomaterials and how industry stakeholders can stay compliant and maintain a high level of safety and stewardship. A proactive, informed approach can minimize adverse effects and unintended consequences of nanotechnology use. Jim Alwood and Kenneth Moss will discuss how the U.S. regulatory framework is facilitating nanomaterial commercialization and will discuss the process for notifications of nanomaterials under the Toxic Substances Control Act. Lynn L. Bergeson is an industry representative who will address the beneficial applications of nanomaterials, and strategies stakeholders can pursue to ensure their nano activities are undertaken lawfully. Yevgen Nazarenko will address potential problems associated with engineered nanomaterial used in nanotechnology-based consumer products and concerns about incidental nanoparticle release from industry and as a result of nanomaterial-doped fuel combustion. The panelists' reports will provide an update on the current state of nanotechnology regulation development, adoption and application in the U.S. and similar efforts in the EU and elsewhere in the world. Additionally, panelists will discuss the application of current U.S. regulations to engineered nanomaterials with novel molecular identity.

Panelists:

- Yevgen Nazarenko, McGill University
- Lynn L. Bergeson, Bergeson & Campbell PC
- Kenneth Moss, EPA
- Jim Alwood, EPA

Wastewater and Residuals Treatment

Track: WAST
Room: 305A

Thursday, June 25, 2015 8:00 AM
Platform TCC: WMB6
Chair: Lee Lundberg, Bedrock Enterprises, Inc.
Vice-Chair: David Minott, Arc5 Environmental Consulting, LLC

8:00 AM
Assessment of the Wastewater Treatment Sector in the Emirate of Abu Dhabi
Paper#:259
Hani Abdalla, Kate Bronstein and Fadi Elayyan, RTI International; Bilal Abu Ashour, Environment Agency, United Arab Emirates

8:20 AM
Bio - Dredging: A Sustainable Cost-Savings for Wastewater Treatment Lagoons Systems
Paper#:25
Chip Bettle, Absolute Aeration

8:40 AM
A Comparative Study for Treating Disinfection Byproducts Under Two Conditions - Aerobic and Anaerobic Biotrickling Filters
Paper#:130
Bineyam Mezgebe and George Sorial, University of Cincinnati; Endalkachew Sahle-Demessie, EPA

9:00 AM
Modeling Rate Constants for Removal of BOD and COD from Landfill Leachate
Paper#:197
Melanie Sattler, University of Texas at Arlington

9:20 AM
Complying with the New Sewage Sludge Incinerator MACT Rules – A Review of Different Strategies
Paper#:545
Matthew Traister, O`Brien & Gere

TECHNICAL SESSIONS

Laboratory Sampling Integrated and Bundled with Real-Time Monitoring – Better, More Useful Data and Lower Total Cost

Track: AIRS
Room: 301B

Thursday, June 25, 2015 8:00 AM
Panel – TCC: AAE
Chair: Bruce Groves, Emilcott Technologies

Information from Real-time Environmental Monitoring systems can now direct when laboratory analytical samples, such as TO-15 and TO-17, should be taken. Laboratory air samples can be taken automatically, precisely and without human intervention when real-time TVOC or Benzene (or other parameters such as dust) levels exceed certain thresholds and when wind direction is downwind from the site. Advantages of bundling real-time and laboratory sampling include:

- Limiting the amount of laboratory samples being taken to times when conditions are optimal (e.g., TVOC and/or Benzene levels exceed a threshold) significantly reduces the numbers and cost of analytical samples
- Laboratory results can be compared to actual site conditions by comparing to real-time air sampling and weather data including video
- Samples can be setup in each air sampling station to be ready immediately when conditions warrant
- Air sampling cylinders (i.e., TO-15) can be continuously monitored for pressure to ensure proper negative pressures are always maintained and ensure sampling ends before cylinder loses negative pressure
- Laboratory air sampling can be stopped and started many times over a set period of time to take a blended analytical sample when conditions are constantly changing.
- Samples can manually be taken remotely without onsite labor. Bundling real-time sampling with collecting laboratory air samples is being used in many remediation and industrial projects.

This panel will present case histories on how this is being effectively used and focus on the risk management, technical, regulatory and quality assurance issues that will need to be addressed in the process of gaining acceptance for petroleum refining operations and hazardous waste remediation related projects.

Panelists:

- Will Elcoate, Alpha Analytical
- Bruce Groves, Emilcott Technologies

Proposed Revisions to the EPA Guideline on Air Quality Models – Discussion of Proposed Changes, Additions and Updates

Track: AIRS
Room: 302C

Thursday, June 25, 2015 8:00 AM
Panel – TCC: APM
Chair: David Long, American Electric Power Service Corporation
Vice-Chair: Bob Paine, AECOM

EPA's Guideline on Air Quality Models ("Guideline") addresses the regulatory application of air quality models for assessing criteria pollutants regulated under the Clean Air Act. This Guideline is a codified rule, Appendix W to 40 CFR Part 51, and it establishes the preferred models and techniques that are to be used in conducting air quality analyses for permitting activities and provides guidance on the modeling analyses that are to be used in the development of State Implementation Plans. The last revision to the Guideline was issued as a final rule on November 9, 2005. In the intervening decade there have been numerous technical advancements in the modeling science, changes in the regulated pollutants and standards and corresponding modeling guidance. USEPA is expected to issue proposed revisions to the Guideline that will consider and incorporate the necessary updates and changes in the revised rule that will govern current and future modeling guidance and protocol. In coordination with this proposal, USEPA will hold the 11th, Triennial Air Quality Modeling Conference during the public comment period on these changes. This panel will consider and discuss the proposed changes to the Guideline and what they may mean to the regulated and modeling community.

Panelists:

- Representatives of EPA – OAQPS, Air Quality Modeling Group – Invited
- State Agency Modeling Personnel – Invited
- Bob Paine, AECOM
- George Schewe, Trinity Consultants
- Eladio Knipping, EPRI

Micro to Macro: Decision Making Impacts on Climate and Environment at Nano, Local, Regional and Global Scales Mini-Symposium

Room: 306A

Thursday, June 25, 2015 10:00 AM
Panel TCC: CCI3
Chair: Gene Stroup, Nicholas School of the Environment Triangle Area Alumni Coordinator, Duke University

The session discussion will include six presentations - all which revolve around the concept of making sound decisions to reduce climate and negative environmental impacts. These presentations will follow a scaled evolution, beginning with a talk on nanotechnology science. The next talk will then focus on DNA techniques to detect changes due to climate variations. The third presentation will highlight current technology for enabling the integration of renewables and changing utility business models. The next talk will focus on community level impacts and behavioral changes effecting climate. The fifth talk will speak to global mitigation strategies related to climate and air quality impacts. The last presentation will link the initial topics together while highlighting emission reductions strategies and technologies such as emissions trading programs. The goal is to show climate and air quality challenges from the nano to global level, and highlight best approaches / technologies for environmental decision making.

Panelists:

- Nanotechnology science – Dr. Ben Colman, Research Scientist, Center for the Environmental Implications of NanoTechnology (CEINT), Duke University
- DNA techniques to detect changes due to climate variations – Ms. Justine Kmiecik, CEO and Co-Founder, BaseTrace
- Technology enabling the integration of renewables and changing utility business models – Mr. Paul Quinlan, Clean Technology Specialist, ScottMadden, Inc.
- Community level impacts and behavioral changes effecting climate – Dr. Jared Woollacott, Research Economist, RTI International
- Combining Mitigation and Adaptation Strategies: Ethiopia's Climate Resilient Green Economy – Mr. Christopher Paul, PhD Candidate, University Program in Environmental Policy at Duke University
- Highlighting emission reductions strategies and technologies – Ms. Maggie Monast, Senior Policy Analyst, Environmental Defense Fund

Time-Resolved Fenceline Techniques

Track: AIRS
Room: 302A

Thursday, June 25, 2015 10:00 AM
Platform – TCC: AAM17
Chair: Eben Thoma, EPA/NRMRL/APPCD
Vice-Chair: Ray Merrill, EPA

10:00 AM
Application of Optical Remote Sensing for Monitoring of Emissions from Large Refinery Complex in Los Angeles, CA
Paper#:465
Olga Pikelnaya, South Coast Air Quality Mangement District; Philip Fine, SCAQMD; Laki Tisopulos, SCAQMD; Andrea Polidori, South Coast AQMD

10:20 AM
Quantification of VOC Emissions Using Tracer Dispersion, Mobile Extractive FTIR (MeFTIR) and Mobile Whitecell-DOAS (MWDOAS)
Paper#:417
Jerker Samuelsson, FluxSense AB / FluxSense Inc; Johan Mellqvist, Chalmers University of Technology

10:40 AM
Development of On-Line and Field Dual TD GC - MS for Automatic VOC Monitoring on Petrochemical Sites
Paper#:103
Franck Amiet, Chromatotec; Michel Robert, Chromatotec

11:00 AM
Investigation of a Low Cost Sensor-Based Leak Detection System for Fence Line Applications
Paper#:26
Wan Jiao, EPA/ORD; Eben Thoma, EPA/NRMRL/APPCD; Elsy Escobar, ARCADIS US Inc.; Mark Modrak, ARCADIS; Shahrooz Amin, ARCADIS; Bill Squier, EPA; William Mitchell, EPA - NERL; Halley Brantley, EPA/ORD, Garrett Wiley

11:20 AM
Fenceline Monitoring Using Low-cost Sensor Networks to Locate Fugitive Gas Leaks: A Bayesian Approach
Paper#:156
Xiaochi Zhou, Vinicius Amaral and John Albertson, Duke University

TECHNICAL SESSIONS

Methane Emission Studies and Control Opportunities

Track: AIRS
Room: 303

Thursday, June 25, 2015 10:00 AM
Panel – TCC: AAE4
Chair: Len Nelms, Tetra Tech, Inc.
Vice-Chair: Howard Feldman, API

Interest in methane emissions, particularly from the oil and gas industry, has grown rapidly over the last few years. Several studies involving field measurements of methane emissions have been recently completed or are currently underway, funded by a combination of industry, governmental and non-governmental organizations. These studies are generally focused on developing a high-quality data set estimating the current emission rates from various oil and gas production operations. Concurrently, the EPA and several state environmental agencies are reviewing available data to identify approaches to address concerns about these emissions. Industry has begun to develop control technologies to capture these releases at oil and gas production facilities and beneficially utilize them.

This panel composed of industry, non-governmental, and regulatory personnel, will provide an opportunity for sharing the data being developed by current research studies and means to reduce or eliminate them.

Topics in Visibility

Track: AIRS
Room: 301B

Thursday, June 25, 2015 10:00 AM
Platform – TCC: APV1
Chair: Joe Adlhoch, Air Resource Specialists, Inc.
Vice-Chair: Jenny Hand, Colorado State University, CIRA

10:00 AM
Using IMPROVE Speciated Aerosol Concentrations to Track Trends in Anthropogenic Haze
Paper#:468
Bret Schichtel, National Park Service; Scott Copeland, Colorado State University; Patricia Brewer, National Park Service; John Vimont, National Park Service; Neil Frank, EPA; Kristi Gebhart, National Park Service; Bill Malm, Colorado State University; Gail Tonnesen, EPA; Tim Allen, U.S. Fish & Wildlife Service

10:20 AM
Evaluation of Relationships Between Light Extinction and PM Concentrations in the Southeastern United States
Paper#:459
Ivar Tombach, Ivar Tombach, PhD

10:40 AM
Use of Webcam Images for Quantitative Characterization of Haze
Paper#:152
Bill Malm, Colorado State University; Scott Cismoski, Air Resource Specialists, Inc.

11:00 AM
Success Stories using EPA Alternative Method 082
Paper#:60
Shawn Dolan and Allison Dolan, Virtual Technology LLC

TECHNICAL SESSIONS

Preparing Emission Inventory Data - Case Studies

Track: AIRS
Room: 305B

Thursday, June 25, 2015 10:00 AM
Platform – TCC: AAE5
Chair: Marc Houyoux
Vice-Chair: Chun Yi Wu, Minnesota Pollution Control Agency

10:00 AM
Estimation of Emissions From Stationary and Mobile Sources in Cundinamarca, Colombia
Paper#:400
Nestor Rojas, Universidad Nacional de Colombia; Patricia Davila, Universidad Nacional de Colombia; Aura Rojas, Universidad Nacional de Colombia; Mauricio Osses, ISSRC-LA

10:20 AM
Projection of Energy Demand and Vehicle Emissions in Bogota, 2008 TO 2050
Paper#:531
Nestor Rojas, Universidad Nacional de Colombia; Elkin Guzman, Universidad Nacional de Colombia

10:40 AM
A Summary of Research on Non-Road Mobile Sources Emissions in China
Paper#:158
Kaishan Zhang, Department of Environmental Science & Engineering, Sichuan University; Fan Wang, Sichuan University; Baofeng Di, Sichuan University

Nanomaterials: Latest on Measurement and Analysis

Track: NANO
Room: 201

Thursday, June 25, 2015 10:00 AM
Panel – TCC: NAN2
Chair: Yevgen Nazarenko, McGill University
Vice-Chair: William Looney, AECOM

The fast development and growing use of nanomaterials are associated with their distinctive physicochemical, electrical, optical, quantum characteristics and bioactivity. The use of engineered nanomaterials is now widespread and rapidly expanding into an increasing array of products and applications. This process leads to an increasing potential for environmental and human exposure at all stages of nanomaterials' existence from production of raw materials, to manufacturing of products, throughout product life, and during and post disposal. The growing evidence for potential adverse health an environmental effects of nanomaterials mandates their more extensive research and monitoring as well as control of synthesis and manufacturing processes, which in their turn acutely demand better analytical techniques and characterization approaches. The physico-chemical variety of different forms of nano-objects in nanomaterials present a challenge for the analysis and measurement. The techniques and approaches for nano-object and nanomaterial analysis and characterization can be used in both the nanotechnology development and manufacturing as well as environmental and health risk assessment research. We also have a very limited understanding of the extent of potential for exposure to nanomaterials and environmental releases, and of the form of nanomaterials and changes they undergo in the process of release and afterwards. All these aspects will potentially affect resulting health effects that is also critical to know for evidence-based regulation development. The panelists' will discuss the currently available and developed state of the art sampling, measurement and analytical techniques. Specific instruments for nanoaerosol and nanomaterial analysis will be described. Additional discussion will touch upon measurement and experimental approaches to assessment of inhalation exposure to airborne nanomaterials and to incidental nanoparticles, which may be released from industrial processes and nanomaterial-doped fuel combustion.

Panelists:

- Yevgen Nazarenko, McGill University
- William Looney, AECOM
- Kate Cerully, Research & Analytic Aerosol Instruments

TECHNICAL SESSIONS

GHG Emission Controls

Track: SUST/CLIM
Room: 306C

Thursday, June 25, 2015 10:00 AM
Platform – TCC: SUS1
Chair: Lee Lundberg, Bedrock Enterprises, Inc.
Vice-Chair: Ken Walsh, Leidos

10:00 AM
Prototype Testing of an Advanced Solid Sorbent-Based CO_2 Capture Process
Paper#:432
Thomas Nelson, Luke Coleman, Marty Lail, Atish Kataria and Mustapha Soukri, RTI International

10:20 AM
Non-Aqueous Solvent (NAS) CO_2 Capture Process
Paper#:499
Jak Tanthana, RTI International; Mustapha Soukri, RTI International; Marty Lail, RTI International; Aravind Rabindran, RTI International; Justin Farmer, RTI International; Luke Coleman, RTI International

10:40 AM
Generation of Syngas from CH_4 and CO_2 via Combined Plasma Catalysis
Paper#:503
Moo-Been Chang, National Central University

11:00 AM
GHG Emissions from the Building Sector in Egypt
Paper#:599
Mounir Labib, Egyptian Environmental Affairs Agency

Innovative Air Quality Modeling Techniques

Track: AIRS
Room: 302C

Thursday, June 25, 2015 10:00 AM
Platform – TCC: APM8
Chair: Piotr Staniaszek, SNC-Lavalin Inc.
Vice-Chair: Dave Heinold, AECOM

10:00 AM
Evaluation of Baseline Air Quality Methodologies for Selecting Appropriate Concentration to Represent Baseline Air Quality
Paper#:446
Rahul Jain, Golder Associates Ltd.; Scott Martin

10:20 AM
Partial Least Square Path Modeling as a Compliment to Traditional Source Apportionment Methods
Paper#:204
Hilda Lizette Menchaca Torre, Tecnologico de Monterrey; Alberto Mendoza-Dominguez, Department of Chemical Engineering

10:40 AM
Justifying a GEP Stack Height Taller Than the EPA Formula Height
Paper#:415
Ron Petersen and Anke Beyer-Lout, CPP, Inc.; Tom Emond, Expera Specialty Solutions

11:00 AM
Updates to Version 3.61 of Biogenic Emission Inventory System
Paper#:433
George Pouliot, EPA

11:20 AM
Analysis of Industrial Heat Islands Using Satellite 90 m TIR data and CFD Modeling
Paper#:504
Gary Moore and Robert Paine, AECOM

TECHNICAL SESSIONS

Environmental Air Laws: Rule and Court Updates

Track: REGU
Room: 305A

Thursday, June 25, 2015 10:00 AM
Panel – TCC: REG8
Chair: Lynn Hutchinson, RTP Environmental Associates
Vice-Chair: Shannon Broome, Katten Muchin Rosen LLP

This panel, similar to well-attended presentations at previous conferences, would discuss recent EPA proposed or final air regulations, major court decisions, and recent EPA settlement agreements to explain how these developments affect applicants and agencies. A panel of legal experts will discuss major developments in environmental air law, point out ways that facility operations could be affected by these developments, and identify issues that remain unsettled. In the past year, EPA has proposed revised NSPS and MACT standards, and reached settlements with alleged violators that contain novel regulatory approaches. Several recent court rulings affect how EPA will set and enforce emissions standards, and set regulations for startup, shutdown and malfunction activities. This panel will discuss these recent developments. The panel will provide an up-to-date summary of the major issues arises from recent court decisions and EPA's air regulations.

Panelists:

- Lynn Hutchinson, General Counsel and Senior Project Manager, RTP Environmental Associates, will chair the session and introduce speakers and discuss recent EPA regulations, litigation or Consent Orders.
- Shannon Broome, Partner, Katten Muchin Rosen LLP, will co-chair the session and discuss recent EPA regulations and the status of pending and resolved litigation on EPA's greenhouse gas regulations.
- Leslie Ritts, founder of the Ritts Law Group, will discuss the DC Circuit's ruling that overturned EPA's guidance the Summit court decision because of a failure to follow EPA's regulations requiring regional consistency.
- John Walke, Director, Climate and Clean Air Programs, will discuss NRDC v. EPA, April 2014 in which the D.C. Circuit overturned EPA's affirmative defense provisions in EPA's Cement MACT standard and environmental groups plans for further action on future standards.
- EPA – (to be determined) will provide EPA's prospective on recent litigation and the status of the Agency's efforts to respond to court rulings.

Current Studies in Air Measurements

Track: AIRS
Room: 302B

Thursday, June 25, 2015 10:00 AM
Platform – TCC: AAM-AAE1
Chair: Asami Tanimoto, CDM Smith
Vice-Chair: Richard Osa, ERM

10:00 AM
A New TO-17 Tube For the Investigation of Volatiles and Semi-Volatiles: Are Targets in Soil Gas Being Missed?
Paper#:345
Lee Marotta, PerkinElmer Instruments; Roberta Provost, Pace Analytical Services

10:20 AM
Methane Oxidation and Generation Rate Measurement at a Landfill Using the AMM Method
Paper#:80
Colin Wong, Golder Associates Ltd.

10:40 AM
Differences in N_2O Emissions Determined By Static Soil Chamber and Micro-Meteorological Methods
Paper#:164
Richard Grant, Tony Vyn, Clifford Johnston, Rex Omonode, Cheng-Hsien Lin, and Austin Pearson; Department of Agronomy, Purdue University

11:00 AM
Ethylene Oxide (EO) Removal
Paper#:302
Gregory MacLeod, CR Clean Air; Gerald Jacques, CR Clean Air

TECHNICAL SESSIONS

Achieving Compliance with More Stringent Emission Limits in the Power Sector

Track: POWR/ENER
Room: 306B

Thursday, June 25, 2015 10:00 AM
Platform – TCC: PWR2
Chair: Jordan Haywood, Siemens Energy, Inc.
Vice-Chair: Paul Farber

10:00 AM
NOx Control for Cogeneration Facilities
Paper#:17
Robert Stelzer, Safety Power Inc.

10:20 AM
DSI and ACI Systems: Alternative Approached to Meet Regulation for SO_2, Acid Gas and Mercury Limitations
Paper#:89
Jonathan Norman, United Conveyor Corporation

10:40 AM
Modeling Heat Rate Improvements at Coal-Fired Power Plants
Paper#:42
Kenneth Walsh and Jay Ratafia-Brown, Leidos

Air Permit Compliance

Track: YOUN/AIRS
Room: 206

Thursday, June 25, 2015 10:00 AM
Platform – TCC: REG-YP2
Chair: Max Justice, Parker Poe Adams & Bernstein LLP
Vice-Chair: Rebecca Bolden, Mohawk Industries, Inc.

10:00 AM
Self-Disclosure Strategies and Legal Protections for Environmental Audits
Paper#:273
Steve Weber, Parker Poe Adams & Bernstein LLP

10:20 AM
The Use of Legal Privileges to Protect Important and Sensitive Documents and Information from Disclosure
Paper#:274
Steve Weber, Parker Poe Adams & Bernstein LLP

10:40 AM
Air Permit Compliance
Paper#:479
Max Justice, Parker Poe Adams & Bernstein LLP

11:00 AM
Auditing for Compliance with Clean Air Act Regulations
Paper#:508
Sasha Laferte, Triumvirate Environmental

11:20 AM
Small Industry Air Permits – Best Management Practices
Paper#:240
Rebecca Heilman, TRANSFLO Terminal Services

TECHNICAL SESSIONS

Air Permitting Flexibility

Track: YOUN/REGU
Room: 206

Thursday, June 25, 2015 1:20 PM
Panel – TCC: REG-YP2
Chair: Elizabeth Basil, SCDHEC-BAQ
Co-Chair: William Willets, NCDENR

Air permitting agencies must establish the methods for achieving and maintaining the quality of the air within their area of responsibility while minimizing the impact on the surrounding areas. However, they must perform this task while balancing the demands of the ever-changing industrial sectors. In the fast-paced world in which we live, products seem to be outdated as quickly as they hit the marketplace. Industries scramble to get the latest product out the door. Obtaining a construction air permit prior to making any change in operations can be costly when it can take several months to get that permit.

The United States Environmental Protection Agency (EPA) has affirmed a State's ability to flexibly interpret its own rules to pre-approve a defined list of changes that a business could then initiate with minimal notice and paperwork1. This kind of authorization is commonly known as a flexible air permit. To take advantage of these options, the industry must request the options as part of their air permit application and must demonstrate how they will be able to meet the rules and regulations applicable to the facility.

In this panel, representatives from South Carolina, North Carolina and Texas will discuss how State regulations were modified to allow flexible air permitting and how flexible air permitting is currently used in their State. In addition, two (2) industry representatives will discuss how they utilize flexible air permitting to achieve their production goals.

Panelists:

- Elizabeth Basil, SCDHEC – Bureau of Air Quality
- William Willets, NCDENR – Division of Air Quality
- A Representative from TCEQ – Office of Air
- Andrew Willing, 3M Company
- Greer Tidwell, Bridgestone Americas Tire Operations, LLC

Advances and Applications in Lagrangian Modeling

Track: AIRS
Room: 306A

Thursday, June 25, 2015 1:20 PM
Platform – TCC: APM8
Chair: Bob Paine, AECOM
Vice-Chair: Mark Garrison, ERM

1:20 PM
Advances in CALPUFF Version TNG-7
Paper#:470
Joseph Scire, David Strimaitis, Irene Lee, Christelle Escoffier, Alfred Klausmann and Mark Yocke, Exponent, Inc.

1:40 PM
Roadway Module in CALPUFF Version TNG-7
Paper#:473
Christopher DesAutels, David Strimaitis and Joe Scire, Exponent, Inc.; Alfred Klausmann, Exponent

2:00 PM
Testing of a Reactive Puff Model for Single-Source Secondary Impacts
Paper#:441
Prakash Karamchandani, Ralph Morris, Greg Yarwood, and Lynsey Parker, Ramboll ENVIRON; Eladio Knipping and Naresh Kumar, Electric Power Research Institute (EPRI); Biswanath Chowdhury and Ian Sykes, Sage Management

2:20 PM
Evaluation of the Puff Model SCICHEM
Paper#:279
Aaron Kaulfus, John Jansen and Justin Walters, Southern Company; Prakash Karamchandani, ENVIRON; Eladio Knipping, Stephanie Shaw and Naresh Kumar, EPRI; Eric Edgerton, Atmospheric Research and Analysis, Inc.; Kenneth Aikin, Charles Brock, Steven Brown, Peter Edwards, Joost de Gouw, Martin Graus, John Holloway, Ann Middlebrook, Andy Neuman, John Nowak, Jeff Peischl, Ilana Pollack, James Roberts, Thomas Ryerson and Patrick Veres, NAOA/CIRES, Boulder Colorado

2:40 PM
Temperature Differentials used to Demonstrate Lower Dispersion Modelling Concentrations from Road Tunnel Stacks
Paper#:379
David Rollings and Jennifer Barclay, AECOM

TECHNICAL SESSIONS

AirNow and AirNow International - Bringing Realtime Air Quality Data to the Public, Worldwide

Track: REGU
Room: 303

Thursday, June 25, 2015 1:20 PM
Panel – TCC: REG9
Chair: Philip Dickerson, EPA

Presentation will outline the development of the AirNow system in the US, beginning in 1997, which lead to the AirNow-International system debuting in Shanghai in 2010. The panelists will cover the advantages, challenges, and future of real time data provision to the public. Use of real time data in emergency events such as wildfires will also be covered. Future directions, including small sensor data, satellite data, and citizen science opportunities, and how these developments will shape the future of AirNow will be discussed.

Panelists:

- Phil Dickerson, AirNow Program Director, EPA
- Alan Gertler, Ph.D., Vice President for Research & Chief Science Officer, Desert Research Institute

Compliance and Permitting Challenges under the Clean Air Act

Track: REGU
Room: 305A

Thursday, June 25, 2015 1:20 PM
Platform – TCC: REG10
Chair: David Jordan, ERM

1:20 PM
Updates to the Office of Environmental Health and Hazard Assessment Risk Assessment Guidelines and Permitting Threshold Challenges
Paper#:523
Everest Yan, Heidi Rous and Alan Sako, PCR Services Corporation

1:40 PM
Challenges with National Ambient Air Quality Standards Implementation following Regulatory Air Quality Modeling Guidance and Techniques
Paper#:213
Beth Barfield, ERM

2:00 PM
Obtaining Proper Authorization to Discharge Air Pollutants from Oil and Gas Production Facilities
Paper#:367
Len Nelms, Tetra Tech, Inc.

Fenceline Monitoring with Passive Samplers

Track: AIRS
Room: 302A

Thursday, June 25, 2015 1:20 PM
Platform – TCC: AAM4
Chair: Ray Merrill,EPA
Vice-Chair: Eben Thoma, EPA/NRMRL/APPCD

1:20 PM
Diffusive and Pumped Sampling Methods for Measurements of Trace Volatile Organic Compounds
Paper#:94
Nicholas Martin, National Physical Laboratory

1:40 PM
Lessons from Piloting EPA's Proposed Refinery Fenceline Monitoring Program
Paper#:462
Toby Hanna, ERM

2:00 PM
Utilization of Diffusive Passive Samplers for Long-Term Air Monitoring: Deployment, Analysis Methods and Lessons Learned
Paper#:22
Elsy Escobar, ARCADIS US Inc.; David Berkowitz, Enthalpy Analytical, Inc.; Mark Modrak, ARCADIS US Inc.

2:20 PM
Passive Sorbent Tube Performance Evaluation for Ambient and Source Monitoring of Benzene and 1,3-Butadiene
Paper#:364
Tracey Footer, Laura Van Enwyck, Laura Krnavek, and Dave Dayton, Eastern Research Group, Inc.

2:40 PM
South Philadelphia Passive Sampler and Sensor Study: Interim Report
Paper#:34
Eben Thoma, EPA/NRMRL/APPCD

TECHNICAL SESSIONS

Emergent and Most Pressing Environmental Compliance Issues facing DoD

Track: FEDS
Room: 305B

Thursday, June 25, 2015 1:20 PM
Panel – TCC: FED2
Chair: Greg Pagett, AMEC Environment & Infrastructure
Vice-Chair: David Kumar, U.S. Air Force/A4C

Representatives from Fort Bragg, Seymour Johnson AFB, Camp Lejeune, Cherry Point, NAVFAC Atlantic, NAVFAC Midlant will discuss current pending environmental compliance issues.

Emissions Monitoring in the Oil & Gas Production and Refinery Industries

Track: O&GS
Room: 306B

Thursday, June 25, 2015 1:20 PM
Platform – TCC: CHE2
Chair: Charles Lippert, Mille Lacs Band of Ojibwe
Vice-Chair: Ensan Elayoubi, Saudi Aramco

1:20 PM
Methane Detectors Challenge: Catalyzing Next Generation Air Emissions Monitors to Tackle Methane Pollution
Paper#:425
David Lyon, Environmental Defense Fund; Alex Cuclis, Houston Advanced Research

1:40 PM
Fat Tails and Emissions Inventories for Oil & Gas Production Facilities
Paper#:132
Thomas Richardson, Oklahoma Dept. of Environmental Quality

2:00 PM
Passive Fenceline Monitoring for Benzene. Coming Soon to Refineries. Who's next? The logistical Challenges and Strategic Choices You May Need to Make.
Paper#:455
Chris Lutes, George Lipinski and Steve Engleman, CH2M HILL

2:20 PM
Air Emissions Estimations: Tank Emissions
Paper#:458
Ross O'lochlainn, ERA Environmental

Nanotechnology Research Developments

Track: NANO
Room: 201

Thursday, June 25, 2015 1:20 PM
Platform – TCC: NAN3
Chair: Tom Morahan, Greystone Strategies
Vice-Chair: William Looney, AECOM

1:20 PM
Arsenic Recovery with Graphene Doped Titanium Nano Tube
Paper#:549
Yujung Lin and Changtang Chang, Northern Taiwan University, Taiwan

1:40 PM
Study on Photocatalytic H_2 Production via Water Splitting by Pt/TiO_2 Nanoparticles Under Visible Light Irradiation
Paper#:147
Dan-dan Zheng

2:00 PM
A Study of Adsorption Dynamic Model of Nano Au, Ag, Chitosan Coated Activated Carbon Filters
Paper#:375
Yen Jou-Chen, National Taipei University of Technology, Taiwan

TECHNICAL SESSIONS

New Tools, Techniques and Partnerships to Reduce Emissions of Short-Lived Climate Pollutants

Track: CLIM
Room: 306C

Thursday, June 25, 2015 1:20 PM
Panel – TCC: CCl4
Chair: Neal Fann, EPA

The Climate and Clean Air Coalition (CCAC) is the leading international organization working at the intersection of climate and air quality: addressing harmful air pollutants that are also negatively impacting the climate. These pollutants, primarily black carbon (a component of fine particulate matter) and methane (a precursor to ozone), are short-lived in the atmosphere but are responsible for a substantial fraction of current global warming, and are also well known to have large and harmful health and environmental impacts. The CCAC, formed in 2012, comprises over 30 nations that have committed to raise awareness about these impacts and facilitate fast action to reduce levels of these air pollutants, known as Short-Lived Climate Pollutants (SLCPs). A series of eleven initiatives are currently underway to develop new methods, tools and techniques for reducing the ambient (or emission?) levels of these pollutants using cost-effective and proven emission control strategies. The EPA and the Stockholm Environment Institute (SEI) are collaborating on one of these initiatives, "Supporting National Action Planning." This initiative is designed to encourage CCAC countries to evaluate their own emissions and sources, analyze control strategies, and formulate action plans for reducing SLCPs. To support this work, EPA and SEI have developed an "SLCP" toolkit" that contains analytical tools designed to enable developing countries to characterize the air quality, climate and human health benefits of SLCP mitigation strategies. This panel discussion will describe (1) the history and objectives of the CCAC; (2) history of SNAP and results from the nations with which we have worked, including Mexico, Colombia, Ghana and Bangladesh; (3) new methods the team has developed for quantifying air quality changes and human health benefits; (4) key features of the SLCP toolkit, with a particular focus on the Benefits Calculator and BenMAP-CE tools.

Panelists:

- Neal Fann, Senior Environmental Protection Specialist, Risk and Benefits Group, EPA
- Amanda Curry Brown, Economist, Climate, International and Multimedia Group, EPA
- Phil Dickerson, Group Leader, Information Transfer Group, EPA

Atmospheric Chemistry and Ozone Issues - Part 3

Track: AIRS
Room: 302B

Thursday, June 25, 2015 1:20 PM
Platform – TCC: APC4
Chair: Yi Li, Colorado State University
Vice-Chair: Li Du

1:20 PM
Secondary Aerosol Production From Agricultural Gas Precursors
Paper#:171
Philip Silva, USDA-Agricultural Research Service; David Cocker, University of California Riverside; Kathleen Purvis-Roberts, Claremont McKenna, Pitzer and Scripps Colleges

1:40 PM
The Characteristics of Atmospheric Ammonia and the Water-Soluble Ions in $PM_{2.5}$ at Gucheng, a Rural Site in the North China Plain in Summer 2013
Paper#:335
Zhaoyang Meng, Chinese Academy of Meteorological Sciences

2:00 PM
Characterization and Sources of Water-Soluble Ions in $PM_{2.5}$ at Four Sites in China
Paper#:349
Jiabin Zhou and Ke Du, University of Calgary; Zhenyu Xing and Junjun Deng, Institute of Urban Environment, Chinese Academy of Sciences

2:20 PM
Mechanisms of Nitrogen Oxide Formation During Ensiling of Dairy Feeds
Paper#:100
Michael Kosusko, EPA/NRMRL/APPCD; Mathew Cohen and Peter Green, University of California at Davis; Sona Chilingaryan, EPA Region 9; Frank Mitloehner, University of California at Davis

2:40 PM
Use of Satellite Cloud Observations for Improved Biogenic Emissions
Paper#:489
Arastoo Pour Biazar, University of Alabama in Huntsville; Richard McNider, UAH/NSSTC; Andrew White, University of Alabama in Huntsville; Daniel Cohan, Rice University; Rui Zhang, Rice University; Mark Estes, Texas Commission on Environmental Quality; Bright Dornblaser, Texas Commission on Environmental Quality

TECHNICAL SESSIONS

A&WMA Environmental Education Resource Guides (EERGs): Mini Train-the-Trainer Workshop

Track: EDUC
Thursday, June 25, 2015 1:20 PM

Panel – TCC: EDC1
Chair: Joann Held, Air Toxics Analysis Services

This session will introduce attendees to the wealth of environmental education materials available from A&WMA, with a focus on the Environmental Education Resource Guides (EERGs). This series of Guides, which began in 1991, was originally written and tested by teachers with A&WMA members lending their expertise on the technical issues related to Air Quality and Nonpoint Source Water Pollution. The EERGs offer lessons for almost any situation, from a simple Earth Day classroom visit by an individual to a full workshop for multiple teachers who can then take the materials back to their own classrooms to be used year after year. Each lesson includes background material for teachers, creative classroom activities, and extensions that can be used for independent student projects. Members of the A&WMA Public Education Committee have been updating the content of these lessons, and have been incorporating modern teaching techniques. The session presenters will provide an overview of available materials, discuss models for structuring a Teacher Workshop, and give tips on talking to Teachers. Hands-on experience with a sample of exercises contained in the EERGs will be included to give attendees the confidence to go out and host Teacher Training and Train-the-Trainer Workshops through local A&WMA Sections and Chapters. This session will also introduce the Presenter's Manual and to guide attendees in their preparation and implementation of Teacher Workshops to train elementary and secondary education teachers on environmental basics and issues.

Panelists:

The Panel will include the two authors plus other members of the A&WMA K-12 Education Committee

Air Quality Regulatory and Permitting Issues in Abu Dhabi

Track: REGU
Room: 301B

Thursday, June 25, 2015 1:20 PM
Platform – TCC: REG11
Chair: Dave Jordan, ERM
Vice-Chair: Ahmed Rady, RTI International

1:20 PM
Environmental Permitting and Compliance in the Emirate of Abu Dhabi
Paper#:269
Ahmed Rady, Jesse Baskir, Fadi Elayyan and Hani Abdalla, RTI International

1:40 PM
Identifying Environmental Studies and Permitting Requirements in the Emirate of Abu Dhabi
Paper#:270
Jesse Baskir, Hani Abdalla, Fadi Elayyan, Alaa' Rezeq, Saif Dulaimi, Senathipathi Kalimuthu and Zied Bousseroule, RTI International; Maha Al Yafei, Environmental Agency – Abu Dhabi

2:00 PM
The Correlation between Environmental Compliance and Total Facility Relative Risk Score
Paper#:232
Ahmed Rady, Bill Wheaton, Mark Turner and Jesse Baskir, RTI International; ; Khalid AL Hajeri and Ahmed Al Waheebi, Environment Agency – Abu Dhabi;

2:20 PM
Summary of Key Environmental Impacts and Mitigation Measures from a Review of a Developing Environmental Impact Assessment System in Abu Dhabi
Paper#:276
Beatrix Jackson, Scott Guthrie, Hani Abdallah, Fadi Elayyan, Hind Al Jawder, RTI International; Salama Al Saadi, Husameddin Al Hag, Environment Agency – Abu Dhabi

2:40 PM
Results from the Environment Agency-Abu Dhabi's Outreach Campaign for the Fiber-Reinforced Plastics Manufacturing Sector
Paper#:243
Mark Turner, Mohammad Al Ashram, Samer Akl, Ahmed Rady, Mark Turner, Jesse Baskir, Katherine E. Bronstein, RTI International; Ahmed Al Waheebi, Khalid Al Hajeri, Environment Agency – Abu Dhabi

3:00 PM
Process and Challenges of Drafting New Emission Standards in a Rapidly Developing Country
Paper#:284
Sandy Burns, Sandra G. Pierce, David Bullock and David Green, RTI International; Salem Al Braik, Ahmed Al Jassmi and Mohammed Mosa, Environment Agency – Abu Dhabi

TECHNICAL SESSIONS

PSD Permitting - The Basics

Track: YOUN/REGU
Room: 206

Thursday, June 25, 2015 3:40 PM
Platform – TCC: REG-YP3
Chair: Ashley Sapyta, S&ME, Inc.
Vice-Chair: Karen Brignac, PPM Consultants, Inc.

3:40 PM
PSD Permitting - The Basics
Paper#:484
Ashley Sapyta, S&ME, Inc.

4:00 PM
Impact of PSD Regulations on Air Permit Applications
Paper#:287
Rama Iyer, Mosaic Fertilizer, LLC

4:20 PM
Should It Take 25 Years to Identify BACT?
Paper#:491
Matthew Traister, O`Brien & Gere

Atmospheric Chemistry and Ozone Issues: Modeling

Track: AIRS
Room: 302B

Thursday, June 25, 2015 3:20 PM
Platform – TCC: APC5
Chair: Philip Silva, USDA – Agricultural Research Service
Vice-Chair: Barbara Zielinska, Desert Research Institute

3:20 PM
WRF-CAMx Process Analysis: Winter Ozone Pollution in Uintah Basin
Paper#:220
Trang Tran, Utah State University

3:40 PM
Multiscale Photochemical Model Approaches for Estimating Single Source Impacts
Paper#:410
Kirk Baker, EPA

4:00 PM
Improving Air Quality Modeling for the Lake Tahoe Basin: Investigating Planetary Boundary Layer Schemes in the WRF Model
Paper#:490
Sandra Rayne, Desert Research Institute; Heather Holmes, University of Nevada, Reno; Barbara Zielinska and Alan Gertler, Desert Research Institute

4:20 PM
Photochemical Modeling Assessment of the Contribution of Shale Gas Development on Ozone Pollution in North Texas
Paper#:537
Kuruvilla John and Mahdi Ahmadi, University of North Texas

4:40 AM
Adjusting Meteorological Influences on Surface Ozone at Upper Percentiles
Paper#:246
Shao-Hang Chu, EPA

Updating the QA-QC Guidelines for Smoke School Programs

Track: REGU
Room: 201

Thursday, June 25, 2015 3:20 PM
Panel – TCC: REG15
Chair: Joseph Spivey, Compliance Assurance Associates, Inc.
Vice-Chair: Arthur Eberle, Compliance Assurance Associates, Inc.

This session will be broken into five 20 minute sections:

1) How we have come to recommend and conduct opacity training/certification the way we do – A brief history.
2) What the Guidelines say and what Method 9 requires.
3) Method 9: The 13 “shall” and "must" statements of Section 2 and the 16 “shall” and “must” statements of Section 3.
4) A minimum number of recommended guidelines, based on the maximum requirements of Method 9, given in an audit outline.
5) Panel discussion on defining key terms and phrases used in Method 9, and their impact on how opacity observation training should be conducted.

Attendees to this session will come away with a thorough understanding of these Guidelines.

Panelists:

- Joseph Spivey, Compliance Assurance Associates, Inc.
- Arthur Eberle, Compliance Assurance Associates, Inc.
- Jeff Johns, Compliance Assurance Associates, Inc.
- James Trossbach, New York DEC (Retired)
- Mary Boyer, California ARB (Retired)
- Ed Huck, FL DEP (retired)
- Curt Wendland, Compliance Assurance Associates, Inc.
- Steven Baer, U.S. Department of Justice ENRD (retired)

Sustainability Programs, Models and Reporting Standards

Track: SUST
Room: 305B

Thursday, June 25, 2015 3:20 PM
Platform – TCC: SUS2
Chair: Harish Rao, Rao Consulting Services Inc.
Vice-Chair: Rishi Kanabar, USG Corporation

3:20 PM
US Department of Agriculture BioPreferred® Program
Paper#:268
Jennifer Chu, Foster Wheeler; Ron Buckhalt and Katherine Lewis, U.S. Dept. of Agriculture; Charles Hester, AMEC Foster Wheeler; Marie Wheat, U.S. Dept. of Agriculture; Katherine Lewis, AMEC Foster Wheeler

3:40 PM
The Economic Impact of the Biobased Products Industry
Paper#:488
Elizabeth Lewis, Arthur Werner, Charles Hester and Jennifer Chu, AMEC Foster Wheeler; Jay Golden and Jesse Daystar, Duke University; Robert Handfield and Eric McConnell, North Carolina State University; Ron Buckhalt and Marie Wheat, U.S. Dept. of Agriculture

4:00 PM
Super-Hybrid Carbon Footprinting: A Soar and Dive Approach to Reporting and Reducing Supply Chain Impacts
Paper#:347
John Beath, John Beath Environmental, LLC.

4:20 PM
Assessing the Triple Bottom Line Using Sustainable Return On Investment
Paper#:79
Andrea Bohmholdt, AECOM

4:40 PM
Engineering Education: Flipped Classrooms and Community Based Projects for Rainwater Harvesting.
Paper#:14
Matthew Franchetti, The University of Toledo

TECHNICAL SESSIONS

Regulatory Challenges Facing the Small Business Sector and the Pathway Towards Compliance

Track: REGU
Room: 303

Thursday, June 25, 2015 3:20 PM
Panel – TCC: REG14
Chair: Jeremy Hancher, Pennsylvania Small Business Development Center

Air regulations are inherently complex by nature, are constantly being rewritten or revised, and are often misunderstood by the small business sector. That is why section 507 of the Clean Air Act (CAA) requires states to offer small businesses air quality compliance assistance to address both state & federal regulatory requirements. The 507 Program consists of three components:

1) Small Business Environmental Assistance Program (SBEAP);

2) Small Business Ombudsman (SBO);

3) Compliance Advisory Panel.

This session will examine how small business sectors that are subject to federal air quality standards are overcoming hurdles ensued along the path to regulatory compliance. The session will use a panel format which will be comprised of a small business representative from the printing industry, an EPA representative, and a state SBO/SBEAP representative. General topic areas of discussion will include area source NESHAPs, state permitting requirements and delegation of federal standards, regulatory notification requirements, recordkeeping and reporting obligations, and small business outreach done on both the state and federal level. The goal of this session is to allow attendees to better understand the success and difficulties experienced by small businesses and the ways state and federal programs can help small businesses achieve compliance.

The target audience for these sessions will include small businesses, state and federal regulators, SBO/SBEAPs, trade organizations, Compliance Advisory Panel representatives, small consultants, and air quality regulators.

Panelists:

- LaRonda Bowen, Ombudsman, California Air Resources Board
- Jenna Latt, Air Pollution Specialist, California Air Resources Board
- Debra Jacobson, Senior Operations Manager, Illinois Sustainable Technology Center
- Gary Jones, Assistant Vice President of EHS Affairs, Printing Industries of America
- EPA (TBD)

Particulate Matter Measurement and Monitoring

Track: AIRS
Room: 302A

Thursday, June 25, 2015 3:20 PM
Platform – TCC: AAM5
Chair: Ricky Tropp, Desert Research Institute
Vice-Chair: Antony Chen, University of Nevada, Las Vegas

3:20 PM
Highly-Time-Resolved Toxic Airborne Metals Measurements for Improved Human Health Exposure Estimates and Source Identification
Paper#:452
Andrea Geiger, Cooper Environmental Services, LLC

3:40 PM
Predicting TOR OC and EC From FT-IR Spectra of Particulate Matter Samples Collected on Teflon Filters
Paper#:219
Ann Dillner, University Of California, Davis; Satoshi Takahama, Swiss Federal Institute of Technology, Lausanne, Switzerland

4:00 PM
Ambient Plume Opacity Measurements Using a Video Camera Recorder and Digital Optical Method
Paper#:160
Wangki Yuen, Mark Rood, Sotiria Koloutsou-Vakakis, Yichao Gu and Yalin Mao, University of Illinois at Urbana-Champaign; Kevin Mattison and Bill Franek, Illinois Environmental Protection Agency

4:20 PM
Application of a Modified Lagrangian Stochastic Model to Estimate Particulate Matter Emissions from a Dairy
Paper#:153
Kori Moore and Michael Wojcik, Space Dynamics Laboratory; Randal Martin, Utah State University, CEE; John Prueger and Jerry Hatfield, USDA – Agricultural Research Service

Permitting Problems and Solutions

Track: REGU
Room: 305A

Thursday, June 25, 2015 3:20 PM
Panel – TCC: REG13
Chair: Paul Siebert, Weston Solutions, Inc.

Air pollution emission sources are generally required to obtain air quality construction and operating permits from the state or local environmental protection agency or directly from the EPA if the local agency has not received delegated authority from EPA for various applicable air quality regulations. On occasion, certain air permit conditions may be quite onerous, unachievable in practice, unnecessarily costly, or have little, if any, environmental benefit. Generally, the issuing agency will provide an opportunity for a facility to review and comment on draft permit conditions. Taking advantage of that opportunity is, therefore, essential to ensure the best permit that can be obtained. Nevertheless, the agency may refuse to change or to sufficiently change a problem permit condition so that it is effective and practical. This panel will discuss the permitting issues and types of permit conditions that are prone to problems, as well as examples of problem permit conditions, from various perspectives (industry, government and environmentalists). Particular permit conditions that may present problems are inflexible conditions that do not provide for real world variations; emission limitations that cannot be routinely or consistently achieved in practice; monitoring, recordkeeping, and reporting conditions that require excessive effort with minimal environmental impact; and stack testing requirements that are of questionable value or necessity, yet are quite costly. These and other problem permit conditions may take substantial and excessive resources to accomplish, yet produce little, if any, real environmental benefit. On the other hand, permitting agencies and environmental advocacy groups may also perceive different categories of chronic problems with permit conditions. Proposed alternative conditions and other remedies for problem permit conditions will also be presented and discussed.

Panelists:

- Tiffany Dillow, Zephyr Environmental Associates
- Mark Wejkszner, Pennsylvania Department of Environmental Protection
- John Evans, North Carolina Department of Environment and Natural Resources

ISO 14001:2015 Standard Revision - Impacts and Challenges

Track: REGU
Room: 306A

Thursday, June 25, 2015 3:20 PM
Panel TCC: REG12
Chair: Daniel Schmid, 3M Environmental Operations

The ISO 14001 Environmental Management System (EMS) Standard is in the final stages of being revised with a final standard due to be published in summer 2015. This revision is intended to address challenges presented in ISO's Future Challenges report and revise the structure of the standard to better align with Annex SL (a standard format for all ISO management systems standards going forward). Among the extensive, significant format and content changes, are expanding the EMS scope, driving environmental performance improvements, addressing the life cycle perspective, increasing leadership engagement, expanding obligations with interested parties, expanding operational control requirements, requiring risk based planning and control practices, etc. This panel session will discuss these significant changes to this standard and the impacts and challenges for those organizations who are currently certified and/or planning certification in the next few years.

Panelists:

- Gary Garrahan, Stihl, Inc.
- Gary McRae, UL-DQS

TECHNICAL SESSIONS

Factors Influencing Climate Change

Track: CLIM
Room: 306C

Thursday, June 25, 2015 3:20 PM
Platform – TCC: CCP2
Chair: Howard Balentine, AECOM
Vice-Chair: Joshua Fu, University of Tennessee

3:20 PM
Projection of Wildland Fire Emissions Corresponding to Climate Change-induced Vegetation Changes
Paper#:481
Thompson Pace, TGP Environmental; Maureen Mullen and James Wilson, SC&A, Inc.

3:40 PM
Exhaust-Derived Constituents of Urban Air Pollution Interact with Snow
Paper#:535
Yevgen Nazarenko and Parisa Ariya, Departments of Atmospheric and Oceanic Sciences and Chemistry, McGill University

4:00 PM
Financial and Environmental Impacts of Implementing Energy Efficiency Programs
Paper#:341
Karin Fickerson, Rick Shih, and Scott Weaver, ERM

Biopower Air Quality Regulatory and Permitting Issues

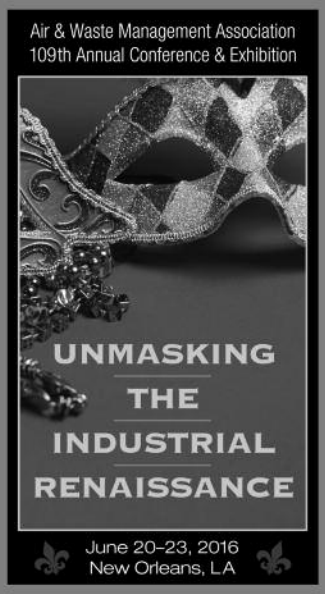
Track: REGU
Room: 302C

Thursday, June 25, 2015 3:20 PM
Platform – TCC: REG12
Chair: Gurinder Saini, RTP Environmental Associates

3:20 PM
Non-Hazardous Secondary Material Regulation: EPA Findings and Practical Applications
Paper#:538
Dan Zernickow, Trinity Consultants

3:40 PM
Role of Fuel-Mix and its Implications on meeting Hydrogen chloride MACT limit for Biomass Boilers
Paper#:407
Ramachandran Iyer, Golder Associates, Inc.

4:00 PM
Proposed Revisions to the Standards of Performance for Municipal Solid Waste Landfills (79 F.R. 41796, July 17, 2014) - Potential Impact of Proposed Regulations on the Solid Waste Industry
Paper#:93
Julie Hall, Cornerstone Environmental Group, LLC



A&WMA's 109th Annual Conference & Exhibition

UNMASKING THE INDUSTRIAL RENAISSANCE

SAVE THE DATE

June 20-23, 2016

Mark your calendar and see you in New Orleans, LA!

With the theme of "Unmasking the Industrial Renaissance," the technical program will focus on meeting the environmental challenges of new and expanding industrial activity that has been, and will continue to be, experienced as a result of increased supply and lower prices of natural gas. These challenges include permitting, ambient air quality, ongoing compliance, waste management, and energy needs. Come connect with top environmental professionals from industry, government, consulting, legal, and academic backgrounds.

This year's conference will feature:

- Over 400 Speakers
- 125 Exhibitors Displaying the Newest Products and Services
- Professional Development Courses Taught by Expert Instructors
- Social Tours and Networking Events

AIR & WASTE MANAGEMENT ASSOCIATION

PERSONAL SCHEDULE WORKSHEET

Use this worksheet to plan each day's schedule.

Time	Tuesday June 23	Wednesday June 24	Thursday June 25
7:00 a.m.			
7:20 a.m.			
7:40 a.m.			
8:00 a.m.			
8:20 a.m.			
8:40 a.m.			
9:00 a.m.			
9:20 a.m.			
9:40 a.m.			
10:00 a.m.			
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10:40 a.m.			
11:00 a.m.			
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12:00 p.m.			
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4:40 p.m.			
5:00 p.m.			
5:20 p.m.			
5:40 p.m.			
6:00 p.m.			
6:30 p.m.			
7:00 p.m.			
7:30 p.m.			
8:00 p.m.			
8:30 p.m.			

NOTES

Branching Out to Provide Worldwide Environmental Research Services

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Tri-Mer's Ceramic Catalyst Filters remove particulate, acid gases and NOx in a single all-in-one system. Ceramic catalyst filters are composed of fibrous ceramic materials that withstand temperatures up to 1650° F. The filters are very lightweight, with low pressure drop. They are self-supporting and robust, with a productive service life of 5 to 10 years.

Filter walls are impregnated with nanobits of highly-efficient SCR catalyst resulting in NOx control greater than 90%. Acid gases are removed at over 90% efficiency with integrated dry sorbent injection of hydrated lime. Dioxins and organic HAPs are also destroyed by the proprietary catalyst.

Tri-Mer ceramic filter systems are modularized to treat any flow volume. Tri-Mer CCF systems have much higher temperature capabilities than fabric filter baghouses, with better performance than ESP. In addition, ceramic catalyst elements have unique multi-pollutant features.

For companies seeking cost-efficient multi-pollution abatement, catalyst filter technology from Tri-Mer has proven to be a highly effective solution for meeting MACT, BACT and Consent Decree requirements to treat PM, NOx, SO_2, SO3, HCI, HF, mercury, dioxins, and O-HAPs.

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- **Catalyst-embedded filters provide effective NOx control at 350° F to 950° F**
- **Particle removal to below 0.001 grains/dscf (< 2mg/Nm3)**

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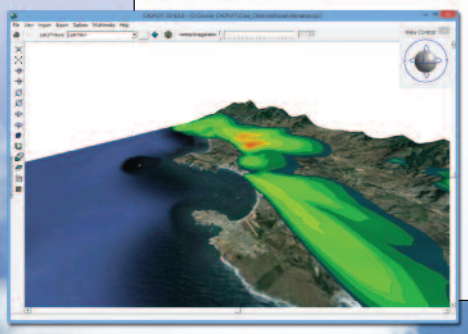
Lakes Environmental

Empowering Air Quality Professionals

SCICHEM View

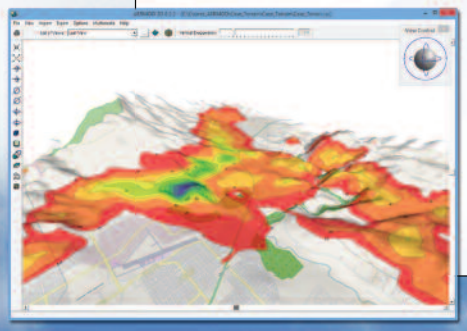
State-Of-The-Science Lagrangian Puff Dispersion Model



- U.S. EPA alternative model for advanced dispersion modeling
- Suited for complex scenarios that cannot be adequately modeled using AERMOD or CALPUFF
- Extensively validated in numerous laboratory and field experiments
- CMAQ photochemistry included

AERMOD View

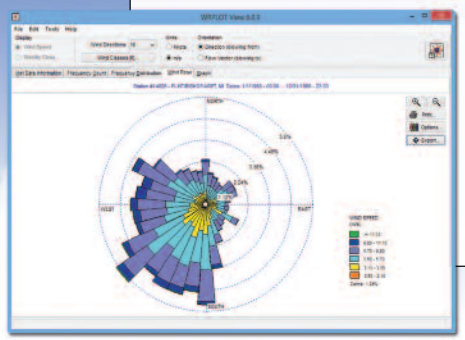
Gaussian Plume Air Dispersion Model



- Support for the latest US EPA Models
- Automated Download of Tile Maps and Terrain Data
- AERMOD/AERMAP MPI Parallel Versions
- AERSURFACE Land Use Creator

Met Data

Meteorological Data For AERMOD And CALPUFF Models



- AERMET-Ready MM5 data
- CALMET-Ready MM5 data
- CALMET-Ready WRF - Custom Runs Available
- AERMOD-Station data for locations in the US

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