



CONFERENCE PROGRAM



A&WMA's 115th Annual Conference & Exhibition

Science & Sustainable Global Communities

JUNE 27-30, 2022
San Francisco, CA



AIR & WASTE MANAGEMENT
ASSOCIATION

www.awma.org/ACE2022
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Information in this program was correct at time of printing. Changes and additions are reflected in the tech program website and ACE 2022 App.

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App Icon

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Event Icon

Find this event in the Upcoming Events (bottom row). Tap the event icon to launch the ACE 2022 App.

2. Start using the App now!

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- **Create** your profile and share your contact information to network with attendees and exhibitors.
- **Browse** the event information and create a personal schedule by tapping on the star next to presentation titles.

WELCOME FROM THE A&WMA PRESIDENT



Nancy E. Meilahn Fowler
2022 A&WMA President

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Welcome to the Air & Waste Management Association's 2022 Annual Conference & Exhibition!

I am excited you chose to join us for our Association's largest annual event. We are elated to be able to reconnect in person after two years of conducting this meeting virtually, and I know you will have a fun and fulfilling journey through the week.

This is our 115th year as an Association, and as the science and understanding behind environmental management have evolved, so have we as an Association. We endeavor to highlight that evolution during each Annual Conference & Exhibition (ACE) – but we make sure to have fun, too! Your hardworking Local Host Committee has coordinated social gatherings, networking events, technical tours, and more. Take advantage of these events to meet new friends and colleagues and reconnect with those you may already know. I look forward to meeting lots of members and non-members alike this week and hearing how we can make the Association work better for you.

The core of ACE is a learning opportunity second to none in diverse and meaningful content. ACE is our most comprehensive conference on environmental technology and regulation and brings environmental professionals from around the globe together in a neutral forum. Over the last year, our dedicated volunteers on the Technical Council have assembled an exceptional collection of sessions, panels, presentations, and posters from leading experts focused on cutting-edge environmental management issues. I guarantee that you will leave San Francisco with valuable insights and information.

Take a long stroll through the Exhibit Hall while you're here and interact with the businesses and organizations demonstrating the latest in applied environmental technology and services. Take the opportunity to talk with someone working in a specialty you know nothing about – you might be surprised to find opportunity where your spheres of knowledge overlap.

If you are feeling lost in the crowd, find the person with the most (or the least) ribbons and pins on their name badge and ask about them. Alternatively, please reach out to me, or one of the Board members, or one of our many volunteers. We are all happy to help create new connections among the membership we serve. These contacts could lead to your next sale, your next job, or your new best friend.

We could not create such an amazing event without countless hours from our volunteers, so please take a minute to let them know you appreciate their efforts. Please also take a minute and thank one of the A&WMA staff (if you can find them). Our Executive Director Stephanie Glyptis and her team ensure each ACE runs smoothly.

Finally, thank you for coming. We are glad you are here. Now go learn, network, and have fun!

Nancy

A handwritten signature in black ink, appearing to read 'Nancy E. Meilahn'.

Founded in 1907, 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 FROM THE CONFERENCE CHAIR



Wilma Dressen
Conference Chair, Phillips 66

After two years of virtual conferences, the Local Host Committee (LHC) is thrilled to welcome you to the beautiful San Francisco Bay Area for the 2022 Annual Conference & Exhibition (ACE). It's time for networking in person again! Come take advantage of the exceptional work that our LHC has put into planning the 115th ACE. This committee was fabulous with every member eagerly researching opportunities and contributing their best creative ideas. ACE 2022 brings international focus with the theme "Science & Sustainable Global Communities". The keynote includes an esteemed and diverse panel addressing the "Role of Science in Environmental Justice". Other highlights include world class technical programs, a Critical Review on "Circular Economy for Clean Energy Technologies", and the Women's Professional Development Workshop and Luncheon focusing on "Women in a Changing Workplace".

For Young Professional and Students, there are educational sessions as well as exciting social networking events. Be sure to see the student presentations, posters, and the Environmental Challenge International (ECi) Competition on Air Quality Impacts on Port Communities. Speaking of ports, hopefully you have registered for the Port of Oakland tour, and are joining us for the 5K Fun Run along the San Francisco waterfront. Finally, thanks to all of our sponsors and exhibitors. I look forward to seeing everyone at the wonderful Opening Reception, Awards Luncheon, Exhibition Hall Opening, and the Exhibitor Reception.

TECHNICAL PROGRAM HIGHLIGHTS



Flint Webb
Technical Council Chair
Leidos

The technical program is the heart of every A&WMA Annual Conference and we pride ourselves on offering one of the most comprehensive conferences on environmental science. Doing this is no easy feat. It takes nearly a year of planning by the Technical Council and Technical Coordinating Committees, led this year by Flint Webb and John Koehler.

Each year, the program is unique and valuable, presenting new information and innovative solutions. The ACE 2022 conference theme, "Science and Sustainable Global Communities," could not be timelier. Sessions and panels at ACE 2022 will embrace the conference theme, starting with the Opening Keynote: "The Role of Science in Environmental Justice." Following the Keynote, various session tracks throughout the technical program will be supportive of the conference theme, including the Mini-Symposium, plus tracks for Environmental Justice, Climate Change, Community Exposures, and Sustainability. In addition, the 52nd Annual Critical Review, "Circular Economy for Clean Energy Technologies," further supports the conference theme.

Now that you're at ACE, take advantage of the opportunities on site to increase your knowledge with hundreds of presentations on the latest topics. Here's a few tips to get the most out of ACE this year.

- Learn what regulations are new or being developed— Attend sessions focusing on EPA priorities, NSR, Title V, Air Legislation, and Permitting.
- Learn new techniques to improve your analysis— Find information on new modeling techniques, how to develop carbon reduction plans, and how to remediate PFAS contaminated sites.
- Learn the important people in the various environmental sectors—Don't hesitate to introduce yourselves to speakers, exhibitors, and other attendees, either in-person or through the networking feature in the App.



John Koehler
Technical Program Vice Chair
Yorke Engineering LLC

LOCAL HOST COMMITTEE

General Conference Chair

Wilma Dreessen
Phillips 66

Co-Chair

Jerry Bovee
Bay Area Air Quality Management District

Technical Program

Flint Webb, Technical Council Chair
Leidos

Technical Program Vice Chair

John Koehler
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The Louisiana Section is one of nearly 140 geographical member units of the Air & Waste Management Association. As such, we plan, organize and present activities that focus on local and regional environmental issues. This includes holding luncheon and dinner meetings, technical seminars, annual conferences, workshops, continuing education courses, and social outings. We publish a newsletter, launch outreach activities and provide funds for scholarships. <https://la-awma.org>.

The Mother Lode Chapter (MLC) of the Air and Waste Management Association has more than 50 institutional and individual members from industry, government, and consulting in the Sacramento and Northern California areas. We are environmental professionals who work every day to improve the environment of the Sacramento region. www.awma-mlc.org

The West Coast Section (WCS) was chartered in 1957. Charter Members, S. Smith Griswold, Robert L. Chase, and Dr. W.L. Faith, were also Presidents of International A&WMA/APCA. The WCS has Chapters including Channel Islands, Mojave Desert, Orange County, Mid-Pacific, and San Diego. WCS has also adopted international Chapters in Delhi India, Singapore, Thailand and Turkey. Our recently formed student chapter at Kwame Nkrumah University of Science and Technology in Ghana has 30 members. www.wcsawma.org



We are gifting the 115th Annual Conference & Exhibition because we recognize the Air and Waste Management Association is the premier forum for professional environmental development, information exchange, education, and outreach. We are proud to be able to assist in the advancement of environmental knowledge and information exchange which affords wise decision making, which in turn yields clean air and water for everyone. We appreciate the opportunity to unite with the members, staff, and friends of A&WMA that are, and will always be the stewards of the environment.



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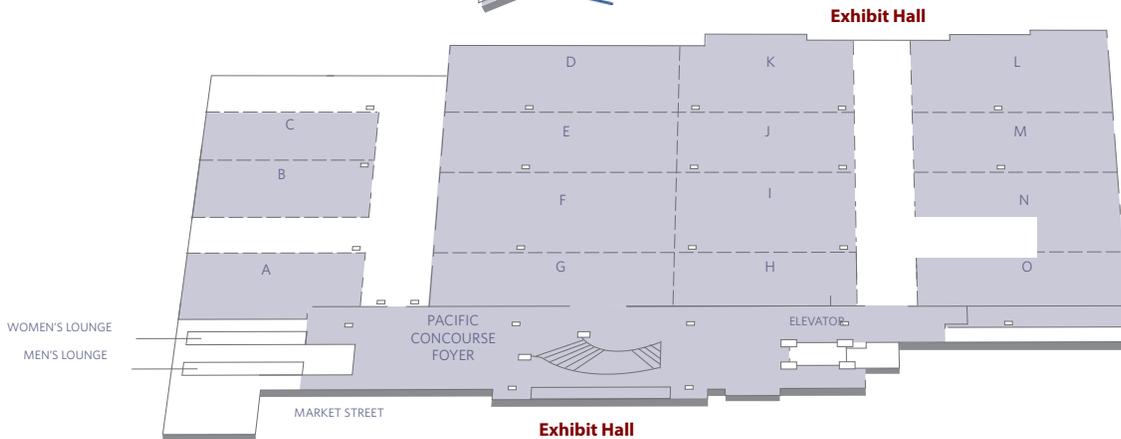
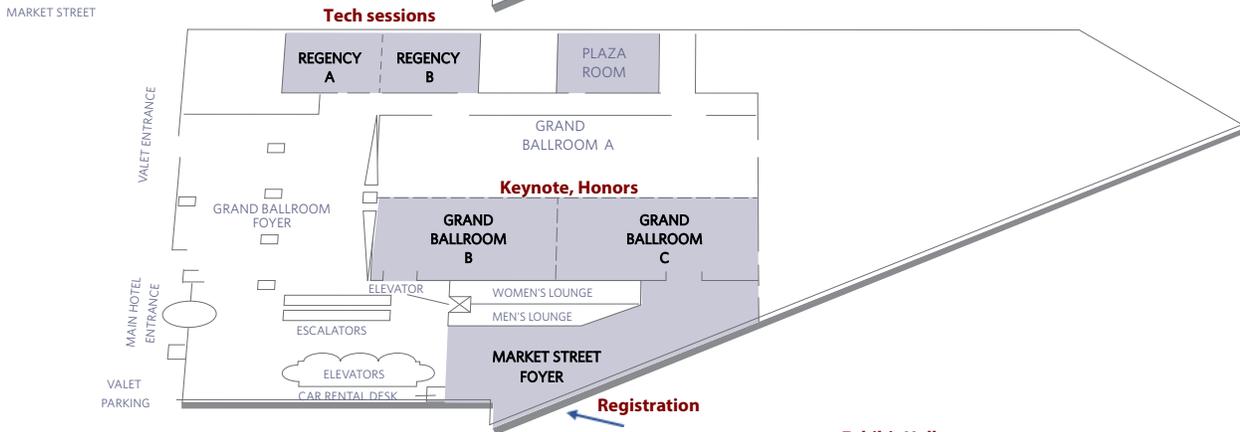
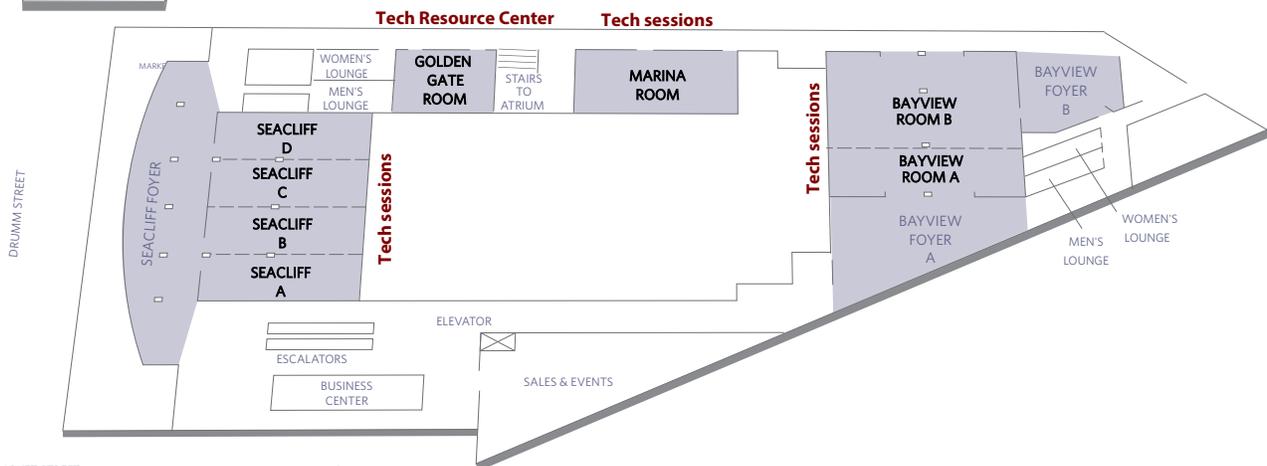
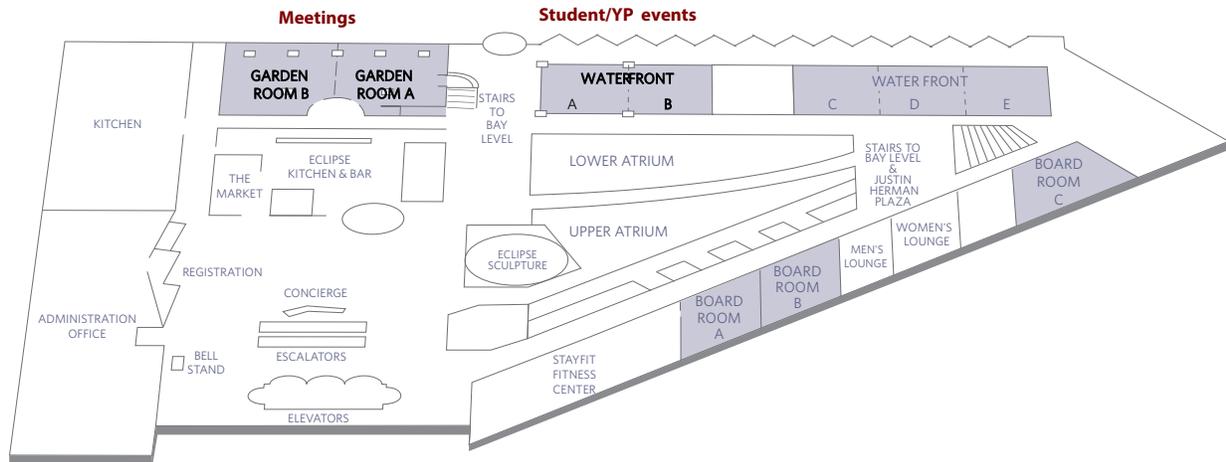


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DAILY SCHEDULE AT-A-GLANCE

TIME	EVENT	MEETING ROOM
SUNDAY, JUNE 26		
8:00 am – 5:00 pm	A&WMA Board of Directors Meeting	Seacliff A
MONDAY, JUNE 27		
8:00 am – 5:00 pm	A&WMA Council Meetings	See page 23
1:00 pm – 4:00 pm	Port of Oakland Tour	Meet in Market Street Foyer
2:00 pm – 6:00 pm	Exhibit Hall Set-up/Poster Set-up	Pacific Concourse Level
2:00 pm – 6:00 pm	Registration	Market Street Foyer
5:00 pm – 6:30 pm	EPA Alumni Association Reception	Bay Area Metro Center, 375 Beale Street, Temazcal Room #102
TUESDAY, JUNE 28		
7:00 am – 6:00 pm	Registration	Market Street Foyer
7:00 am – 6:00 pm	Technical Resource/Monitors Center	Golden Gate Room
7:00 am – 10:00 am	Exhibit Hall Set-up/Poster Set-up	Exhibit Hall
8:30 am – 10:30 am	Opening Keynote Plenary Session	Grand Ballroom BC
10:30 am – 5:30 pm	Exhibit Hall Grand Opening	Pacific Concourse Level
10:45 am – 12:15 pm	Technical Poster/Student Poster Session	Exhibit Hall Pacific Concourse
11:00 am – 1:00 pm	Women's Professional Development Workshop and Luncheon	Boardroom C
11:30 am – 1:30 pm	Past Presidents' Lunch	Boardroom B
11:55 am – 1:15 pm	Technical Coordinating Committee Meetings	Bayview A & B, Marina, Seacliff A - D (See page 23)
12:00 pm – 1:00 pm	Student Welcome Reception and Program Orientation	Waterfront AB
1:00 pm – 2:00 pm	Student Keynote Address	Waterfront AB
1:30 pm – 3:30 pm	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
2:00 pm – 2:45 pm	Career Panel	Waterfront AB
3:00 pm – 5:30 pm	Student/ECi Poster Judging	Exhibit Hall Pacific Concourse Level
3:30 pm – 4:00 pm	Afternoon Networking Break in the Exhibit Hall	Pacific Concourse Level
4:00 pm – 6:00 pm	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
5:45 pm – 6:30 pm	Annual Business Meeting of the Membership	Waterfront AB
6:30 pm – 8:00 pm	Opening Reception: Welcome to San Francisco	Atrium and Waterfront C, D, E

DAILY SCHEDULE AT-A-GLANCE

TIME	EVENT	MEETING ROOM
WEDNESDAY, JUNE 29		
7:00 am – 5:00 pm	Registration	Market Street Foyer
7:00 am – 8:00 am	Fun Run	Meet in Market Street Foyer
7:00 am – 8:00 am	International Affairs Committee Meeting	Regency AB
7:00 am – 6:00 pm	Technical Resource/Monitors Center	Golden Gate Room
8:00 am – 6:30 pm	Exhibit Hall Open	Pacific Concourse Level
8:00 am – 9:00 am	Young Professionals' Breakfast Club	Waterfront AB
8:00 am – 9:40 am	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
9:00 am – 10:00 am	Speed Networking	Waterfront AB
9:30 am – 10:30 am	Morning Networking Break in the Exhibit Hall: Breakfast with the Exhibitors	Pacific Concourse Level
10:10 am – 11:50 am	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
11:55 am – 1:15 pm	Technical Coordinating Committee Meetings	Bayview A & B, Marina, Seacliff A - D (See page 23)
12:00 pm – 1:00 pm	Rehearsal for Honors & Awards Ceremony	Grand Ballroom BC
1:00 pm – 3:30 pm	ECi Presentations	Waterfront AB
1:30 pm – 3:10 pm	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
3:10 pm – 3:30 pm	Afternoon Session Break	Exhibit Hall Pacific Concourse Level
3:30 pm – 5:30 pm	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
5:00 pm – 6:00 pm	Student Awards Ceremony and Reception	Waterfront AB
5:30 pm – 6:30 pm	Exhibitor Reception	Pacific Concourse Level
6:30 pm – 8:00 pm	Exhibit Tear-down	Pacific Concourse Level
7:00 pm – 9:00 pm	YP/Student Reception	Barbarossa Lounge, Bubble Room 714 Montgomery Street
THURSDAY, JUNE 30		
7:00 am – 9:00 am	South Atlantic States Section Annual Breakfast (SASS members only)	Brioche Bakery & Café, 210 Columbus Ave.
7:00 am – 2:00 pm	Registration	Market Street Foyer
7:00 am – 3:10 pm	Technical Resource/Monitors Center	Golden Gate Room
8:00 am – 10:30 am	Annual A&WMA Critical Review	Bayview B
9:40 am – 11:40 am	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
10:30 am – 11:30 am	Critical Review Committee Meeting	Garden AB
11:50 am – 1:20 pm	Honors & Awards Ceremony and Luncheon	Grand Ballroom BC
1:30 pm – 3:30 pm	Technical Sessions	Bayview A & B, Marina, Regency AB, Seacliff A - D
3:30 pm – 4:30 pm	Non-ACE Programs and Communication Task Force Meeting	Garden AB
4:30 pm – 5:30 pm	2023 ACE Planning and Technical Council Wrap-up Meeting	Garden AB

OPENING KEYNOTE PANEL

Tuesday, June 28, 8:30 am – 10:30 am, Grand Ballroom BC

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The Role of Science in Environmental Justice

Featured Keynote Speakers:



Chris Chavez, Deputy Policy Director, Coalition for Clean Air

Chris joined Coalition for Clean Air in 2017 and works on local and state advocacy, disadvantaged communities and electric vehicle deployment. In addition to legislative and regulatory advocacy, Chris has also worked on successful nonpartisan ballot measure campaigns at both the statewide and local level. Previously, Chris served as legislative staff for State Senator Fran Pavley (ret.) and then-State Senator Alex Padilla. Prior to his time at the Capitol, Chris was a student advocate for California's public higher education system. Chris has a BA in Political Science from California State University, Long Beach, and is an active member of the Long Beach community.



Philip M. Fine, Ph.D., Principal Deputy Associate Administrator for Policy, Office of Policy, U.S. Environmental Protection Agency

In the Office of Policy at EPA, Dr. Fine provides advice and leadership on a wide variety of cross-agency and inter-agency policy programs. These include environmental justice and equity, permitting policy, regulatory design and impacts analysis, sustainable community development, sector-based approaches, and voluntary standards. He represents EPA on a variety of interagency working groups, including serving as EPA's Environmental Justice Officer as a member of the White House Environmental Justice Interagency Council. Dr. Fine joined EPA after a 15-year career at the South Coast Air Quality Management District where he most recently served as the Deputy Executive Officer leading the Planning, Rule Development & Area Sources Division. Dr. Fine served on the California Air Resources Board's legislatively mandated Research Screening Committee, and has also served on several EPA Clean Air Scientific Advisory Committee expert panels. He received his Ph.D. from the California Institute of Technology in Environmental Science & Engineering, and his bachelor's degree in Mechanical Engineering and Materials Science & Engineering from UC Berkeley.



Angela Johnson Meszaros, Managing Attorney, Earthjustice

Angela Johnson Meszaros is the managing attorney for the Community Partnerships Program, based in Los Angeles, CA. Her docket focuses on working with communities of color on issues related to air pollution, energy, and the urban environment. For over 30 years, Angela has used a range of tools to enhance the health, safety, and quality of life in communities impacted by environmental hazards. Angela's efforts have focused on policy development, implementation, and enforcement in areas including: climate change policy, meeting the Clean Air Act standards, public participation in environmental decision-making, reducing childhood lead poisoning, land use policies, reducing health impacts of air toxics, Superfund clean up, and the California Environmental Quality Act. Angela holds both a degree in philosophy and a law degree from the University of Southern California and is a member of the California state bar.



Philip T. Martien, Ph.D., Director: Assessment, Inventory, and Modeling Division, Bay Area Air Quality Management District

Phil Martien is the Director of the Assessment, Inventory, and Modeling (AIM) Division at the Bay Area Air Quality Management District. He and his team are focused on compiling and evaluating emissions of air pollutants and greenhouse gases; conducting modeling-based studies to estimate air pollution equity, exposures, and impacts; and supporting the Air District's development of health protective rules and prioritized mitigation measures. He led the Air District's Community Air Risk Evaluation Program, which informed California's AB 617 in beginning to unite community organizations, agencies, and businesses to address areas of concentrated air pollution and related health effects in disadvantaged communities. He received his MS and Ph.D. degrees from UC Berkeley.



Moderated by: Gary Rubenstein, Principal, Foulweather Consulting

Mr. Gary Rubenstein is one of the founding partners of Sierra Research and now a principal at Foulweather Consulting. A graduate of Caltech, he is an engineer with an extensive background in the air pollution control field, including all aspects of air quality planning, strategy development and analysis, emission inventory development, emission control system design and evaluation, and automotive emission control design. He has supervised the preparation of control technology assessments, environmental impact reports and permit applications for numerous industrial and other development projects. He is a QEP as well as active in A&WMA and ASME.

52ND ANNUAL CRITICAL REVIEW

Thursday, June 30, 8:00 am – 10:30 am, Bayview B

Sponsored by:

AECOM Delivering a better world

A Critical Review of the Circular Economy for Lithium-Ion Batteries and Photovoltaic Modules – Status, Challenges, and Opportunities

Authors: Drs. Garvin Heath and Dwarak Ravikumar, National Renewable Energy Laboratory (NREL)

The 2022 Annual A&WMA Critical Review synthesizes the growing literature on renewable energy to identify key insights, gaps, and opportunities for research and implementation of a circular economy -- that is, shifting from a take-use-waste linear economic model to one that retains the value of materials and products as long as possible, recovering materials at end of life to recirculate back into the economy -- of two leading renewable energy technologies: solar photovoltaic (PV) and lithium-ion batteries (LIB). The authors employ the PRISMA systematic literature procedures to comprehensively review over 3,000 journal articles and government reports on the circular economy of solar PV and LIB, categorizing those that pass a series of objectives screens in ways that can illuminate the current state-of-the-art, highlight existing impediments to a circular economy, and recommend future technological and analytical research. As far as the authors are aware, this is the first paper to not only authoritatively identify, synthesize, and critically review the status, challenges, and opportunities for all circular economy pathways for each of these technologies individually, but also to draw out parallels across the leading clean energy technologies holistically. The full-length paper appears in the June 2022 issue of the *Journal of the Air & Waste Management Association (JA&WMA)*, while a brief summary appears in the June 2022 issue of *EM*.

About the Authors



Dr. Garvin Heath is an inaugural Distinguished Member of the Research Staff at the National Renewable Energy Laboratory (NREL), USA, specializing in the analysis of environmental impacts of energy systems – renewable and conventional, electricity and fuels. He is also a member of the State of Colorado's Air Quality Enterprise Board and is a

Senior Research Associate in the Renewable and Sustainable Energy Institute at the University of Colorado. Using the tools of life cycle assessment, air quality modeling, and sustainability analysis, he has led research that has developed novel methods for quantifying environmental impacts, including circularity, that has been published in *Science*, *Proceedings of the National Academy of Sciences*, and international benchmark reports (IPCC, UNEP). Dr. Heath leads the International Energy Agency's Photovoltaic Power Systems (PVPS) Technology Collaboration Programme Task 12: Sustainability.



Dr. Dwarak Ravikumar is a Scientist at the National Renewable Energy Laboratory (NREL), USA. Dr. Ravikumar's research focuses on operationalizing a circular economy for renewable energy infrastructure systems, especially photovoltaics (PV), and carbon dioxide through carbon capture and utilization (CCU). He is an expert in life cycle assessment and techno-

economic analysis in both mature and low technology readiness level applications, as well as developing multicriteria decision analysis to integrate the economic, environmental, and social impacts and, thereby, develop a more holistic sustainability assessment of circular economy strategies.

Following the presentation, invited discussants will critique the presentation and provide alternate viewpoints. Comments also will be solicited from the floor during a live question-and-answer sequence to end the session.

Discussants:



Stephanie L. Shaw, Ph.D.

Technical Executive, Electric Power Research Institute
Expertise: End-of-life management of solar photovoltaics (PV), wind turbines, and batteries



Chih C. Chao, Ph.D., P.Eng.

Principal, Cantech Environmental Services
Expertise: Sustainability and circular economy



Brian Tarroja, Ph.D., P.E.

Manager, Energy Systems Integration, Advanced Power and Energy Program, University of California, Irvine
Expertise: Strategies for a decarbonized energy system



Gerald Braun

Founder and Director, Integrated Renewable Energy Systems Network (IRESN)
Expertise: Renewable energy integration

Join the Discussion

To complete the review process, the Critical Review Committee Chair will synthesize all of the discussion points into a single paper that will be published in the October 2022 issue of *JA&WMA*. Comments should be submitted in writing to Eric Stevenson at emnstevenson@earthlink.net by July 22, 2022.

Want to get involved? Attend the Critical Review Committee Meeting on Thursday, June 30, 10:30 am – 11:30 am, Garden AB

NETWORKING EVENTS

The Port of Oakland's Seaport

Monday, June 27, 1:00 pm – 4:00 pm

Attendees will tour Oakland's largest marine terminal to see shore power infrastructure and ships plugging into shore power, along with newly retrofitted near-zero emissions cargo handling equipment. A site visit will also show Class 8 battery-electric trucks, electric top-picks, and associated charging equipment.

Must be pre-registered. Attendees meet in the Market Street Foyer.

Exhibit Hall Grand Opening*

Tuesday, June 28, 10:30 am, Pacific Concourse Level

Sponsored by: 
Civil & Environmental
Consultants, Inc.

Immediately following the Keynote Program at 10:30 am, join your fellow attendees and presenters for the Grand Opening of the Exhibit Hall. It's the perfect opportunity to meet with leading environmental professionals showcasing their latest products and services. Enjoy a light brunch while exploring the booths and displays.

Opening Reception – Welcome to San Francisco*

Tuesday, June 28, 6:30 pm – 8:00 pm, Atrium and Waterfront C, D, E

Sponsored by:  BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Kick off the conference in style at the Opening Reception on Tuesday evening to experience the view and connect with old friends, meet new ones, and enjoy some local cuisine. Come relax with your colleagues, mingle, and enjoy the California sunshine! Ticket required. Additional tickets may be purchased for \$75

*Events included with full conference registration

5K Fun Run

Wednesday, June 29, 7:00 am

Meet in Market Street Foyer

Start off your Wednesday by taking in the beautiful sights of the Embarcadero during a morning run. Participants will begin at the Hyatt Regency San Francisco and follow an out-and-back route along the waterfront for approximately three miles. Advance registrants will receive a commemorative t-shirt. Cost: \$25

Exhibitor Reception*

Wednesday, June 29, 5:30 pm – 6:30 pm,
Pacific Concourse Level

Join us for the last hour in the Exhibit Hall to connect with exhibitors and colleagues during the Exhibitor Reception, back by popular demand. Take advantage of this opportunity to network and get those last-minute business cards from key suppliers to add to your professional network.

Young Professional/Student Networking Reception

Sponsored by:



Wednesday, June 29, 7:00 pm – 9:00 pm

Barbarossa Lounge (Bubble Room),
714 Montgomery Street

Cost \$30. Tickets must be purchased in advance.

Annual Honors & Awards Ceremony and Luncheon*

Thursday, June 30, 11:50 am – 1:20 pm, Grand Ballroom BC

Sponsored by: 

Join A&WMA members at this popular luncheon as they recognize the accomplishments of outstanding individuals, organizations, and companies in the environmental industry. Ticket required. Additional tickets can be purchased for \$75.

NETWORKING EVENTS

Women's Professional Development Workshop and Luncheon

Tuesday, June 28, 11:00 am – 1:00 pm, Boardroom C

Cost: \$60. Tickets must be purchased in advance.

Sponsored by: 

Women in a Changing Workplace: How Women Can Succeed, Thrive, and Create More Diverse and Inclusive Spaces at Work

The Women's Professional Development program will bring together a group of diverse women to discuss challenges women face in our changing workplace. The workshop will feature conversations about barriers to entry, how panelists navigated their path to success, and advice they offer others still on the path.

The panel will discuss topics such as:

- Setting goals and succeeding at work
- Knowing when to lean in and when to lean out
- How to support and mentor women as you rise to the top of the ranks
- Issues facing women of different generations as our workplace norms and personal goals change
- Intersectionality and increasing diversity and inclusion in the workplace
- Balancing family and career

Speakers:



Veronica Eady, Senior Deputy Executive Officer of Policy & Equity, Bay Area Air Quality Management District (BAAQMD)

Veronica Eady is the Senior Deputy Executive Officer of Policy & Equity at BAAQMD and oversees the District's community engagement, diversity, equity and inclusion program, policy work and environmental justice matters. She previously served as the Assistant Executive Officer for Environmental Justice at the California Air Resources Board, the Vice President and Director of Conservation Law Foundation Massachusetts, and the Associate General Counsel and Director of Environmental Justice at New York Lawyers for the Public Interest. She holds a BA from the University of Southern California, and a JD from the University of California, Hastings College of the Law.



Delphine Hou, Director of California Regulatory Affairs, California Independent System Operator (CAISO)

Delphine Hou is the Director of California Regulatory Affairs at the California Independent System Operator (CAISO). She represents the CAISO before regulatory, governmental, and jurisdictional agencies such as the California Public Utilities Commission, the California Energy Commission, and the California Air Resources Board. Prior to the CAISO she was an Associate with The Brattle Group and an Associate at ICF International Inc. focused on electric transmission and wholesale markets. She received her M.S. in Energy and Electricity Regulatory Policy from the Fletcher School at Tufts University. She received her B.S. in Finance and International Business from the Stern School of Business at New York University.



Sharon Shearer, Environmental Engineer, Valero Benicia Refinery

Sharon Shearer is an environmental engineer at the Valero Benicia Refinery who works primarily on air quality issues, including emission inventories, health risk assessments, compliance, permitting, and regulatory tracking. Prior to working in industry, she was an air quality consultant who managed development of air and greenhouse gas technical documentations for her client's CEQA documents. She also assisted industrial clients with air compliance and project permitting. She has a Ph.D. from UC-Berkeley in Environmental Engineering where her work focused on potential climate impacts to ozone formation mechanisms in photochemical models.

Moderator:



Kirsten Thorne, General Manager of Strategy, Corporate Affairs, Chevron

Kirsten Thorne is the General Manager of Strategy for Corporate Affairs at Chevron. In this role she leads the development of strategies, digital solutions and capacity building to address the key political, social and reputational risks faced by the company. In addition, she is responsible for advancing the company's issues management globally, including environmental, safety and operational issues across the company's value chain. Kirsten has worked in the energy industry for over 20 years. She has a BA in Art from Whittier College and a JD with an emphasis in environmental and land use law from Chapman University School of Law. She is a member of the California Bar.

STUDENT EVENTS

Student Platform Paper Presentations

Tuesday, June 28 – Thursday, June 30

See your fellow students present their research as platform presentations throughout the week.

Student Welcome Reception and Program Orientation

Tuesday, June 28, 12:00 pm - 1:00 pm, Waterfront AB

Sponsored by:  **ARCADIS**

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 Keynote Presentation

Tuesday, June 28, 1:00 pm – 2:00 pm,
Waterfront AB

Finding Your Path to Better the World
Peter F. Hess, P.E., BCEE, QEP

Peter Hess is a Past President, Honorary Member, Fellow Member, six-year Board member, and a holder of the S. Smith Griswold award from the Air & Waste Management Association. He was employed as the top non-politically appointed position at the Bay Area Air Quality Management District for four decades until his retirement in 2007. Peter led a team formed by the President of U Toledo to establish an accredited undergraduate environmental engineering program. He is now associated with environmental/legal groups in Ohio involved with the reduction of nutrients in the Maumee River-Lake Erie Watershed to meet the Annex 4 International Treaty.

Career Panel: Tips on Finding the Right Environmental Job and Advancing Your Career in Industry, Government, or Academia

Tuesday, June 28, 2:00 pm – 2:45 pm, Waterfront AB

Get the inside scoop from distinguished professionals working in different parts of the environmental field as they share their career experiences and answer questions in this interactive and enlightening panel.

Speakers:

- Paul Algu, Manager, Environmental Affairs, Carvana
- Krute Singa, Principal Planner, Planning Section, MTC/ABAG
- Fang Yan, ICF – Carbon Intensity Lead

Student and ECi Poster Set Up

Monday, June 27, 2:00 pm – 6:00 pm and Tuesday, June 28, 7:00 am -10:00 am in Exhibit Hall, Pacific Concourse Level

Technical and Student Poster Session

Tuesday, June 28, 10:45 am – 12:15 pm, Exhibit Hall

Student Poster Competition

Tuesday, June 28, 3:00 pm – 5:30 pm, Exhibit Hall

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 29.

Environmental Challenge International

Sponsored by:   
AIR & WASTE MANAGEMENT ASSOCIATION
Louisiana Section
Mother Lode Chapter
Golden West Section

ECi Poster Judging

Tuesday, June 28, 3:00 pm – 5:30 pm, Exhibit Hall

Join the ECi teams as they interact (often in surprising ways) with role players and present their posters to the judges.

ECi Final Presentations

Wednesday, June 29, 1:00 pm – 3:30 pm, Waterfront AB

Watch the top ranking ECi teams present their final problems and solutions incorporating the “tweak” they received prior to the conference.

Student Awards Ceremony and Reception

Wednesday, June 29, 5:00 pm – 6:00 pm, Waterfront AB

Sponsored by: 
STEEPTOE & JOHNSON P.L.L.C.

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.

YOUNG PROFESSIONAL EVENTS

Join us for #YPWednesday at ACE 2022 and get involved in all of these events!

The YP Hub

Booth 609, Exhibit Hall

The YP (Young Professional) Hub is a meet up space in the Exhibit Hall targeting students and young professionals. The Hub will serve as a lounge to relax or hang out between technical sessions, networking space, demonstration space for interested vendors/exhibitors, and meet and greet venue with speakers and A&WMA leaders. Events are planned during technical session breaks, lunch, and exhibition hall networking events Tuesday and Wednesday. While many of the events are marketed towards students and young professionals (35 years and under), all of the events are open to attendees of all ages.

YP Hub Schedule

Tuesday, June 28

10:45 am – 11:15 am: VIP Meet and Greet with Jordan Haywood
11:15 am – 11:45 am: VIP Meet and Greet with Heidi Hollenbach
12:00 pm – 12:30 pm: Vendor Demo with Kevin Cronyn, Nutech
12:30 pm – 1:00 pm: VIP Meet and Greet with Maud Walsh
1:00 pm – 1:30 pm: Vendor Demo with Krag Petterson, SailBri Cooper, Inc.
3:30 pm – 4:00 pm: Vendor Demo with Aurelie Marcotte, Entanglement Technologies

Wednesday, June 29

9:30 am – 10:00 am: VIP Meet and Greet with Michele Karnes (During Speed Networking in Waterfront AB)
10:00 am – 10:30 am: VIP Meet and Greet with Maud Walsh
12:30 pm – 1:00 pm: VIP Meet and Greet with Heidi Hollenbach
1:00 pm – 1:30 pm: VIP Meet and Greet with Jordan Haywood
3:10 pm – 3:30 pm: VIP Meet and Greet with Jennifer Tullier

Refer to the App for the most current schedule.

Young Professionals' Breakfast Club

Wednesday, June 29, 8:00 am – 9:00 am, Waterfront AB



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. Cost: \$30. Tickets must be purchased in advance.

Speed Networking

Wednesday, June 29, 9:00 am – 10:00 am, Waterfront AB

Don't miss this opportunity to practice your networking skills! Young and experienced professionals and students are invited to engage in a fast-paced networking exercise. Answer questions, provide perspectives, and learn the best techniques for making connections that count.



Young Professional/Student Networking Reception

Wednesday, June 29, 7:00 pm – 9:00 pm

Barbarossa Lounge (Bubble Room), 714 Montgomery Street

Cost: \$30. Tickets must be purchased in advance.



Join A&WMA students and young professionals at one of the oldest buildings in San Francisco for a fun evening of networking at the Barbarossa Lounge. This popular event brings together many students, YPs, and seasoned professionals in a fun, casual environment. The lounge combines modern luxury with its historic roots as a former jailhouse, featuring popular food from the 19th century and cocktails named after famous criminals of the time.

YP/Introductory Technical Sessions

Become familiar with current environmental technology and find out how the different disciplines are connected.

How Does It Work? Waste Management Methods

Wednesday, June 29, 10:10 am – 11:50 am, Seacliff D

How Does It Work? Refining

Wednesday, June 29, 1:30 pm – 3:10 pm, Seacliff A

Community Air Monitoring: A Roundtable Discussion On Successes and Challenges

Wednesday, June 29, 3:30 pm – 5:30 pm, Seacliff A

EXHIBIT HALL ATTRACTIONS

The Exhibit Hall at the 115th A&WMA Annual Conference & Exhibition is the one-stop destination for environmental technology solutions, product and service demonstrations, and informative visits with experts from across the environmental spectrum.

Be sure to visit the Exhibit Hall during these hours:

Tuesday, June 28: 10:30 am – 5:30 pm

Wednesday, June 29: 8:00 am – 6:30 pm

Exhibition Grand Opening

Tuesday, June 28, 10:30 am – 5:30 pm

Sponsored by: 
Civil & Environmental
Consultants, Inc.

Immediately following the Keynote Program at 10:30 am, join your fellow attendees and presenters for Grand Opening of the Exhibit Hall. It's the perfect opportunity to meet with leading environmental professionals showcasing their latest products and services. Enjoy a light brunch for the first hour while exploring the booths and displays.

Technical and Student Poster Session

Tuesday, June 28, 10:45 am – 12:15 pm

Sponsored by: 
South Coast
AQMD

Student and ECi Poster Judging

Tuesday, June 28, 3:00 pm – 5:30 pm

Networking Breaks

Sponsored by: 
MONTROSE
ENVIRONMENTAL

Please join our many exhibitors for networking and refreshment breaks in the exhibit hall between technical sessions.

Tuesday, June 28, 3:30 pm – 4:00 pm (light refreshments)

Wednesday, June 29

3:10 pm – 3:30 pm

Breakfast with the Exhibitors

Wednesday, June 29, 9:30 am – 10:30 am

Exhibitor Reception

Wednesday, June 29, 5:30 pm – 6:30 pm

Join us for the last hour in the Exhibit Hall to connect with exhibitors and colleagues during the Exhibitor Reception, back by popular demand. Take advantage of this opportunity to network and get those last-minute business cards from key suppliers to add to your professional network.

The YP Hub

Visit the YP Hub at Booth #609 to see what's going on and attend planned events such as meet-and-greets with professionals, regulators, and VIPs, exhibitor demonstrations, and more. Find out about ACE, YP, and A&WMA events and get help with the ACE 2022 App if you need it. See page 19 or refer to the App for the most current YP Hub Schedule.

A&WMA Booth

Discover many A&WMA programs and services including membership, specialty conferences, webinars, and explore volunteer opportunities. Book your exhibit space and sponsorship support for ACE 2023 in Orlando, FL. Booth #615

Meet Journal Editor Jeffrey Collett:

Tuesday, June 28, 3:30 - 4:00 pm

Wednesday, June 29, 9:30 - 10:30

Career Center

If you're looking for a new job or candidates to fill your open positions, be sure to stop by the Career Center. Post your job description or resume on the Career Center wall and meet with potential candidates or recruiters. Booth #718



GENERAL INFORMATION

Registration Hours

Market Street Foyer

Monday, June 27: 2:00 pm – 6:00 pm
Tuesday, June 28: 7:00 am – 6:00 pm
Wednesday, June 29: 7:00 am – 5:00 pm
Thursday, June 30: 7:00 am – 2:00 pm

Exhibition Hours

Pacific Concourse Level

Tuesday, June 28: 10:30 am – 5:30 pm
Wednesday, June 29: 8:00 am – 6:30 pm

Technical Program Resource Center

Golden Gate Room

Open at 7:00 am daily through the end of the last session.

The Technical Program Resource Center is available for authors to preview their presentations and for session chairs to print out presenter bios.

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 2023 Technical Program. New ideas will be accepted until 12:00 pm (noon) on Thursday, June 30 through the survey on the desktop of the computers.

Monitors

Golden Gate Room

Monitors will also meet in the Technical Program Resource Center before morning and afternoon sessions daily. If you have been assigned to monitor, please pick up your Monitor's badge from Registration and report to the Monitor Room to check-in and to receive your materials.

If you are monitoring a morning session, please check-in at the Monitors' Room at 7:30 am. If you are monitoring an afternoon session, please check-in at the Monitors' Room at 1:00 pm.

Networking Breaks in the Exhibit Hall

Tuesday, June 28

3:30 pm – 4:00 pm (includes light refreshments)

Wednesday, June 29

Breakfast with the Exhibitors

9:30 am – 10:30 am

Technical sessions break from 9:40 am – 10:10 am

3:10 pm – 3:30 pm, technical session break

Exhibitor Reception

5:30 pm – 6:30 pm

Career Center

A new feature on the exhibit floor this year, the Career Center will be a place where hiring companies can post open positions and those looking for a job can post their resumes. ACE is the perfect place for attendees and companies to connect and discuss employment opportunities.

Please bring 50 copies of your job posting or resume printed on 8 ½ x 11 paper, portrait style, directly to the Career Center and place in an open pocket holder.

ACE 2022 Mobile App

Get the most up-to-date information on the technical program, ACE events, and more via the online mobile app.

Scan the QR code below to install directly on your phone or mobile device.

Go to the Networking & Profile tab in the App or My Experience page on the website to set up your networking profile to connect with other ACE attendees and the Q & A feature to ask questions to speakers through the App.



Free WiFi

We will be offering free WiFi throughout the conference, exhibit and foyer areas.

Use network HyattMeetings and password: acesf2022

Carbon Offsets

If you'd like to help offset the carbon emissions associated with this conference, donations can be made at [Carbonfund.org](https://www.carbonfund.org). Thank you!

Continuing Education Opportunities

Registered attendees are eligible to request certificates for Professional Development Hours (PDH) or Continuing Education Units (CEU) for participation in technical sessions. Attendees interested in receiving continuing education credit should sign in at every technical session that they attend. A&WMA will award and distribute credits allocations after the conference. The full conference technical sessions can earn you up to 17 hours.

Continuing education requirements vary according to location and profession. Meeting registrants are responsible for verifying whether continuing education credits offered by A&WMA can be used toward maintenance of their license or certification. All final decisions regarding certificate acceptance will be made by the licensing organization to which the certificate is submitted. Please claim Continuing Education credit prior to July 30, 2022.

Questions regarding Continuing Education accreditation should be emailed to Gloria Henning at ghenning@awma.org.

THANK YOU TO OUR ORGANIZATIONAL MEMBERS

We are exceptionally grateful to all of our organizational members for their support of membership and A&WMA conferences, events, and activities this past year as we continue to strive to provide the best products and services for these leaders in the environmental industry.

3M Company	Florida State University	PA DEP / Bureau of Air Quality
AECOM	Foulweather Consulting	PDC Energy
Aegis Environmental	Froskr Corporation	POWER Engineers, Inc.
AET Environmental	Georgia-Pacific LLC	PPM Consultants, Inc.
AFCO 360 LLC	Geosyntec Consultants, Inc.	Quebec City
Air Resource Specialists, Inc.	GHD	Ramboll US Consulting, Inc.
Air Sciences Inc.	Golden Valley Electric Association	Range Resources
Alabama Power Company	Golder Associates	Repurposed Materials Inc
Allegheny County Health Department	Haley & Aldrich, Inc.	Research Triangle Institute
Alliance Source Testing	Hartree Natural Gas Storage	Reuter-Stokes, a Baker Hughes Business
Altech Environmental Consulting Ltd.	Hennepin County	RTP Environmental Associates
American Petroleum Institute (API)	Huntington Ingalls Industries	RWDI
ARCADIS	Idaho DEQ	S&C Electric Company
Archer Daniels Midland Company	International Paper	San Joaquin Valley APCD
Arizona DEQ	Jacobs	Sasol
August Mack Environmental	Kansas City Board Of Public Utilities	Schnitzer Steel, Inc.
Babst Calland	KEY Environmental, Inc.	SCS Engineers
Barnes & Thornburg LLP	Kleinfelder	SLR International Corp
Barr Engineering Company	KS Dept. of Health & Environment	Solvay Chemicals, Inc.
Bay Area Air Quality Management District	Los Angeles Dept of Water and Power	Sonoma Technology, Inc.
BGE, Inc.	Lane Regional Air Protection Agency	South Coast Air Quality Management District
BH&M Environmental Consultants, Inc	LEHDER Environmental Services	Southern California Edison
Boreal Environmental Services	Locke Lord LLP	Southwest Cheese
Braun Intertec	Los Angeles County Sanitation District	St. Paul Park Refinery
Burns & McDonnell Engineering Co., Inc.	Louisiana DEQ	Stantec Consulting Ltd.
Calpine	LyondellBasell	Taiwan Power Company
CEMTEK KVB-Enertec	Maricopa County	Tampa Electric Company
CITGO Petroleum Corporation	Maryland Dept. of the Environment	Tennessee Dept of Environment and Conservation
Civil & Environmental Consultants, Inc.	McCoy and Associates	Texas Commission on Environmental Quality
C-K Associates	Metro Vancouver	The Westmark Group
Clark County	Michigan DEQ	Tricorntech
Consumers Energy	Minnesota Pollution Control Agency	Trihydro
Conversion Technology Inc.	Mississippi Dept. Of Environmental Quality	Trinity Consultants
Cornerstone Chemical Company	Mojave Desert AQMD	Tucson Electric Power Company
Department of Energy and Environment	Montrose Environmental Group, Inc.	United Consulting
DR DAD LTD	Mosaic	US EPA Region 7 (AWMD)
DSG Solutions, LLC	North Carolina DENR - Division of Air Quality	Utah Division of Air Quality
Duke Energy	Nebraska DEE	WA State Dept. of Ecology
Eastern Research Group	Nelson Environmental Remediation	Washoe County Health District - AQMD
Edge Engineering and Science, LLC	Northwest Clean Air Agency	Water & Environmental Technologies
EES Environmental Consulting, Inc.	Novel Geo-Environmental, LLC	Weaver Consultants Group
Eli Lilly & Company	Nucor Steel Jackson, Inc.	Westlake Chemical wood.
Empire Stack Testing, LLC	NV Energy	Woodward Inc.
Energem Inc.	NY State Dept. of Env. Conservation	Xcel Energy
Entergy	Occidental Petroleum Corp	Yamaha Motor Manufacturing
Epsilon Associates, Inc.	Oklahoma Dept. of Environmental Quality	
EQT Corporation	Olympic Region Clean Air Agency	
ERM	Orange County Sanitation District	
Federal Highway Administration		

If you are interested in membership for yourself or your company, visit awma.org/join today.

Correct at time of printing

COUNCIL AND COMMITTEE MEETINGS

Education Council

Monday, June 27, 8:00 am – 12:00 pm, Seacliff A

Sections & Chapters Council

Monday, June 27, 8:00 am – 2:00 pm, Seacliff B

Technical Council

Monday, June 27, 8:00 am – 5:00 pm, Seacliff C

International Affairs Committee Meeting

Wednesday, June 29, 7:00 am – 8:00 am, Regency AB

Annual Business Meeting of the Membership

Wednesday, June 29, 5:45 pm – 6:30 pm, Waterfront AB

Critical Review Committee Meeting

Thursday, June 30, 10:30 am – 11:30 am, Garden AB

Non-ACE Programs and Communication Task Force Meeting

Thursday, June 30, 3:30 pm – 4:30 pm, Garden AB

2023 ACE Planning and Technical Council Wrap-up Meeting

Thursday, June 30, 4:30 pm – 5:30 pm, Garden AB

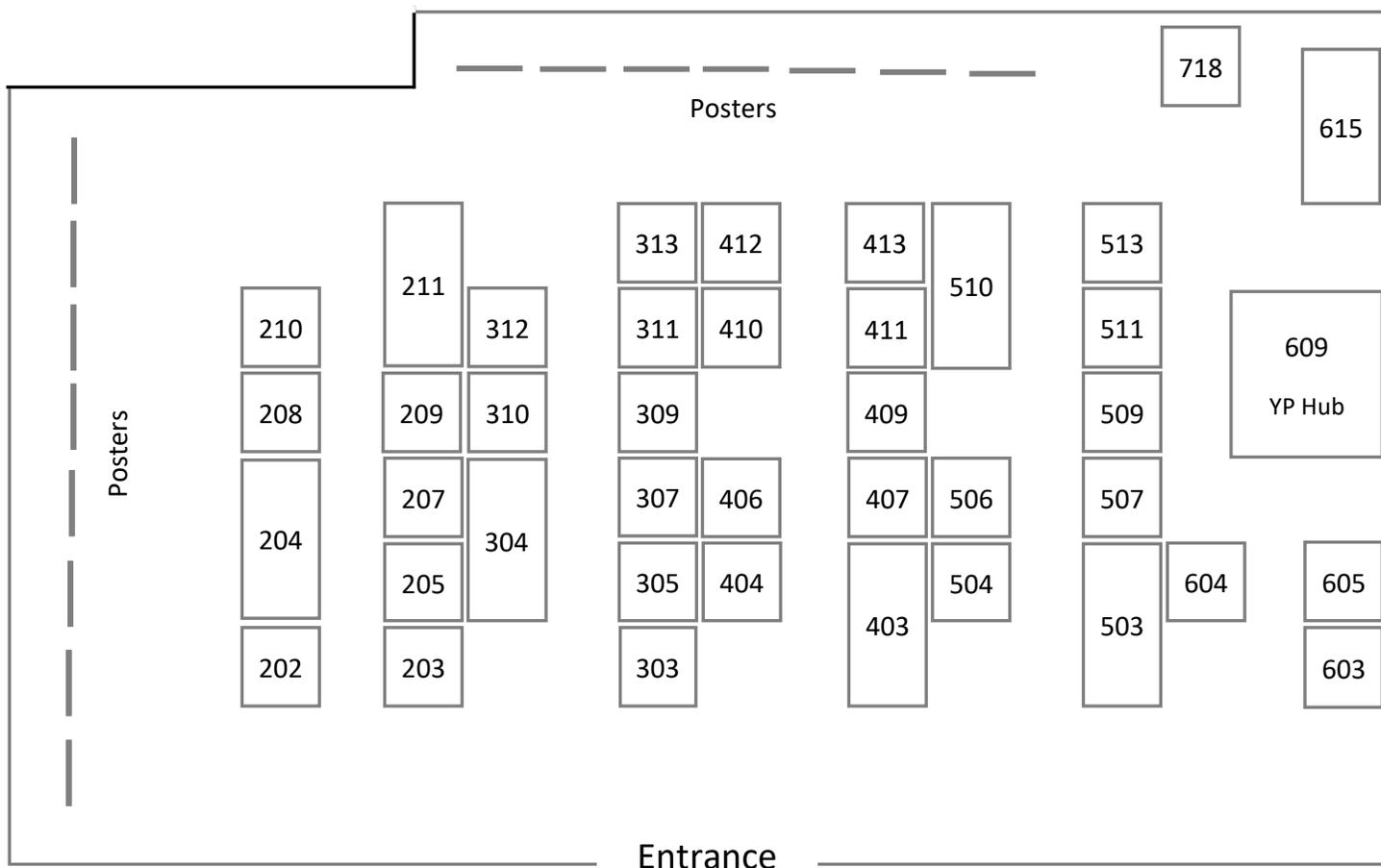
GET INVOLVED! Our meetings are open to all ACE attendees. Stop into one of these meetings to see the behind-the-scenes workings of the Association, or make a virtual connection at awma.org/volunteer.

TECHNICAL COORDINATING COMMITTEE MEETINGS

Date/Time	Division	Technical Coordinating Committees (TCCs)	Room
Tuesday, June 28, 2022, 11:55am- 1:15pm	AA*-Measurements, Monitoring, & Controls	AAC*-Control Technologies, AAE*-Measurements, Monitoring, Emission Inventory & Applications, AAM*-Measurement Techniques & Instrumentation	Marina
	AP-Atmospheric Processes	APM-Atmospheric Modeling & Meteorology	Bayview A
	CC-Climate Change Impacts, Mitigation and Adaption	CCI-Climate Change Impacts & Adaptation CCP-Climate Change Policy, Strategy & Regulations	Seacliff B
	ET-Transportation	CNV-Community Noise & Vibration, OMS-On- & Off-Road Mobile Sources, PLU-Transportation Policies & Land Use	Seacliff C
	EE-Effects & Exposure	ODR*-Odors, HEE-Health Effects and Exposures, RAM-Risk Assessment & EHS Management	Seacliff D
	IN- Power, Petroleum, Industry, Mining & Nanotechnology GI- Government Facilities & Indigenous Environmental Affairs	PWR*-Power Generation & Renewable Energy, PIM-Petroleum, Industry & Mining, NAN-Nanotechnology, GOV-Government Facilities, IEA-Indigenous Environmental Affairs	Bayview B
Wednesday, June 29, 2022, 11:55am- 1:15pm	AP-Atmospheric Processes	APC*-Atmospheric Chemistry	Seacliff A
		APV-Visibility & Radiative Transfer	Seacliff B
	EP- Program Administration	REG-Regulations, Legal Issues & Permitting, PUB-Public Participation, EPE-Economics, Partnership & Environmental Leadership	Bayview A
	EJ-Environmental Justice	EJS-Environmental Justice (NEW!)	Marina
	SR-Sustainability & Resource Conservation	SRC*-Resource Conservation, SUS*-Sustainability	Seacliff D
WM-Waste Management. Processing, Waste-to-Energy & Bioenergy	WMB-Waste Resource Recovery, Processing & Bioenergy, WMR-Waste Characterization & Site Remediation	Seacliff C	

* This TCC will also have a separate virtual meeting, contact the TCC Chair or Techprogram@awma.org for additional information.

EXHIBIT HALL FLOOR PLAN



EXHIBITORS BY BOOTH

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EXHIBITORS BY COMPANY

A&WMA Sales & Marketing615 **www.awma.org**

Founded in 1907, A&WMA enhances knowledge and expertise by providing a neutral forum for technology exchange, professional development, networking opportunities, public education, and outreach to more than 5,000 environmental professionals in 65 countries. Stop by to learn about A&WMA membership, upcoming events and publications, book your exhibit booth or sponsorship for ACE 2023 in Orlando, FL, and meet the new Journal Editor Jeffrey Collett.

Aclima209 **https://aclima.io**

Aclima is pioneering an entirely new way to diagnose the health of our air and track climate-changing pollution. Powered by their network of roving and stationary sensors, Aclima measures air pollution and greenhouse gases at unprecedented scales and with block-by-block resolution. Their professional analytics software, Aclima Pro, translates billions of scientific measurements into environmental intelligence for governments, companies, and communities. Their free app, air.health, maps address-level air and climate insights for the communities they serve. Aclima is a purpose-driven technology company catalyzing bold climate action that protects public health, reduces emissions, and delivers clean air for all.

AECOM403 **www.aecom.com**

As the number and stringency of air, waste and environmental regulatory requirements increases, AECOM is working with our clients to strategize and implement compliance solutions using innovative approaches and advanced technology. With 85,000 employees in 150 countries, AECOM is at the forefront—tackling issues with strategic thinking and collaboration.

AethLabs313 **www.aethlabs.com**

AethLabs, located in San Francisco, California, designs and manufactures small, mobile Black Carbon particulate matter monitors. AethLabs is focused on the development of high quality portable environmental and personal exposure monitoring instruments. The microAeth® MA series of Black Carbon particulate matter monitors consists of continuous, unattended, multi-wavelength instruments that can be used to distinguish between diesel and biomass emissions. The

microAeth® MA series boasts many advanced measurement features integrated into battery powered, lightweight and compact form factors that are small enough to fly on UAVs.

Alliance Technical Group511 **www.alliancetechgroup.com**

Alliance Technical Group is the national leader in air emissions monitoring, testing, and analytical services nationwide. Alliance Technical Group continues to expand its footprint in all air-related services, strengthening the company, providing a career path for its more than 700 employees, and offering its customers unmatched service, quality results, and competitive pricing.

Ambilabs303 **www.ambilabs.com**

Ambilabs specializes in supplying innovative ambient air monitoring technology solutions. Our experienced staff provide instrumentation, systems and solutions for obtaining valid, accurate, and precise air quality data. We directly supply, install, and train on a broad range of gas and particulate monitoring instrumentation for our customers in Canada, USA, and the Caribbean. Please visit our booth to discuss the latest “Airpointer” which is an EPA FEM & FRM designated air monitoring “station in a suitcase”, and also the new AqMesh suite of pollutant monitoring sensors packaged together into a tiny pod that is no larger than a football. Ask about our latest “2WIN” high precision particulate/haze/visibility monitoring sensor solution.

American Ecotech303 **www.americanecotech.com**

American Ecotech specializes in supplying state of the art instruments measuring specific gases, aerosols, and particulate airborne matter, including gas analyzers to measure NOx, CO, SO2, CO2, NH3, H2S, NOy, and/or ozone. We supply digital dataloggers, and advanced remote maintenance software for automated field data validation and reporting.

Bay Area Air Quality Management District510 **www.baaqmd.gov**

Since 1955, the Bay Area Air Quality Management District has been the public agency responsible for protecting air quality 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. Air District programs monitor air emissions sources, promote climate protec-

tion, provide clean air grants, draft rules and regulate stationary air pollution sources. The Air District’s mission is to protect and improve public health, air quality and the global climate. The Air District encourages clean commute alternatives through the Spare the Air program.

Blue Sky Modeling312 **www.blueskymodeling.com**

Blue Sky Modeling, LLC (BSM) specializes in air quality modeling. Unlike most air dispersion modelers, BSM is not part of a larger consulting firm. Because of that we are exceptionally nimble in how we partner with our clients. Our innovative approach to business combines the reach of a large firm with the flexibility of a small firm, enabling us to provide our clients with decades of experience in the air dispersion modeling world while minimizing costs and maximizing our responsiveness.

CDS Analytical310 **www.cdsanalytical.com**

CDS Analytical is a leading global provider of innovative thermal sample preparation instrumentation for the analytical laboratory. For over 50 years our exclusive focus has been on conceiving, designing, manufacturing, and supporting leading edge instruments. CDS offers a complete suite of diverse front-end GC equipment including pyrolyzers, purge and trap, headspace, and thermal desorption systems. These robust, field-tested products provide the entire range of temperature, heating rate, and multiple step manipulations required by today’s most demanding analytical laboratories. CDS Analytical has recently acquired the rights to Empore™ products, extending our reach into lab consumables and or ability to provide solutions for Environmental, Food Science and Biopharma customers.

CEMTEK KVB-Enertec509 **www.cemteks.com**

CEMTEK KVB-Enertec, Inc., is a leading supplier of custom-engineered continuous emissions monitoring systems (CEMS) and data acquisition and handling systems (DAHS), and a provider of expert support for compliance and noncompliance applications. Our dynamic range of CEMS and DAHS products makes significant contributions to compliance and process improvement within the marketplace. With over fifty years of experience, the integration of industry-leading CEMS and DAHS under one roof gives our clients access to exceptional products, support, and response times.

EXHIBITORS BY COMPANY

Civil & Environmental Consultants, Inc404
www.cecinc.com

Whether gathering field data; preparing plans and permit applications; performing site investigations, feasibility evaluations, and remediation activities; or navigating compliance requirements, CEC seeks to build personal business relationships to better understand our clients' objectives. Let's talk about your most complex air quality and waste management challenges.

Cooper Environmental/SCI603
sci-monitoring.com

Cooper Environmental is the recognized global leader in metals measurement technology. The company was the first to develop and commercialize near real time measurement of metals using X-ray fluorescence (XRF). Its ambient metals monitor, the Xact 625i, has demonstrated accuracy in numerous studies and peer reviewed journal articles and it is used by researchers, environmental agencies and metal producing industries throughout the world. In addition to its ambient metals monitor the company also makes instruments to measure metals in smoke stacks and water and it offers a complete line of sensor based measurements (Sold under the Sailbri Cooper Inc brand name) for criteria pollutants (SO₂, CO, O₃, NO₂, PM₁₀ and PM_{2.5}), hazardous gases (HCl, Cl₂, H₂S, HF, NH₃) and total VOCs.

Distributed Sensing Technologies (DSTech)210
www.dstech.io

DSTech develops combustion-focused air quality sensors for distributed monitoring networks. The ObservAir is a modular sensing platform that centers around our proprietary black carbon aerosol detector, and can flexibly monitor toxic gases, particulate matter pollution, and other environmental indicators. Patented technology maintains measurement accuracy in harsh operating conditions, wireless modules provide connectivity nearly anywhere, and dedicated web apps enable real-time data visualization and network management. The compact, rugged, and affordable sensors are readily deployed in large networks to protect the air we share.

ECO PHYSICS, INC.309
www.ecophysics-us.com

Chemiluminescence NO_x, Ammonia, paramagnetic O₂ and NDIR CO₂ measurements for regulatory compliance. All of our ana-

lyzers have onboard computers for almost unlimited data storage. We are the leading supplier for combustion and atmospheric research. Heated sample inlet systems for measurement of hot, wet gases and dual inlet analyzers for simultaneous measurement of two separate sample sources. We have a solution for you!

ECT2507
www.ect2.com

Tough challenges demand smart solutions. At ECT2, we combine advanced treatment technology with unmatched real-world experience to remove contaminants from water. With our proprietary, cost-effective ion exchange resin with on-site regeneration, we've successfully deployed systems all over the world for the removal of contaminants such as PFAS and 1,4-dioxane. Due to our advanced technology, ECT2 has been a recognized PFAS treatment leader since 2017 and has treated over billions of litres of water to date.

EMSL Analytical, Inc.605
www.emsl.com

EMSL Analytical operates 46 laboratories throughout the U.S. and Canada specializing in fast laboratory results of industrial hygiene, microbiology, asbestos, lead, and much more, including a full line of sampling products, supplies and equipment.

Entanglement Technologies, Inc.205
www.entanglementtech.com

Entanglement Technologies is a chemical technology and engineering solutions manufacturer focused on designing intelligent analyzers which increase the accessibility and actionability of chemical data on our surroundings. Our flagship instrumentation platform, AROMA-VOC, is a thermal desorption, high-performance broadband cavity ringdown spectrometer (TD-CRDS) which provides part-per-trillion (pptv) detection limits on hazardous air pollutants such as BTEX, 1,3-butadiene, ethylene oxide, TCE, H₂S and HCN in ambient air and other complex matrices in the field or from any vehicle. No buildout or expert operator required. The high stability of the CRDS core facilitates operations for long-term, automated fixed-site deployments in remote locations without sacrificing data-quality or throughput. Visit the booth to learn more or contact us at info@entanglementtech.com.

EPA Alumni Association506
www.epaalumni.org

The EPA Alumni Association was formed to provide former employees with a place to reconnect or stay connected to colleagues from the Agency. It is open to former employees with a year or more at the EPA, or who plan to retire within one year, and currently has over 2,000 members.

ERM207
www.erm.com

Environmental Resources Management (ERM) is a leading global provider of environmental, health, safety, and sustainability (EHSS) consulting services. We have more than 160 offices in over 40 countries and territories employing more than 5,500 people who work on projects around the world. ERM is committed to providing a service that is consistent, professional, and of the highest quality to create value for our clients. We have worked with many of the Global Fortune 500 companies delivering innovative solutions for business and selected government clients helping them understand and manage the sustainability challenges that the world is increasingly facing.

ESA | Environmental Science Associates.412
www.esassoc.com

ESA is a 100% employee-owned environmental consulting firm. We are 50 years and 500+ people strong in 21 offices across California, the Pacific Northwest, and the Southeastern United States. Our air quality and noise team supports a variety of permitting, compliance, health risk assessments, and due diligence analyses, with experience to approach complex projects with an eye toward providing technically sound results and actionable insights. The team is highly involved in climate action planning and is experienced supporting our clients in carbon trading and emission offset programs.

Geosyntec Consultants Inc410
www.geosyntec.com

Geosyntec is a consulting and engineering firm that works with private and public sector clients to address new ventures and complex problems involving our environment, natural resources, and civil infrastructure. Geosyntec provides the specialized expertise necessary for lawyers to counsel their clients and advocate for client interests on a wide range of matters related to business transactions, environmental management, compliance and

EXHIBITORS BY COMPANY

enforcement, toxic tort, and general litigation on matters. We deliver solutions through Geosyntec and our seamlessly integrated divisions (SiREM, Savron, and Geosyntec Europe) with a combined staff exceeding 1,500 engineers, scientists, and related technical and project support personnel. We serve our clients from more than 80 offices in the United States, Canada, the United Kingdom, Ireland, and Australia.

GHD411
www.ghd.com

GHD is one of the world's leading employee owned professional services companies operating in the water, energy and resources, environment, property and buildings, and transportation markets. Established in 1928, we employ more than 9,000 people in 200+ offices across the globe, including 11 offices in California.

Hawa Dawa GmbH208
www.hawadawa.com

Hawa Dawa, a German-based company, provides management solutions for ambient air quality according to international standards. Our offering includes regulatory-grade monitoring networks and comprehensive analytics. We leverage cutting-edge technologies (AI, IoT, cloud services) to provide our cost-efficient, high-standard air quality management solution. The quality of our measurement method has been proven by an independent auditing institute (TÜV). All insights are available on intuitive user dashboards and via API for effortless integration. Whether you want to build a local measurement network or integrate area-wide environmental data into your solutions, we offer the full range.

Jacobs504
www.jacobs.com

At Jacobs, we're challenging today to reinvent tomorrow by solving the world's most critical problems for thriving cities, resilient environments, mission-critical outcomes, operational advancement, scientific discovery and cutting-edge manufacturing, turning abstract ideas into realities that transform the world for good. With \$13 billion in revenue and a talent force of approximately 52,000, Jacobs provides a full spectrum of professional services including consulting, technical, scientific and project delivery for the government and private sector. Visit jacobs.com and connect with Jacobs on LinkedIn, Twitter, Facebook and Instagram.

Lakes Software304
www.weblakes.com

Lakes Software is internationally recognized for its technologically advanced environmental modeling software and data products. Since 1995 we remain dedicated to providing industry and the regulatory community with exceptional service and cost-effective environmental IT solutions. Our products increase productivity, reduce errors, and provide unique solutions in an ever-increasing regulatory constrained world. Expertise includes: Air Dispersion Modeling, Emissions Inventory; Ambient Air Monitoring; Regulatory Permit and Compliance Solutions; Human Health Risk Assessment; Custom IT Solutions; Real-Time and Forecast Modeling Solutions;

Artificial Intelligence and Neural Net Forecasting; Meteorological Data Processing (WRF/MM5); Training. Lakes Software is dedicated to continuously investigating new areas of research to provide our users with superior state-of-the-art software solutions and data services.

Met One Instruments, Inc.406
www.metone.com

Met One Instruments Inc. provides reliable, affordable, precision instrumentation for monitoring ambient & indoor air quality and controlled environments. We also have a full Meteorological line of precision instrumentation. We engineer and manufacture products from our facilities located in Oregon, New York, and Maryland. Our customer service, including ongoing after-the-sale service support, is the best in the industry. All our products are made in the USA. We are an ISO9001:2015 certified company.

Montrose Environmental Group, Inc. .503
www.montrose-env.com

Montrose Environmental: The Future of Environmental Solutions. Dealing with the logistics and implications of environmental issues is vital. Typically, however, it's also complicated, time-consuming, and expensive.

At Montrose, we know there's a better way. Employing 1,400 employees in over 60 locations, our innovative business model, focus on environmental solutions, and integrated approach to design, engineering, and operations can put you well ahead of the curve by applying the latest technologies in practical ways to solve difficult environmental challenges today – and prepare for what's coming tomorrow. From lab services to stack testing to regulatory compliance, we're helping clients blaze new trails.

Nutech Instruments, Inc.604
www.nutechins.com

Nutech Instruments is a World leading supplier of Air VOC testing products headquartered in Dallas, Texas USA. Some of our products are: Preconcentrators (LN2 8910 and LN2 free 6600), Auto Samplers 3610, Direct loop injection 3606, Dynamic and Static Diluters 2203, Canister Clean Systems 2104,2108, Fence Line Systems (TVOC, PAMS, Full Range, Complete Shelters) 6300,6500, 6600,6700, Automatic air sampling timers 2701, 2703, Multifunctional Automatic Air Sampling System 2600ST, Carry-on Automatic Multifunctional Sampling System 2600GT Portable TVOC analyzer

3000, Custom Designs to meet your unique requirements. We also run a full-service air VOC testing laboratory. Contact us for more information at: kevin@nutechins.com

Picarro, Inc413
www.picarro.com

Picarro is a leading provider of solutions to measure greenhouse gas (GHG) concentrations, criteria pollutants and hazardous air pollutants (HAPs) in many industrial and research applications. Picarro analyzers and systems are simple to deploy and operate, they deliver parts-per-trillion (ppt) sensitivity in real-time, and are designed for continuous monitoring with minimal maintenance. Visit our Air Quality and Ethylene Oxide Resource Centers to learn more about how our products are used to address indoor and outdoor air quality measurement needs.

Ramboll307
americas.ramboll.com

Water. Environment & Health. Energy. Advanced Manufacturing. With a diverse network of engineers, designers and consultants across the Americas and around the world, Ramboll leverages local and global expertise to create sustainable, comprehensive solutions for clients. See how we do it at americas.ramboll.com.

SCS Engineers202
www.scsengineers.com

Environmental consultants and contractors with offices nationwide. Specialists in sustainability, greenhouse gas, clean air act compliance, biogas, RNG, landfills, closure, long-term O&M, PCB cleanups, Brownfields, and liquids management. Helping to improve the planet since 1970.

EXHIBITORS BY COMPANY

SOLVAir Solutions409
www.solvairsolutions.com

SOLVAY is an advanced materials and specialty chemicals company. SOLVAir® Solutions is SOLVAY's Air Pollution Control entity that offers and continuously develops competitive and sustainable environmental solutions used for acid gas emissions control through sodium dry sorbent injection. The SOLVAir® Solutions team provides support to engineering companies, equipment providers and end users from project conception through start up and optimization.

Telops311
www.telops.com

Telops designs and manufactures high-performance hyperspectral imaging systems and infrared cameras for defence, industrial, and academic research applications. Telops also offers R&D services for optical systems technology development in order to respond to the specific needs of its customers. Since its beginnings in 2000, Telops has distinguished itself with the quality of its personnel and its innovative approach to the technological challenges of the optics and photonics field.

Tri-Mer Corporation204
www.tri-mer.com

Tri-Mer, world's largest supplier of ceramic systems, offers UltraCat Catalytic Ceramic filter systems to remove submicron particulate (PM), SO₂, HCl, mercury, heavy metals. Simultaneously the catalytic filters destroy NO_x, Cement O-HAPs, dioxins. Ceramic filter tubes have nanobits of catalyst infused in filter walls. Over 90% NO_x reduction at 400F. Also, systems for efficiently controlling particulate, industrial odors and gases from single or multiple sources. Installation and commissioning available. Equipment made in USA.

Trinity Consultants513
www.trinityconsultants.com

Founded in 1974, Trinity is an international EHS consulting firm with offices across North America, and in the U.K., China, and the Middle East. Trinity assists organizations with meeting their permitting and compliance obligations, and with broader EHS performance and risk management concerns. Trinity's technology team provides EHS technology solutions to help organizations streamline EHS reporting and data management, and Trinity's BREEZE EHS modeling software is used by professionals worldwide to predict the impact of air emissions, fires, and explosions. Trinity also provides extensive professional EHS training via classroom and online formats. SafeBridge Consultants, a Trinity Consultants company, provides industrial hygiene and toxicology services to pharmaceuticals companies.

TSI Incorporated203
www.tsi.com

TSI, a world leader in particle measurements, offers a variety of outdoor air quality monitors for real-time, direct-reading results. The DustTrak™ Environmental Monitor measures PM₁, PM_{2.5}, respirable, PM₁₀ and total PM size fractions, providing near-reference quality data. In addition, TSI offers a variety of aerosol and dust monitors, and indoor air quality monitors.

UnifyTwin, Inc211
www.unifytwin.com

UnifyTwin, Inc offers a Cloud-based MCERTS-certified Enterprise-class Data Acquisition and Handling System (DAHS) for tracking, acquisition, monitoring and forecasting of CEMS, CAAQMS, CEQMS pollutants from industries. By deploying the App, the manufacturers remain continuous-compliant with environmental regulations and achieve zero NOVs.

URG Corporation407
www.urgcorp.com

URG is helping to ensure the air we breathe is the best it can be by creating the Ambient Ion Monitor (AIM) for the time-resolved, direct measurement of gas (hydrogen chloride, nitric acid, nitrous acid, sulfur dioxide, ammonia) and artifact free particulate matter (nitrate, sulfate, nitrite, phosphate, chloride ammonium, sodium, calcium, potassium, magnesium) air pollutants. We specialize in Teflon coated cyclones with various cut-points and flow rates, and stainless steel cyclones for diesel emissions.

YP Hub609
www.awma.org/YP

A&WMA realizes the value of young professionals (YPs) under the age of 35 to the environmental industry. The Association created the Young Professionals Advisory Council (YPAC) to support the learning and networking opportunities needed to help YPs excel in their careers. The YPAC develops programs and activities to effectively engage YPs, recruits and retains YP members by fostering relationships with employers and A&WMA Sections and Chapters, and assists in the recruitment, retention, and development of YP members. Plus, they plan technical and a lot of fun social activities.

TECHNICAL PROGRAM TRACKS

Legend			
Tracks		Tracks	
AQCT	Air Quality – Control Technology	INDU	Industry, Power, Energy, and Petroleum Manufacturing
AQES	Air Quality – Emissions Studies	MINI	Mini-Symposium: Inclusive Environmental Solutions
AQMM	Air Quality – Measurements and Monitoring	REGU	Regulatory and Legal
AQMO	Air Quality – Modeling	SUST	Sustainability and Resource Conservation
CLIM	Climate Change	TRAN	Transportation
GOVS	Government and Public Sector	WAST	Waste Management
H&EE	Health and Environmental Effects	YPRO	Young Professionals

TECHNICAL SESSIONS BY TOPIC AREA

Day	Time	Title	Track	Session	Room
Mini-Symposium: Inclusive Environmental Solutions					
Tues	1:30 pm – 3:30 pm	EPA Priorities 2022-2023	MINI/REGU	panel	Bayview B
Tues	4:00 pm – 6:00 pm	Community-Based Solutions and Environmental Justice	MINI/REGU	platform	Bayview A
Weds	8:00 am – 9:40 am	Satellite Perspectives on Environmental Justice	MINI/REGU	panel	Bayview A
Weds	10:10 am – 11:50 am	Wildfire Environmental Impacts and Risk Management	MINI/H&EE	platform	Bayview A
Weds	1:30 pm – 3:10 pm	The Integrated Toolbox Needed to Respond to PFAS Investigation Requests	MINI/WAST	panel	Bayview B
Weds	3:30 pm – 5:30 pm	Contaminants of Concern: PFAS and PCBs	MINI/WAST	platform	Bayview A
Thurs	9:40 am – 11:40 am	Building Decarbonization: Local Governments Take the Lead	MINI/CLIM	panel	Bayview A
Thurs	1:30 pm – 3:30 pm	Decarbonization through Circular Economy Actions	MINI/SUST	panel	Bayview B
Air Quality – Control Technology and Emissions Studies					
Tues	1:30 pm – 3:30 pm	Air Pollution Control	AQCT	platform	Seacliff A
Tues	1:30 pm – 3:30 pm	Monitoring Tools, Development of Emission Inventories, Challenges and Impacts	AQES	platform	Seacliff B
Weds	8:00 am – 9:40 am	E-Enterprise for Environment: Streamlining Air Emissions Reporting	AQES	panel	Bayview B
Thurs	1:30 pm – 3:30 pm	Emissions for Point and Nonpoint Sources	AQES	platform	Seacliff C
Air Quality – Measurements and Monitoring					
Tues	1:30 pm – 3:30 pm	Environmental Justice and Community Monitoring	AQMM	platform	Marina
Tues	4:00 pm – 6:00 pm	International Air Quality Challenges and Insights	AQMM	platform	Marina
Weds	10:10 am – 11:50 am	Source and Fugitive Emissions Measurement	AQMM	platform	Marina
Weds	3:30 pm – 5:30 pm	Regional Haze and Aerosol Optical Properties	AQMM	platform	Marina
Weds	3:30 pm – 5:30 pm	Community Air Monitoring: A Roundtable Discussion On Successes and Challenges	YPRO/AQMM	panel	Seacliff A
Air Quality – Modeling					
Tues	1:30 pm – 3:30 pm	Ambient Air Quality Dispersion Modeling Issues	AQMO/REGU	panel	Bayview A
Tues	4:00 pm – 6:00 pm	Evaluation of Minor Source Modeling in the US	AQMO	panel	Bayview B
Weds	3:30 pm – 5:30 pm	Innovative Topics in Air Quality Modeling	AQMO	platform	Seacliff C
Thurs	9:40 am – 11:40 am	AERMOD Modeling Techniques	AQMO	platform	Seacliff C
Climate Change					
Tues	4:00 pm – 6:00 pm	Clean Energy Technologies: Issues, Case Studies, and a Path to Net Zero Goals	INDU/CLIM	platform	Seacliff A
Weds	8:00 am – 9:40 am	Oil and Gas Operations: What's Up with Methane?	INDU/CLIM	platform	Seacliff A
Weds	10:10 am – 11:50 am	Accelerating the Transition to Heat Pump Water Heaters through Supply Chain Intervention	CLIM	panel	Seacliff B
Weds	1:30 pm – 3:10 pm	The Evolving Landscape of Carbon Neutrality Goals	CLIM	panel	Seacliff B
Weds	3:30 pm – 5:30 pm	Hydrogen Fuel for Power Generation, Decarbonization, and Emissions Control	CLIM/INDU	panel	Bayview B
Weds	3:30 pm – 5:30 pm	Accelerating the Transition away from Diesel	TRAN/CLIM	panel	Seacliff B
Thurs	9:40 am – 11:40 am	Building Decarbonization: Local Governments Take the Lead	MINI/CLIM	panel	Bayview A
Thurs	1:30 pm – 3:30 pm	Climate Change Mitigation and Adaptation	CLIM	platform	Seacliff B
Thurs	1:30 pm – 3:30 pm	Bay Area Healthy Homes Initiative: A Blueprint for a Comprehensive Approach to Address Cumulative Air Pollution Exposure in Overburdened Communities	CLIM	panel	Marina
Health and Environmental Effects					
Weds	8:00 am – 9:40 am	Near-Roadway Exposures and Health Risks	TRAN/H&EE	platform	Seacliff C
Weds	10:10 am – 11:50 am	Wildfire Environmental Impacts and Risk Management	MINI/H&EE	platform	Bayview A
Thurs	9:40 am – 11:40 am	Health and Environmental Effects: Wildfires, Hospitals and Soils	H&EE	platform	Regency AB
Thurs	9:40 am – 11:40 am	Community Health Risk Assessment Methods Addressing Cumulative Risk in Overburdened Communities	REGU/H&EE	panel	Seacliff B

TECHNICAL SESSIONS BY TOPIC AREA

Day	Time	Title	Track	Session	Room
Industry, Power, Energy and Petroleum					
Tues	1:30 pm – 3:30 pm	Nanosafety: Research and Regulations	INDU	panel	Regency AB
Tues	4:00 pm – 6:00 pm	Clean Energy Technologies: Issues, Case Studies and a Path to Net-Zero Goals	INDU/CLIM	platform	Seacliff A
Weds	8:00 am – 9:40 am	Oil and Gas Operations: What's Up with Methane	INDU/CLIM	platform	Seacliff A
Weds	10:10 am – 11:50 am	Environmental Justice Considerations for Energy and Industry	INDU	platform	Seacliff A
Weds	1:30 pm – 3:10 pm	How Does It Work? Refining	YPRO/INDU	panel	Seacliff A
Weds	3:30 pm – 5:30 pm	Hydrogen Fuel for Power Generation, Decarbonization, and Emissions Control	CLIM/INDU	panel	Bayview B
Thurs	9:40 am – 11:40 am	Electric Power Industry – Industry Transition and Regulatory Issues	INDU	panel	Seacliff A
Thurs	1:30 pm – 3:30 pm	Petroleum, Industry, and Mining - Issues and Case Studies	INDU	platform	Seacliff A
Regulatory and Legal					
Tues	1:30 pm – 3:30 pm	EPA Priorities 2022-2023	MINI/REGU	panel	Bayview B
Thurs	1:30 pm – 3:30 pm	Decarbonization through Circular Economy Actions	MINI/SUST	panel	Bayview B
Tues	4:00 pm – 6:00 pm	Air Permitting, Compliance, Enforcement Issues, and Case Studies	REGU	platform	Seacliff B
Tues	4:00 pm – 6:00 pm	Community-Based Solutions and Environmental Justice	MINI/REGU	platform	Bayview A
Weds	8:00 am – 9:40 am	Title V Implementation Significant Issues and Challenges	REGU	panel	Marina
Weds	10:10 am – 11:50 am	Air Permitting Problems and Solutions	REGU	panel	Bayview B
Weds	1:30 pm – 3:10 pm	NSR—Issues and Recent Developments	REGU	panel	Bayview A
Weds	1:30 pm – 3:10 pm	Changing Requirements Affecting Government Facilities	GOVS	platform	Marina
Thurs	9:40 am – 11:40 am	PM _{2.5} and Ozone Implementation Issues	REGU	panel	Marina
Thurs	9:40 am – 11:40 am	Community Health Risk Assessment Methods Addressing Cumulative Risk in Overburdened Communities	REGU/H&EE	panel	Seacliff B
Thurs	1:30 pm – 3:30 pm	Air Legislation, Regulation & Policy Developments	REGU	panel	Bayview A
Sustainability and Resource Conservation					
Tues	1:30 pm – 3:30 pm	Sustainability Metrics and Analytics	SUST	platform	Seacliff D
Tues	4:00 pm – 6:00 pm	Sustainable Waste/Materials Management and Circular Economy	SUST	platform	Seacliff C
Weds	1:30 pm – 3:10 pm	Corporate Environmental and Social Governance (ESG)	SUST	panel	Seacliff D
Thurs	8:00 am – 10:30 am	Critical Review: Circular Economy for Clean Energy Technologies	SUST	panel	Bayview B
Thurs	9:40 am – 11:40 am	Energy-Water-Waste Nexus	SUST	platform	Seacliff D
Thurs	1:30 pm – 3:30 pm	Installation, Startup, and Operation of World's First Regenerable Resin System for PFAS Removal	SUST	panel	Seacliff D
Transportation					
Tues	1:30 pm – 3:30 pm	Roadway Emissions	TRAN	platform	Seacliff C
Weds	8:00 am – 9:40 am	Near-Roadway Exposures and Health Risks	TRAN/H&EE	platform	Seacliff C
Weds	10:10 am – 11:50 am	Environmental Issues for Seaports	TRAN	platform	Seacliff C
Weds	1:30 pm – 3:10 pm	Electric and Connected Vehicles	TRAN	platform	Seacliff C
Weds	3:30 pm – 5:30 pm	Accelerating the Transition away from Diesel	TRAN/CLIM	panel	Seacliff D
Waste Management					
Tues	4:00 pm – 6:00 pm	Vapor Intrusion and Site Investigation	WAST	platform	Seacliff D
Weds	8:00 am – 9:40 am	PFAS Remediation, Wastewater Treatment and Soil Ecology	WAST	platform	Seacliff B
Weds	8:00 am – 9:40 am	Landfill and Solid Waste Related Energy	WAST	platform	Seacliff D
Weds	10:10 am – 11:50 am	How Does It Work? Waste Management Methods	YPRO/WAST	panel	Seacliff D
Weds	1:30 pm – 3:10 pm	The Integrated Toolbox Needed to Respond to PFAS Investigation Requests	MINI/WAST	panel	Bayview B
Weds	3:30 pm – 5:30 pm	Solid Waste Emissions: Regulations and Modeling	WAST	platform	Seacliff D
Weds	3:30 pm – 5:30 pm	Site Remediation and Metals Treatment	WAST	platform	Regency AB
Weds	3:30 pm – 5:30 pm	Contaminants of Concern: PFAS and PCBs	MINI/WAST	platform	Bayview A
Thurs	1:30 pm – 3:30 pm	Waste Treatment and Reuse	WAST	platform	Regency AB
Young Professionals					
Weds	10:10 am – 11:50 am	How Does It Work? Waste Management Methods	YPRO/WAST	panel	Seacliff D
Weds	1:30 pm – 3:10 pm	How Does It Work? Refining	YPRO/INDU	panel	Seacliff A
Weds	3:30 pm – 5:30 pm	Community Air Monitoring: A Roundtable On Successes and Challenges	YPRO/AQMM	Panel	Seacliff A

TECHNICAL AND STUDENT POSTERS

Air Emission Control Technologies and Programs

Reducing Power Sector Emissions in China for Climate and Public Health Benefits with Economic Dispatch (Student Poster #14)

Paper # 1167578

Qian Luo, North Carolina State University

Air Pollutant Emission Sources, Monitoring, Quantification, and Reporting

Imaging Moving Aerosol Particles Using Nano Digital Holographic Microscopy (Nano-DIHM): Beyond the Diffraction Barrier (Student Poster #16)

Paper # 1175784

Devendra Pal, Atmospheric and Oceanic Sciences - McGill University

Assessment of Regional Sources Contributing to PM_{2.5} at Selected Municipalities in Pennsylvania (Student Poster #17)

Paper # 1175982

Brandon Whitman, Wilkes University

Characteristic of Particulate Matter Levels in Classrooms of Elementary Schools in South Korea by Indoor and Outdoor Influencing Factors (Student Poster #25)

Paper # 1186685

Dae Hyeon Kim, Busan Metropolitan City, Pukyong-National University

Air Pollutant Exposure, Impacts, and Health Risks

Impact of Wildfire Emissions on Vulnerable Populations in the Inland Northwest (Student Poster #23)

Paper # 1186285

Brooke Baker, Gonzaga University

Impact Analysis of PM_{2.5} Concentrations in Port Areas Due to Reduction of Ship and Ship-related Emissions in Korea

Paper # 1164878

Young Sunwoo, Konkuk University; Moonseok Kang; Chunsang Hong; Chanbyeoung Chae; Jeeho Kim; Yoonbae Jung; Kim Kim; Yoonjoo Cho

Air Quality Dispersion Modeling: Applications, Advances and Guidance

Comparison of PMF Modeling Results for Changes of PM_{2.5} Mass Concentration Uncertainty

Paper #1153532

InJo Hwang, Daegu University; Heekwan Lee, Incheon National University

Climate Change — Drivers and Mitigation

Aerosol Absorption Measurements and Their Relation to Air Quality and Climate Change (Student Poster #12)

Paper # 1166654

Charlotte Dungan, New Mexico Institute of Mining and Technology

Impact of Polyethylenimine Characteristics on the CO₂ Sorption Capacity of γ -cyclodextrin Metal Organic Frameworks

Paper # 1174964

Amro El Badawy, California Polytechnic State University; Ajay Kathuria, Mohsen Kivy, Dustin Lee, Corinne Watson

Hazardous Waste - Treatment, Site Remediation, Vapor Intrusion

Fluorine Contamination of Soils at a Phosphate-Gypsum Waste Landfill in South Korea: Analytical Protocols, Regulation Levels, and Legal Framework

Paper # 1173235

Seokyoung Oh, University of Ulsan; Yong-Deuk Seo

Indoor Air Quality

Effect of the Use of Heat-Not-Burn Products on Indoor Air Quality (Student Poster #20)

Paper # 1184004

Yu Seong-JI, Pukyong National University

Pathogen Pollutant Measurement

3D Cellular Ultrastructure of Disinfected Foodborne Bacteria and Fungus via Transmission X-Ray Microscopy and Soft X-Ray Tomography (Student Poster #19)

Paper # 1183965

Nhu Anh Than, National Chung Hsing University

Residuals And Waste: Treatment, Reclamation, Beneficial Use, and Recycling

An Industrial Waste Material to Beneficial Coagulant: Application of Carbide Slag to Remove Turbidity from Oilfield Produced Water (Student Poster #18)

Paper # 1183077

Manisha Kothari, Himadri Rajput, Ashraf Aly Hassan, United Arab Emirates University

TECHNICAL AND STUDENT POSTERS

Effects of Thermal Hydrolysis Pretreatment on the Microbial Communities' Dynamics of Anaerobic Digestion of Cattle Manure (Student Poster #21)

Paper # 1185475

Seunghwan Kim, Seoul National University

Fabrication and Characterization of Eco-Friendly Intelligent Packaging Film Produced from Agricultural Waste Extracts and Fishery Waste Chitosan (Student Poster #24)

Paper # 1186632

Ying-Chen Chen, National Chung Hsing University; Dae-Hyeon Kim, Pukyung National University

Adsorption and Photocatalytic Reduction of Cr(VI) on Biochar Modified ZnO Composite (Student Poster #26)

Paper # 1186727

Kamonchanok Huangmee, National Chung Hsing University

Biodegradable Biochar Mulches Derived from Agricultural Wastes for Sustainable Agriculture and Environmental Benefits (Student Poster #27)

Paper # 1186787

Kesine Lamsaard, National Chung Hsing University

Food Waste Valorization via Hydrothermal Liquefaction Process: Biofuels and Value-Added Product Recovery (Student Poster #32)

Paper #1234603

Hengameh Bayat, Mostafa Dehanizadeh, Catherine Brewer, New Mexico State University

Wastewater/Water Treatment and Sludge Beneficial Use

Upgrading Wastewater for Irrigation Use: A Sustainable Approach to Removing Multiple Organics of Emerging Concern (Student Poster #6)

Paper # 1165704

Mithila Chakraborty, The University of Texas at Arlington

TECHNICAL SESSIONS – TUESDAY

Tuesday, June 28, 2022

Time	Title	Track	Session	Room
8:30 am – 10:30 am	Opening Keynote Plenary: The Role of Science in Environmental Justice		Panel	Grand Ballroom BC
10:30 am – 5:30 pm	Exhibit Hall Open			Pacific Concourse
10:45 am – 12:15 pm	Poster Session		Posters	Exhibit Hall
11:55 am – 1:15 pm	Technical Coordinating Committee Meetings			See page 21
Tuesday PM1				
1:30 pm – 3:30 pm	EPA Priorities 2022-2023	MINI/REGU	panel	Bayview B
1:30 pm – 3:30 pm	Ambient Air Quality Dispersion Modeling Issues	AQMO/REGU	panel	Bayview A
1:30 pm – 3:30 pm	Air Pollution Control	AQCT	platform	Seacliff A
1:30 pm – 3:30 pm	Roadway Emissions	TRAN	platform	Seacliff C
1:30 pm – 3:30 pm	Monitoring Tools, Development of Emission Inventories, Challenges and Impacts	AQES	platform	Seacliff B
1:30 pm – 3:30 pm	Environmental Justice and Community Monitoring	AQMM	platform	Marina
1:30 pm – 3:30 pm	Sustainability Metrics and Analytics	SUST	platform	Seacliff D
1:30 pm – 3:30 pm	Nanosafety: Research and Regulations	INDU	panel	Regency AB
3:30 pm – 4:00 pm	Session Break			Exhibit Hall
Tuesday PM2				
4:00 pm – 6:00 pm	Community-Based Solutions and Environmental Justice	MINI/REGU	platform	Bayview A
4:00 pm – 6:00 pm	Evaluation of Minor Source Modeling in the US	AQMM	panel	Bayview B
4:00 pm – 6:00 pm	Vapor Intrusion and Site Investigation	WAST	platform	Seacliff D
4:00 pm – 6:00 pm	Clean Energy Technologies: Issues, Case Studies and a Path to Net-Zero Goals	INDU/CLIM	platform	Seacliff A
4:00 pm – 6:00 pm	Air Permitting, Compliance, Enforcement Issues, and Case Studies	REGU	platform	Seacliff B
4:00 pm – 6:00 pm	International Air Quality Challenges and Insights	AQMM	platform	Marina
4:00 pm – 6:00 pm	Sustainable Waste/Materials Management and Circular Economy	SUST	platform	Seacliff C

TECHNICAL SESSIONS – TUESDAY

EPA Priorities 2022-2023

Track: MINI/REGU
6/28/2022, 1:30 PM
Room: Bayview B

Panel Session – TCC: REG

Chair: David Jordan, Environmental Resources Management
Vice Chair: John Koehler, Yorke Engineering, LLC

As we embark into the second year of the Biden administration, the FY 2022-2026 EPA Strategic Plan is expected to be in place by the time of the June 2022 ACE. The Strategic Plan communicates EPA's vision, priorities, and strategies to accomplish the agency's mission over the next four years. Strategic Plan goals will include tackling the climate crisis, taking decisive action to advance environmental justice, safeguarding and revitalizing communities, enforcing environmental laws and compliance, and ensuring healthy air, safe water, and safety from chemicals in the environment. The senior EPA official will present comments on EPA's current and future priorities. Other panel members will address the challenges meeting the EPA and state/local priorities, and provide comments on their initiatives.

Panelists:

- *Joseph Goffman, Principal Deputy Assistant Administrator, Office of Air and Radiation (OAR), USEPA*
- *Richard Corey, Executive Officer, California Air Resources Board*
- *Alex Bond, Deputy General Counsel, Climate & Clean Energy, Edison Electric Institute*
- *Environmental Defense Fund (panelist to be announced)*

Air Pollution Control

Track: AQCT
6/28/2022, 1:30 PM
Room: Seacliff A

Platform – TCC: AAC

Chair: Arijit Pakrasi, Edge Engineering and Science LLC
Vice Chair: Nathan Schindler, Evonik Corporation

1:30 PM

Simultaneous Removal of hg0 and NO by Self-prepared tio2{001} and ceo2/tio2{001} at High Temperatures

Paper # 1138511
Chung-Shin Yuan, National Sun Yat-sen University; Zu-Bei Lin; Iau-Ren Ie, National Sun Yat-Sen University; Ji-Ren Zheng

1:50 PM

Amine-Functionalized Silica Materials for Biogas Upgrading

Paper # 1165249
Masoud Jahandar Lashaki, Florida Atlantic University; Dung Lam

2:10 PM

Advanced Completely Dry Multipollutant Emission Control in the Exhaust of Biomass and Waste Fueled Gasification, Pyrolyzing and Boiler Application

Paper # 1184312
Martin Schroeter, Tri-Mer Corp.

2:30 PM

Application of Fly Ash/Blast Furnace Slag-Based Geopolymers for H₂S Adsorption

Paper # 1166019
Manisha Kothari, Ashraf Aly Hassan, Hilal El hassan, United Arab Emirates University

2:50 PM

Hazardous Air Pollutant (HAP) Capture and Control

Paper # 1168506
John Kirby, Arcadis, Inc.

3:10 PM

Photocatalytic Abatement of Ambient Nitric Oxide and Nitrogen Dioxide by Titanium Dioxide Coated Solar Panels

Paper # 1166329
Jesse Molar, Pierre Herckes, Matthew Fraser, Arizona State University

Monitoring Tools, Development of Emission Inventories, Challenges and Impacts

Track: AQES
6/28/2022, 1:30 PM
Room: Seacliff B

Platform – TCC: AAE

Chair: Juan Carlos Ramirez-Dorronsoro, Marietta College

1:30 PM

Prediction of PM_{2.5} Component Concentrations from Intermittent Measurements Using a Deep Neural Network Model

Paper # 1164549
Young Su Lee, Jae Young Kim, Seoul National University; Eunhwa Choi, Research Institute of Industrial Sciences & Technology

1:50 PM

Mechanistic Model for Estimating VOC Emissions from Agricultural Usage of Fumigant and Non-Fumigant Pesticides

Paper # 1174500
Saikat Ghosh, Pacific Northwest National Laboratory

2:10 PM

Challenges in Latin-America Air Quality Regulations: A Preliminary Survey Study

Paper # 1166007
Juan Ramirez Dorronsoro, Marietta College Environmental Engineering; Rodolfo Sosa Echeverria, University of Mexico (UNAM)

2:30 PM

PM_{2.5} Ambient Air Quality Standards: Time to Rethink Temporal Variability Morphology and Consider Nanoparticles

Paper #1174980
Yevgen Nazarenko, Devendra Pal, Parisa Ariya, McGill University; Sanjeev Dwivedi, Met Centre Bhubaneswar

2:50 PM

Filtration Characteristics of Dust Cakes

Paper # 1165976
Han-Sheng Huang, Institute of Environmental and Occupational Health Science, National Taiwan University; Chih-Chieh Chen, Sheng-Hsiu Huang, Chih-Wei Lin, National Taiwan University

TECHNICAL SESSIONS – TUESDAY

Environmental Justice and Community Monitoring

Track: AQMM
6/28/2022, 1:30 PM
Room: Marina

Platform – TCC: AAM
Chair: Patrick Clark, Montrose Air Quality Services, LLC
Vice Chair: Erick Mirabella

1:30 PM
Ambient Air Monitoring: A Necessary Tool in the Ongoing Fight for Environmental Justice
Paper # 1167799
Chris Whitehead, Enviro-Sciences

1:50 PM
A Screening Procedure to Assess the Impact of Odors, Toxic Chemicals, and Fires from Manufacturing Facilities
Paper # 1166348
Thomas Morahan, The Earth and Environmental Sciences Technology Transfer Working Group, LLC

2:10 PM
Shair – Local Scale Community Air Quality Exposure Case Study
Paper # 1166126
Maggie Isied, Ramboll

2:30 PM
Hyperlocal Air Pollution Intelligence in Support of Community-Focused Emissions Reductions
Paper # 1166693
Melissa Lunden, Aclima

Ambient Air Quality Dispersion Modeling Issues
Track: AQMO/REGU
6/28/2022, 1:30 PM
Room: Bayview A

Panel Session – TCC: REG
Chair: Gurinder (Gary) Saini, RTP Environmental Associates, Inc.

The experts on this panel will discuss the air quality dispersion modeling issues, including the difficulties involved in assessing the impacts of precursor emission changes on attainment strategies, emissions increase for modeling for a project, increment compliance etc. In addition, minor new source review and toxics modeling present significant challenges. This will be discussed from both a national and state level and both technical and legal issues will be identified.

Panelists:

- *Peter Keller, US EPA - Air Quality Policy Division*
- *Eric Hiser, Hiser Joy*
- *Bill Jones, Blue Sky Modeling, LLC*
- *Gurinder (Gary) Saini, RTP Environmental Associates, Inc.*

Sustainability Metrics and Analytics

Track: SUST
6/28/2022, 1:30 PM
Room: Seacliff D

Platform – TCC: SUS
Chair: Thomas Morahan, The Earth and Environmental Sciences Technology Transfer Working Group, LLC
Vice Chair: Georges Bou-Saab, Arcadis U.S., Inc.

1:30 PM
Application of Digital Strategies to Global Environmental and Sustainability Reporting Challenges: How to Manage Environmental Data at a Global Scale with Innovative Digital Solutions
Paper # 1174433
Mona Hazur, Patrick Moquin, Arcadis

1:50 PM
Natural Born Negatives: Using Natural Climate Solutions in Net Zero Plans
Paper # 1166185
Matthew Jones, Woodard & Curran

2:10 PM
Carbon Neutrality and Environmental Analyses
Paper # 1164931
Alexa Molthen, Michael Conrardy, Kevin Taylor, AECOM

2:30 PM
Modeling Pandemic Health Data
Paper # 1165654
Louis Theodore, Theodore Tutorials; R. Dupont, Utah Water Research Laboratory, Utah State University

Roadway Emissions
Track: TRAN
6/28/2022, 1:30 PM
Room: Seacliff C

Platform – TCC: OMS
Chair: Shams Tanvir
Vice Chair: Gurdas Sanhu

1:30 PM
GHG Inventory Development for Utility Construction Services
Paper # 1164739
Kerry Weichsel, Iconic Air; Matthew Hanley, Artera Services; Leah Blinn, Civil and Environmental Consultants, Inc.

1:50 PM
Estimating Emission Benefits of Electronic Open-Road Tolling Conversion Projects
Paper # 1174898
Andrew Eilbert, Anne-Marie Chouinard, Anjulie Mittelman, US Department of Transportation/Volpe Center

TECHNICAL SESSIONS – TUESDAY

2:10 PM

Near Roadway Dispersion Model Evaluation Using Multiple Tracers

Paper # 1148547

Edward Carr, ICF

2:30 PM

Black Carbon Exposures and Trends in Detroit, Michigan: Synthesis of Fixed, Mobile and Indoor 2019-2020 Measurements

Paper # 1193215

Tian Xia, Julia Ranases, Simone Sagovec, Sarah Hoogterp, Stuart Batterman, University of Michigan

2:50 PM

Low Carbon Fuel Standard Programs Expansion and Lessons Learned After First Year of Verification

Paper # 1167629

Cassandra Drotman, SCS Engineers

3:10 PM

Input Requirements for Modeling the Microscale Spatial Distribution of Emission Hotspots Based on Real-World Measured Vehicle Activity

Paper # 1166083

Christina Quaassdorff, Universidad Politécnica de Madrid / North Carolina State University

Nanosafety: Research and Regulations

Track: INDU

6/28/2022, 1:30 PM

Room: Regency AB

Panel Session – TCC: NAN

Chair: Yevgen Nazarenko, McGill University

Vice Chair: Roya Mortazavi, McGill University

In this panel session, we will focus on nanosafety, which includes three main directions of effort: environmental safety, public health and safety, and occupational health and safety. The composition and different scenarios of use of nanotechnology-based materials and products determine their hazard potential. Exposure assessment and toxicological investigations are a major aspect of nanosafety examination for a given nanomaterial or nanoparticle. These are sometimes prescribed and detailed in the nanotechnology regulations. Protecting workers who may come in contact with nanomaterials and be exposed in the workplace requires a separate set of regulations issued by agencies responsible for occupational health and safety. The topics covered will include the use of nanomaterials in environmental remediation, nanosafety, including assessment of nanotechnology-based consumer products, exposure to nanomaterials and advanced materials, sustainability consideration, engineering controls, and regulation of nanotechnology. The panelists will also discuss the status of advanced materials in the industry and the actions moving toward green and sustainable manufacturing.

Panelists:

- *Roya Mortazavi, McGill University, Department of Atmospheric and Oceanic Sciences*
- *Candace Tsai, University of California Los Angeles*
- *Gediminas "Gedi" Mainelis, Rutgers University/Aerosol and Air Quality Research*
- *Yevgen Nazarenko, McGill University*

Community-Based Solutions and Environmental Justice

Track: MINI/REGU

6/28/2022, 4:00 PM

Room: Bayview A

Platform – TCC: APM/REG

Chair: John Koehler, Yorke Engineering, LLC

Vice Chair: Harish Rao, RCS

4:00 PM

Supporting Emissions Reduction Planning in Richmond, California, Using a Novel Data-Driven Modeling Approach

Paper # 1165509

Ayah Hassan, Shari Libicki, Greg Yarwood, Ramboll

4:20 PM

Understanding Biases in Emission Inventories with the Shair Real-Time Air Quality Modeling System in Richmond, California

Paper # 1164602

Justin Bando, Ramboll

4:40 PM

Environmental Justice and Its Impacts on Air Permitting

Paper # 1165298

Qi Zhang, GHD

5:00 PM

Analysis of Changes to Environmental Justice-Related Air Pollutant Concentration and Public Health from 100% Renewable Energy Pathways for the City of Los Angeles (LA100)

Paper # 1166247

Vikram Ravi, National Renewable Energy Laboratory

Evaluation of Minor Source Modeling in the US

Track: AQMO

6/28/2022, 4:00 PM

Room: Bayview B

Panel Session – TCC: APM

Chair: Sergio Guerra, Braun Intertec

Vice Chair: George Schewe, Trinity Consultants

For minor sources, the Clean Air Act does not provide clear guidance related to modeling requirements. Instead, each state or designated permitting authority is given discretion on developing and implementing minor source modeling policies that ensure the protection of the NAAQS. Through these legally enforceable procedures, states can devise a minor source modeling program that addresses the specific needs of the areas under their jurisdiction. Given this, the requirements for modeling minor sources are sometimes unclear because of the discretionary nature of the relevant statutory and regulatory provisions. This panel will explore how different regulatory agencies address minor source modeling.

Panelists:

- *Chad Dumas, Texas Commission on Environmental Quality*
- *Eric Peters, New Mexico Environment Department*
- *Kristen Martin, Oregon Department of Environmental Quality*
- *Dawn Froning, Missouri Department of Natural Resources*
- *Kelly Robson, Missouri Department of Natural Resources*

TECHNICAL SESSIONS – TUESDAY

International Air Quality Challenges and Insights

Track: AQMM
6/28/2022, 4:00 PM
Room: Marina

Platform – TCC: AAM

Chair: Erick Mirabella

Vice Chair: Patrick Clark, Montrose Air Quality Services, LLC

4:00 PM

The NASA TEMPO Mission: A New Era of Satellite Remote Sensing Data for Air Quality Management Applications

Paper # 1234602

Aaron Naeger, University of Alabama in Huntsville / NASA

4:20 PM

Prediction of Deposited Ambient Dust in a Metallurgical City of Brazil Using Receptor and Dispersion Modelling

Paper #1161426

Monica Lima, Diego Rangel da Silva, Guilherme Costa, Sr., Usiminas

4:40 PM

Climatology and Trend of Pittsburgh, Pennsylvania Morning and Evening Temperature Inversions (1991 - 2020)

Paper # 1161547

Anthony Sadar, Environmental Science Communication, LLC

5:00 PM

Trends Analysis and Assessment of Seasonal Forcing on Air Quality in Hyderabad Metropolitan Region of India

Paper # 1172579

Venkata Botlaguduru, Indian Institute of Technology Bombay

Clean Energy Technologies: Issues, Case Studies and a Path to Net-Zero Goals

Track: INDU/CLIM
6/28/2022, 4:00 PM
Room: Seacliff A

Platform – PIM/PWR

Chair: Charles Baukal, John Zink Co. LLC

Vice Chair: Kaitlyn Watkins, Florida Power and Light

4:00 PM

Permitting Case Study of Introducing Blended Hydrogen and Natural Gas Fuel for Power Generation

Paper # 1174114

Sara Head, Greg Wolffe, James Adams, Yorke Engineering, LLC

4:20 PM

Use of Carbon Offsets in Pursuing Carbon Neutrality

Paper # 1166471

Adam Conti, Civil & Environmental Consultants, Inc.

4:40 PM

Estimating GHG Reduction from Batteries

Paper # 1194546

Kaitlyn Watkins, Florida Power and Light

5:00 PM

Tampa Electric Company 1MW Floating Solar R&D Project

Paper # 1173649

Amy Butler, Tampa Electric Company; Jordan Ekhlassi

5:20 PM

Impact on Emissions from High Hydrogen Combustion

Paper # 1166168

Charles Baukal, John Zink Co. LLC; Steve Londerville; Matt Whelan; Bill Johnson; Michel Haag; Gilles Theis; Ali Gueniche, KES Global

Air Permitting, Compliance, Enforcement Issues, and Case Studies

Track: REGU
6/28/2022, 4:00 PM
Room: Seacliff B

Platform – TCC: REG

Chair: Kevin Eldridge, Environmental Resources Management

Vice Chair: Paul Siebert, Weston Solutions, Inc.

4:00 PM

Understanding the CAA: A Unique Perspective

Paper # 1165036

Eric Weber, Scott Lyons, McCoy and Associates

4:20 PM

Addressing Cumulative Impacts of Air Toxics in Air Permitting

Paper # 1166415

Lauren Rucinski, Kean Miller LLP

4:40 PM

Permitting Challenges for Wastewater Treatment Plants in California

Paper # 1174152

James Yorke, Sara Head, Yorke Engineering, LLC

5:00 PM

The Texas Environmental Health and Safety Audit Privilege Act

Paper # 1166325

Jon Greene, CEC, Inc.

Sustainable Waste/Materials Management and Circular Economy

Track: SUST
6/28/2022, 4:00 PM
Room: Seacliff C

Platform – TCC: SRC

Chair: Mingming Lu, University of Cincinnati

Vice Chair: Chih Chao, Cantech Environmental Services

4:00 PM

The Repurposing of Tires

Paper # 1158203

Brian Gallagher, Owen Breisch, Andrew Slusser, Saritha Karnae, Wilkes University

TECHNICAL SESSIONS – TUESDAY

4:20 PM

A Carbon-Based Economy: The Future of Engineering

Paper # 1166157

Michael Lurenana, Burns & McDonnell

4:40 PM

Community-Based Biowaste Circularity; Assessing the Environmental Impacts of Affordable Organic Waste Management in Low-Income Communities

Paper # 1166173

Atinuke Chineme, Getachew Assefa, Alejandro Padilla-Rivera, University of Calgary

5:00 PM

Economic Analysis of Municipal Solid Waste Management in the U.S. —A State-Level Review and Discussion

Paper # 1167138

Yufan Jiang, University of Illinois Chicago

5:20 PM

Global Practices and Policy Instruments in Circular Economy: Learnings for India

Paper # 1175914

Mercy Samuel, CEPT University

5:40 PM

Importance of Waste Management in Terms of Climate Change

Paper # 1165755

Salih Tasci

Vapor Intrusion and Site Investigation

Track: WAST

6/28/2022, 4:00 PM

Room: Seacliff D

Platform – TCC: WMR

Chair: Chris Lutes, Jacobs

Vice Chair: Tonia Burk, ATSDR

4:00 PM

Best Science and Practices in ATSDR Evaluations of Vapor Intrusion Exposure Pathways

Paper # 1145559

Tonia Burk, ATSDR; Sandra Miller, ATSDR; James Durant, Miranda Mitchell; William Morgan, Eastern Research Group, Inc.; Danielle Langmann

4:20 PM

What's New in Vapor Intrusion?

Paper # 1165420

Michael Niemet, Loren Lund, Christopher Lutes, Jacobs

4:40 PM

Analysis of USEPA's Vapor Intrusion Database Using Statistical and Machine Learning Algorithms

Paper # 1166212

Harvinder Singh, Ryan Leatherbury, Mark Kleiner, Weston Solutions

5:00 PM

Economic Analyses of Vapor Intrusion Investigation, Mitigation and Remediation – What Has Been Done and How Can It Help You?

Paper # 1164201

Christopher Lutes, Jacobs; Jeffrey Minchak; Keri Hallberg; Laurent Levy, Jacobs Engineering Group

5:20 PM

How to Minimize Your Environmental Footprint During Site Assessment

Paper # 1166027

Andrew Horwath, Civil & Environmental Consultants, Inc.; Rob Hoverman, EnviroForensics

5:40 PM

Case Study of Continuous Indoor Air Monitoring for Evaluating Sites with Vapor Intrusion Risk

Paper # 1192846

Harish Rao, RCS

TECHNICAL SESSIONS – WEDNESDAY

Wednesday, June 29, 2022				
Time	Title	Track	Session	Room
Wednesday AM1				
8:00 am – 9:40 am	Satellite Perspectives on Environmental Justice	MINI/REGU	panel	Bayview A
8:00 am – 9:40 am	Title V Implementation Significant Issues and Challenges	REGU	panel	Marina
8:00 am – 9:40 am	PFAS Remediation, Wastewater Treatment and Soil Ecology	WAST	platform	Seacliff B
8:00 am – 9:40 am	E-Enterprise for Environment: Streamlining Air Emissions Reporting	AQES	panel	Bayview B
8:00 am – 9:40 am	Near-Roadway Exposures and Health Risks	TRAN/H&EE	platform	Seacliff C
8:00 am – 9:40 am	Oil and Gas Operations: What's Up with Methane	INDU/CLIM	platform	Seacliff A
8:00 am – 9:40 am	Landfill and Solid Waste Related Energy	WAST	platform	Seacliff D
9:40 am – 10:10 am	Session Break			Exhibit Hall
Wednesday AM2				
10:10 am – 11:50 am	Wildfire Environmental Impacts and Risk Management	MINI/H&EE	platform	Bayview A
10:10 am – 11:50 am	Air Permitting Problems and Solutions	REGU	panel	Bayview B
10:10 am – 11:50 am	Source and Fugitive Emissions Measurement	AQMM	platform	Marina
10:10 am – 11:50 am	Accelerating the Transition to Heat Pump Water Heaters through Supply Chain Intervention	CLIM	panel	Seacliff B
10:10 am – 11:50 am	How Does It Work? Waste Management Methods	YPRO/WAST	panel	Seacliff D
10:10 am – 11:50 am	Environmental Justice Considerations for Energy and Industry	INDU	platform	Seacliff A
10:10 am – 11:50 am	Environmental Issues for Seaports	TRAN	platform	Seacliff C
11:55 am – 1:15 pm	Technical Coordinating Committee Meetings			See page 21
Wednesday PM1				
1:30 pm – 3:10 pm	The Integrated Toolbox Needed to Respond to PFAS Investigation Requests	MINI/WAST	panel	Bayview B
1:30 pm – 3:10 pm	NSR—Issues and Recent Developments	REGU	panel	Bayview A
1:30 pm – 3:10 pm	How Does It Work? Refining	YPRO/INDU	panel	Seacliff A
1:30 pm – 3:10 pm	The Evolving Landscape of Carbon Neutrality Goals	CLIM	panel	Seacliff B
1:30 pm – 3:10 pm	Corporate Environmental and Social Governance (ESG)	SUST	panel	Seacliff D
1:30 pm – 3:10 pm	Changing Requirements Affecting Government Facilities	GOVS	platform	Marina
1:30 pm – 3:10 pm	Electric and Connected Vehicles	TRAN	platform	Seacliff C
3:10 pm – 3:30 pm	Session Break			Exhibit Hall
Wednesday PM2				
3:30 pm – 5:30 pm	Contaminants of Concern: PFAS and PCBs	MINI/WAST	platform	Bayview A
3:30 pm – 5:30 pm	Regional Haze and Aerosol Optical Properties	AQMM	platform	Marina
3:30 pm – 5:30 pm	Hydrogen Fuel for Power Generation, Decarbonization, and Emissions Control	CLIM/INDU	panel	Bayview B
3:30 pm – 5:30 pm	Accelerating the Transition away from Diesel	TRAN/CLIM	panel	Seacliff B
3:30 pm – 5:30 pm	Innovative Topics in Air Quality Modeling	AQMO	platform	Seacliff C
3:30 pm – 5:30 pm	Solid Waste Emissions: Regulations and Modeling	WAST	platform	Seacliff D
3:30 pm – 5:30 pm	Community Air Monitoring: A Roundtable Discussion on Successes and Challenges	YPRO/AQMM	panel	Seacliff A
3:30 pm – 5:30 pm	Site Remediation and Metals Treatment	WAST	platform	Regency AB
5:30 pm – 6:30 pm	Exhibitor Networking Reception			Exhibit Hall

Legend			
Tracks		Tracks	
AQCT	Air Quality – Control Technology	INDU	Industry, Power, Energy, and Petroleum Manufacturing
AQES	Air Quality – Emissions Studies	MINI	Mini-Symposium: Inclusive Environmental Solutions
AQMM	Air Quality – Measurements and Monitoring	REGU	Regulatory and Legal
AQMO	Air Quality – Modeling	SUST	Sustainability and Resource Conservation
CLIM	Climate Change	TRAN	Transportation
GOVS	Government and Public Sector	WAST	Waste Management
H&EE	Health and Environmental Effects	YPRO	Young Professionals

TECHNICAL SESSIONS – WEDNESDAY

Satellite Perspectives on Environmental Justice

Track: MINI/REGU
6/29/2022, 8:00 AM
Room: Bayview A

Panel – TCC: AAM

Chair: Laura Judd, NASA Langley Research Center

Vice Chair: Helena Chapman, NASA HQ/Booz Allen Hamilton

As one of their first acts in 2021, the Biden-Harris administration called upon governmental agencies to 'make achieving environmental justice part of their missions.' For decades, missions supported by federal and international agencies (e.g., NASA, NOAA, ESA) continue to collect exponentially growing volumes of publicly available environmental data. These data products provide a global view on how humans impose changes to our terrestrial, water, and atmospheric systems at increasingly improved spatial and temporal resolutions through time. Our panelists will discuss the utility of satellite data to identify, describe, and quantify environmental inequalities and associated public health damages. Observational datasets to be discussed cover topics related to air quality, heat, and light pollution with recommendations and advice toward connecting these datasets with stakeholders looking to better understand environmental injustices. Through these presentations, our panelists will share their challenges and successes in using remotely-sensed Earth observations for observing human impacts on our environment and paths toward achieving environmental justice.

Panelists:

- *John Haynes, NASA Applied Sciences Program*
- *Qian Xiao, University of Texas Health Science Center at Houston*
- *Gaige Kerr, George Washington University*
- *Angelique Demetillo, University of Virginia*
- *Matthew Tejada, US EPA*

E-Enterprise for Environment: Streamlining Air Emissions Reporting

Track: AQES
6/29/2022, 8:00 AM
Room: Bayview B

Panel – TCC: AAE

Chair: Julia Gamas, US EPA

Vice Chair: Chun-Yi Wu, Minnesota Pollution Control Agency

Federal and State, Local, and Tribal (SLT) governments require industry to report facility and air emissions data to various programs and with various levels of detail. The EPA, in addition, requires states to report emissions data collected from industry. Furthermore, some program requirements are similar amongst federal and state programs, leading to redundancy and/or differences in data reported where there should be none. Combined Air Emissions Reporting System (CAERS) developed by EPA and SLT is a good example of the effort. In this panel we will showcase existing applications, systems, and tools to gather feedback from presenters and attendees on needed and desired improvements to existing systems, needs that are not being met by current systems, and new functionality that would further facilitate and streamline emissions reporting by industry. The panel will include enhancements to federal air emissions reporting tools (such as CAERS and WebFIRE), as well as lessons learned from SLT reporting systems and experiences reporting to the

EPA. Industry perspective will also be represented by presenters who will share their reporting tools and experiences.

Panelists:

- *Casey B. Myers, US EPA*
- *Julia A. Gamas, US EPA*
- *Joseph Jakuta, Department of Energy and Environment*
- *Stacy Arner, ALL4 LLC*
- *Chun Yi Wu, Minnesota Pollution Control Agency*

Oil and Gas Operations: What's Up with Methane

Track: INDU/CLIM
6/29/2022, 8:00 AM
Room: Seacliff A

Platform – TCC: PIM

Chair: Christina Akly, NextEra Energy

Vice Chair: Kaitlyn Watkins, Florida Power and Light

8:00 AM

Fracking for Natural Gas: Air Quality Boost or Bust?

Paper # 1165052
Joe Duckett, EJD Consulting

8:20 AM

Perspectives on the Proposed New Source Performance Standards at Subparts OOOOb and OOOOc to Reduce Methane from the Oil and Natural Gas Industry

Paper # 1165990
Tony Widboom, Barr Engineering Co.

8:40 AM

Upstream Natural Gas Methane Emissions Reduction Strategies – Confluence of Mandatory and Voluntary Initiatives Including Regulation, Target Setting, and Responsibly Sourced Gas Certification

Paper # 1166550
Andrea Siefers, Geosyntec Consultants, Inc.; Michael Rabbani, MiG

9:00 AM

Comprehensive Summary of Quantification Capabilities of Methane Emissions Using Airborne Hyperspectral Camera

Paper # 1165196
Jean-Philippe Gagnon, Vince Morton, Wes Autran, Telops

9:20 AM

Mobile Monitoring to Detect and Quantify Natural Gas Releases

Paper # 1193870
Tian Xia, Julia Ranases; Stuart Batterman, University of Michigan

Title V Implementation Significant Issues and Challenges

Track: REGU
6/29/2022, 8:00 AM
Room: Marina

Panel – TCC: REG

Chair: Gurinder (Gary) Saini, RTP Environmental Associates, Inc.

Vice Chair: Colin Campbell, RTP Environmental Associates, Inc.
The Title V Program has been in place for over two decades. A Title V (or Part 70) Operating permit incorporates all applicable requirements

TECHNICAL SESSIONS – WEDNESDAY

for a source and establishes requirements for compliance certification. This creates significant obligation on part of the source owners and operators to ensure that they can certify compliance with all the requirements in their Title V permit. In addition, modifications and renewals of Title V permit can create significant issues and opportunity for objection by or petition to the U.S. EPA Administrator. The objection process can create uncertainty regarding historical new source review actions. A panel of experts will address significant issues and challenges observed in implementation of Title V program.

Panelists:

- *Gurinder (Gary) Saini, RTP Environmental Associates, Inc.*
- *Eric Hiser, Hiser Joy*
- *Shannon Broome, Hunton Andrews Kurth LLP*
- *Jason Krawczyk, ERM*

Landfill and Solid Waste Related Energy

Track: WAST

6/29/2022, 8:00 AM

Room: Seacliff D

Platform – TCC: WMB

Chair: David Greene, SCS Engineers

Vice Chair: Melanie Sattler, University of Texas at Arlington

8:00 AM

Renewable Natural Gas: The Future of Landfill Gas Energy Recovery?

Paper # 1175115

Lisa Damiano, Stephen Zemba, Sanborn, Head & Associates

8:20 AM

Generating Electricity from Municipal Solid Waste Bioreactor Using Thermoelectric Generators

Paper # 1164720

Shadi Moqbel, University of Jordan

8:40 AM

Prioritizing Organic Waste to Energy-Renewable: Development and Application of the POWER Framework

Paper # 1165822

Melanie Sattler, University of Texas at Arlington

9:00 AM

Converting an Existing Multiple Hearth Furnace into a Pyrolysis/Gasification System

Paper # 1174725

Lee Lundberg, Bedrock Enterprises, Inc.; F. Michael Lewis;

Stan Chilson; Roger T. Haug

9:20 AM

Is Thermal Energy Waste Processing the Next Step in Waste Treatment?

Paper # 1166169

Michael Lurenana, Burns & McDonnell

PFAS Remediation, Wastewater Treatment and Soil Ecology

Track: WAST

6/29/2022, 8:00 AM

Room: Seacliff B

Platform – TCC: WMR

Chair: Chris Lutes, Jacobs

Vice Chair: Paul Ruehl, LafargeHolcim

8:00 AM

Removal of Per- and Polyfluoroalkyl Substances from Contaminated Environments Through Phytoremediation Followed by Hydrothermal Liquefaction

Paper # 1165616

Weilan Zhang, Yanna Liang University at Albany, State University of New York

8:20 AM

Solution for Pre-Treatment for Refinery Water Containing PFAS

Paper # 1167583

Nicole Bolea, ECT2

8:40 AM

Effects of Hydrothermal and Ultrasonic Treatments on Removal of Per- and Polyfluoroalkyl Substances from Sewage Sludge

Paper # 1165572

Weilan Zhang, Yanna Liang, University at Albany, State University of New York

9:00 AM

Destructive Technologies Overview for Complete PFAS Treatment Solutions

Paper # 1167576

Nicole Bolea, Erika Houtz, ECT2

9:20 AM

PFAS Encapsulation in Landfill Leachate

Paper #1186256

Paul Reuhl, LafargeHolcim

Near-Roadway Exposures and Health Risks

Track: TRAN/H&EE

6/29/2022, 8:00 AM

Room: Seacliff C

Platform – TCC: HEE

Chair: James Morrow

Vice Chair: David McCready, EnviroCalc Consulting

8:00 AM

Air Pollution Exposure Assessment of E-Scooters: A Case Study in the City of Austin

Paper # 1159452

Suriya Vallamsundar, Trinity Consultants; Madhusudhan Venugopal.

Rohit Jaikumar, Texas A&M Transportation Institute

8:20 AM

Community Health Equity Evaluation for the San Diego Regional Plan

Paper # 1166553

Seth Hartley, Kristy Weber, ICF; Matt McFalls; Kate Munson; Anna

Belova; Kirsten Uchitel; Keith Greer; Kathie Washington

TECHNICAL SESSIONS – WEDNESDAY

8:40 AM

Studying the Effect of Built Environment on Traffic Safety with Random Parameter and Generalized Ordered Logit Models

Paper # 1150434

Sharaf Alkheder

9:00 AM

Health Risks of Atmospheric BTEX at an Urban Roadside of a North Indian Terai Region

Paper # 1159842

Amit Masih, St. Andrews's College, Gorakhpur, UP, India; J. K. Lal

Wildfire Environmental Impacts and Risk Management

Track: MINI/H&EE

6/29/2022, 10:10 AM

Room: Bayview A

Platform – TCC: APM/CCI

Chair: John Koehler, Yorke Engineering, LLC

Vice Chair: Joshua Fu, CCI, University of Tennessee Knoxville

10:10 AM

Wildfire Impacts on Air Toxics in the Western US Under a Changing Climate

Paper # 1169433

Joshua Fu, CCI, University of Tennessee Knoxville

10:30 AM

Wildfire Risk Management: A Climate Friendly Alternative to Prescribed Burn

Paper # 1164974

Varalakshmi Jayaram, Ryan Condensa, Julia Lester, Ramboll; Akshay Ashok; Kevin Barker; Sheetal Madhani

10:50 AM

Wildfire Risks Influence the Changes to Utility Infrastructures and Land Use Developments

Paper # 1166561

Michael Slavick, EnSafe Inc.

Source and Fugitive Emissions Measurement

Track: AQMM

6/29/2022, 10:10 AM

Room: Marina

Platform – TCC: AAM

Chair: Brian O'Shea, ERM

Vice Chair: Douglas Dziubla, ERM

10:10 AM

The Evolution of Methane Emissions Measurements at Landfills: Where Are We Now?

Paper # 1166621

Patrick Sullivan, Ray Huff, SCS Engineers

10:30 AM

Experts Panel Review of Solar Occultation Flux and Other Measurements to Determine Emission Factors from the Oil and Gas Refinery Sector

Paper # 1183293

Peter Zemek, Montrose Environmental Group/ECT2, John Watson, Desert Research Institute

10:50 AM

Utilizing TDLS & UV DOAS Optical CEMS to Meet EPA Compliance

Paper # 1166337

Gary Cacciatore, CEMTEK KVB-Enertec

11:10 AM

We Know How to Determine PFAS in Water and Soil; What About Air?

Paper # 1166504

Michael Krall, Montrose Air Quality Services

11:30 AM

Cannabis Emissions Air Quality Impacts and Environmentally Friendly Mitigation Solutions

Paper # 1154354

Alex Guenther, Byers Emissions Analysis; Josh Rembusch

Accelerating the Transition to Heat Pump Water Heaters through Supply Chain Intervention

Track: CLIM

6/29/2022, 10:10 AM

Room: Seacliff B

Panel – TCC: CCP

Chair: Abby Young, Bay Area Air Quality Management District

This panel will present on the experiences of three different local agencies in implementing grant projects aimed at accelerating use of heat pump water heaters (HPWHs) by impacting different elements of the heat pump supply chain, as well as end users. The panel will address the themes of local government policy initiatives and clean energy. All presenters represent public agencies in the San Francisco Bay Area. Projects were funded by the Bay Area Air Quality Management District.

Panelists:

- *Karen Kristiansson, BayREN*
- *Amanda Leonis, City of San Jose*
- *Jennifer West, StopWaste*

Environmental Justice Considerations for Energy and Industry

Track: INDU

6/29/2022, 10:10 AM

Room: Seacliff A

Platform – TCC: PIM/PWR

Chair: Karen Brignac, Deltech Monomers OpCo, LLC

Vice Chair: Christina Akly, NextEra Energy

10:10 AM

Recent Public Comments on Permits in Environmental Justice Areas

Paper # 1166180

Karen Brignac, Deltech Monomers OpCo, LLC

TECHNICAL SESSIONS – WEDNESDAY

10:30 AM

Environmental Justice Considerations in Air Permitting

Paper # 1166188

Kelley Begin, Woodard & Curran

10:50 AM

Novel Uses of Air Quality Modeling Screening Techniques for Environmental Justice Analyses

Paper # 1175276

David Long, American Electric Power Service Corporation

11:10 AM

“Cancer Alley” Is Back – Environmental Justice in Louisiana from the 90’s to Now

Paper # 1166293

Karen Brignac, Deltech Monomers OpCo, LLC

11:30 AM

Deploying a Next Level Environmental Justice Program: Data, Measures, and Metrics

Paper # 1201586

Alexandra Dunn, Baker Botts

Air Permitting Problems and Solutions

Track: REGU

6/29/2022, 10:10 AM

Room: Bayview B

Panel – TCC: REG

Chair: Kevin Eldridge, ERM

Vice Chair: Paul Siebert, Weston Solutions, Inc.

This panel will discuss permitting issues and permit conditions that are prone to problems from various industry, government, and environmentalist perspectives. Air pollutant emission sources are generally required to obtain construction and operating permits from state, provincial or local air quality agencies, or directly from the US EPA or Environment Canada. 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 essential to ensure the best permit that can be obtained. The panel will discuss alternative conditions and other remedies for problem permit conditions. Although modification of permit conditions is within the exclusive purview of the permitting agency, permitting agency personnel may have little familiarity with local issues or the difficulty of complying with some permit conditions. Facility personnel should strive to explain inherent difficulties and costs with some permit conditions, so they can be changed when in draft or final form.

Panelists:

- *Paul Siebert, Weston Solutions, Inc.*
- *Kevin Eldridge, ERM*
- *Daniel Guido, ERM*
- *Tiffany Dillow, ERM*

Environmental Issues for Seaports

Track: TRAN

6/29/2022, 10:10 AM

Room: Seacliff C

Platform – TCC: OMS

Chair: Robert Mentzer, HMMH

Vice Chair: Shams Tanvir, California Polytechnic State University

10:10 AM

Evaluation of Source Parameterization in CALPUFF for Tug and Ocean Vessel Emissions

Paper # 1161701

Piotr Staniaszek, AECOM

10:30 AM

Pollution from Marine Fuel Sales at the Port of Singapore

Paper # 1163758

Xiaoli Mao, Dan Rutherford, Liudmila Osipova, Elise Georgeff International Council on Clean Transportation

10:50 AM

Emission Testing Challenges for Vessels at Berth in California

Paper # 1166005

Kevin Crosby, Montrose Air Quality Services, LLC

11:10 AM

New Options for Compliance with the Emission Control Area and CARB At-Berth Air Toxic Regulations

Paper # 1201587

Martin Dillon, Lhoist North America; Cameron Kiani; Rod Gravley

How Does It Work? Waste Management Methods

Track: YPRO/WAST

6/29/2022, 10:10 AM

Room: Seacliff D

Panel – TCC: SRC

Chair: Kristin Fritchman, Energy Transfer

Vice Chair: Skyler Davis, Edge Engineering and Science

This panel will provide a general overview of the solid waste management methods industry from a variety of perspectives. The presenters will discuss municipal solid waste programs, landfill design and operation, organics/food waste management, and the circular economy. Panelists will also discuss trends impacting their industry, including new/proposed regulations, sustainability efforts, climate change, and environmental justice. This is an introductory panel presentation for all attendees but is focused on reaching the student/young professional attendee. The attendee should walk away with a general understanding of each industry discussed and the environmental challenges each faces.

Panelists:

- *Skyler Davis, Edge Engineering & Science*
- *Michael Bradford, SCS Engineers*
- *David Greene, SCS Engineers*
- *Alexis Krekel, Recology*
- *Michelle Leonard, SCS Engineers*

The Integrated Toolbox Needed to Respond to PFAS Investigation Requests

Track: MINI/WAST

6/29/2022, 1:30 PM

Room: Bayview B

Panel – TCC: WMR

Chair: Nick Palatiello, Barr Engineering Co.

Increasingly, regulated industry as well as public entities are receiving requests from state and federal regulators to sample and analyze their facilities contributions to PFAS in the environment, frequently

TECHNICAL SESSIONS – WEDNESDAY

under the auspices of gathering data for the purpose of furthering scientific knowledge and the buildout of regulatory structures. Doing so is often not straightforward, since for facilities that may have contributed to PFAS releases, the documentation of their releases could lead to legal liability. Further, once contamination is discovered, remediation and treatment can be complicated, as the PFAS treatment industry remains in an initial growth phase. For this panel discussion, speakers representing the legal, environmental consulting, and PFAS remediation technology industries will talk through case studies of how to best respond to requests for PFAS testing, in order to balance the information needs of the public with the facility's legal liability and future ability to remediate and treat PFAS if it is discovered.

Panelists:

- *Tammy Helminski, Barnes & Thornburg LLP*
- *Sara Ramsden, Barr*
- *AnnieLu DeWitt, Clean Harbors*

The Evolving Landscape of Carbon Neutrality Goals

Track: CLIM

6/29/2022, 1:30 PM

Room: Seacliff B

Panel – TCC: CCP

Chair: Chris Easter, Environmental Science Associates (ESA)

Vice Chair: Michelle Le, Environmental Science Associates (ESA)

Carbon neutral commitments by governments and private companies are increasing every year in an effort to address the climate crisis. More than 20% of the world's largest 2,000 publicly-traded companies have now made a carbon neutral commitment, roughly twice as many as in 2019. At the same time, guidelines and frameworks continue to evolve: for example, Science Based Targets initiative (SBTi) recently announced the world's first science-based framework for setting corporate net-zero targets. Join us as we explore the latest developments in carbon reduction pledges and how to successfully navigate the changing landscape.

Panelists:

- *Jeff Caton, Environmental Science Associates (ESA)*
- *Lizzie Aldrich, Bluesource*
- *Danielle Cagan, CSSA Insurance Group*
- *Abby Young, Bay Area Air Quality Management District*

Changing Requirements Affecting Government Facilities

Track: GOVS

6/29/2022, 1:30 PM

Room: Marina

Platform – TCC: GOV/IEA

Chair: Roger Wayson, AECOM

Vice Chair: Melissa Cary, Jacobs Engineering Group

1:30 PM

Climate Change Reporting and Planning Changes at Government Facilities

Paper # 1171393

Roger Wayson, AECOM

1:50 PM

Complying with Oil Change Requirements for Internal Combustion Engines

Paper # 1176497

Stuart Wallace, AECOM; Frank Castaneda, US Air Force, AFCEC

2:10 PM

Project Proponent Seeks (Business) Soul Mate: Building Successful Relationships with Indigenous Communities in Resource Development Projects

Paper # 1165562

Selina Lee-Andersen, McCarthy Tétrault LLP

2:30 PM

The Bay Area Air Quality Management District's Regulatory Program- A Success Story: Lead, Follow, or Get Out of the Way!

Paper # 1161264

Peter Hess, BAAQMD (retired)

NSR - Issues and Recent Developments

Track: REGU

6/29/2022, 1:30 PM

Room: Bayview A

Panel – TCC: REG

Chair: Gurinder (Gary) Saini, RTP Environmental Associates, Inc.

Vice Chair: David Jordan, ERM

New Source Review (NSR) is one of the most contentious Clean Air Act program and has been subject of several recent developments. These developments include administration changes that affected or will affect program elements and court challenges. There are also efforts at State level to address program implementation. NSR permitting (which includes nonattainment major NSR permitting, Prevention of Significant Deterioration (PSD) permitting, and minor NSR permitting) continues to be affected by EPA policy and court decisions regarding implementation, and other issues. With the new administration, several major NSR policy shifts are likely to come into the picture. A panel of experts spanning federal permitting authorities, and industry will discuss major developments in NSR, point out ways that facility operations could be affected by these developments, indicate what lays ahead, and identify issues that remain unsettled.

Panelists:

- *Gurinder (Gary) Saini, RTP Environmental Associates, Inc.*
- *David Jordan, ERM*
- *Peter Keller, US EPA - Air Quality Policy Division*
- *Eric Hiser, Hiser Joy*

Corporate Environmental and Social Governance (ESG)

Track: SUST

6/29/2022, 1:30 PM

Room: Seacliff D

Panel – TCC: SUS

Chair: Kraig Kurucz, Lockheed Martin Space

Vice Chair: Chih Chao, Cantech Environmental Services

In pursuance of corporate sustainability and carbon neutrality, Environment & Social Governance (ESG), has emerged as a key factor of measuring a corporation's performance. Investors,

TECHNICAL SESSIONS – WEDNESDAY

customers, employees, and other stakeholders have a rising interest in corporate ESG for meeting environmental and social criteria, such as energy consumption, waste discharged, resources used, impacts to nature, company relations, corporate reputation, community involvement, labor relations, etc. Panelists with a variety of experience with ESG will discuss their experience with successful corporate ESG programs, including implementation issues, approaches, plans, execution, and the perspective of corporations with strong ESG programs for investors and NGOs, and the benefits of a successful program.

Panelists:

- *Jennifer Marquart, The Earth and Environmental Sciences Technology Transfer Working Group LLC*
- *Thomas Morahan, The Earth and Environmental Sciences Technology Transfer Working Group LLC*
- *Julie Kreger King, Antea@Group*
- *Michael Conrardy, AECOM*

Electric and Connected Vehicles

Track: TRAN
6/29/2022, 1:30 PM
Room: Seacliff C

Platform – TCC: PLU

Chair: Georges Bou-Saab, Arcadis U.S., Inc.

Vice Chair: George Noel, Federal Highway Administration Resource

1:30 PM

Promoting Electric Vehicle Charging Infrastructure for New Developments: Case Studies and Best Practices for Local Jurisdictions

Paper # 1165379

Shaena Ulissi, Michael Keinath, Michael McCarthy, Megan Sutter, Ramboll

1:50 PM

A Multi Vehicle and Fuel Technology Approach to Reducing GHG Emissions from California's On-Road Transportation Sector

Paper # 1166640

Varalakshmi Jayaram, Jeremy Horne; Siena Moca; Julia Lester, Ryan Condensa, Ramboll; M. Scott Weaver, Ramboll Environment & Health; Madhani Madhani; Alek Van Houghton; Emillio Ronquillo

2:10 PM

Assessing Electric Vehicle Emissions, Energy, and Equity Implications with US EPA's AVOIDed Emissions and Generation Tool (AVERT)

Paper # 1174920

Colby Tucker, US EPA

2:30 PM

Evaluating Vehicular Emissions Due to Roadway Closure in a Connected-Automated Vehicle Environment

Paper # 1175008

Georges Bou-Saab, Arcadis U.S., Inc.; Nelida Herrera; Mohamadamin Asgharzadeh; Luis Alvergue, Atkins; Soheil Sajjadi, Arcadis Inc.

How Does It Work? Refining

Track: YPRO/INDU
6/29/2022, 1:30 PM

Room: Seacliff A

Panel – TCC: PIM

Chair: Kerry Weichsel, Iconic Air

Vice Chair: Ramine Cromartie, Western States Petroleum Association

This panel will provide a general overview of the refining industry from a variety of perspectives. This session features speakers who can explain refinery processes and share some of the air and waste issues they deal with. The panel will be geared towards young professionals and will highlight air, water, and waste topics across a multitude of local, state, and federal regulations. The panel will conclude with open discussions and Q&A which will allow students and YPs to interact with the panel members and gain a general understanding of each industry discussed and the environmental challenges each faces.

Panelists:

- *Johnny Vermillion, Spirit Environmental*
- *Stephen Kelly, Phillips 66*

Community Air Monitoring: A Roundtable Discussion on Successes and Challenges

Track: YPRO/AQMM

6/29/2022, 3:30 PM

Room: Seacliff A

Panel – TCC: AAE

Chair: Ramine Cromartie, Western States Petroleum Association

Federal and state governments have awarded tens of millions of dollars to support local efforts for air quality monitoring and the promotion of partnerships among stakeholder groups. Community-based organizations and tribal governments are at the forefront of these partnerships, serving as the voice for residents. They lead conversations around air pollution source identification and prioritization, as well as the development and implementation of air monitoring programs. The data collected from these monitoring programs will be important for developing an accurate picture of the sources and their impacts. To help ensure the quality of the data, technical professionals can provide guidance on the appropriate monitoring and reporting methodologies and technologies to achieve the desired objectives. Join us in a roundtable discussion with technical representatives engaged in the development and communication of air monitoring technology being used in communities. We will talk about program successes and challenges and reflect on how far programs have come since inception and share perspectives of what lies ahead.

Panelists:

- *Ayah Hassan, Ramboll Consulting, Inc.*
- *Yasmeen Sultana, Stantec*
- *Anthony (Tony) Miller, Entanglement Technologies*
- *Jeremy Smith, California Air Resources Board*

Contaminants of Concern: PFAS and PCBs

Track: MINI/WAST

6/29/2022, 3:30 PM

Room: Bayview A

Platform – TCC: REG

Chair: John Koehler, Yorke Engineering, LLC

Vice Chair: Kevin Eldridge, ERM

TECHNICAL SESSIONS – WEDNESDAY

3:30 PM

PFAS State and Federal Regulatory Updates

Paper # 1173354

Kevin Eldridge, Gary Napp, Mark DiPrinzio, Vicki Hoffman, ERM

3:50 PM

PFAS in Air: Emerging U.S. Federal and State Programs

Paper # 1166492

Linda Kemp, Johnsie Lang, Kathryn Onesios-Barry, Arcadis

4:10 PM

PFAS Multimedia Regulatory Rundown – Annual Update

Paper # 1174759

Adam Driscoll, Thomas Holstrom, Barr Engineering Co.

4:30 PM

Complying with the Bay's Efforts to Reduce Polychlorinated Biphenyls into the Environment: A Story of Successes, Trials and Tribulations

Paper # 1166560

Michelle Rosales, Forensic Analytical Consulting Services

Regional Haze and Aerosol Optical Properties

Track: AQMM

6/29/2022, 3:30 PM

Room: Marina

Platform – TCC: APV

Chair: Bret Schichtel, National Park Service

Vice Chair: Tom Moore, WESTAR/WRAP

3:30 PM

Western States Regional Haze Modeling and U.S. Anthropogenic Rate of Progress

Paper # 1165968

Ralph Morris, Ramboll; Gail Tonnesen; US EPA Region 8; Tom Moore, WESTAR/WRAP; Pat Brewer, Consultant

3:50 PM

Biomass Smoke Hygroscopicity vs. In-Situ Aerosol Composition: The Roles of Plant Species, Soil Type, Combustion Temperature and Efficiency

Paper # 1171896

Christian Carrico, New Mexico Institute of Mining and Technology

4:10 PM

Regional PM_{2.5} Budgets in Urban and Rural Sites Across the United States

Paper # 1167107

Jenny Hand, Colorado State University; Sean Raffuse, Air Quality Research Center, UC Davis; Bret Schichtel, National Park Service

4:30 PM

In-Situ Evaluation of IMPROVE Light Absorption Measurements with Photoacoustic Instruments in Reno NV

Paper # 1167115

Bret Schichtel, National Park Service

4:50 PM

Implications of PM_{2.5} Assessment Using Low-Cost Purple Air Sensors : A Case Study of California State

Paper # 1166208

Jhumoor Biswas, Indian Institute of Social Welfare and Business Management

Innovative Topics in Air Quality Modeling

Track: AQMO

6/29/2022, 3:30 PM

Room: Seacliff C

Platform – TCC: APM

Chair: David Long, American Electric Power Service Corporation

Vice Chair: Qi Zhang, GHD

3:30 PM

Comparison of Cancer Risk Modeling Methodologies for Hazardous Air Pollution Emissions

Paper # 1166372

Mary Kaplan, Stephanie Carcieri, Laura Warren, AECOM

3:50 PM

Wind Tunnel Experiments for Offshore Oil and Gas Platform and Drilling Rig Downwash

Paper # 1166339

Ron Petersen, Petersen Research and Consulting; Jim Paumier; William Lin, John Carter, CPP, Inc.

4:10 PM

A New Absorption Coefficient for Photometric Ozone Measurements

Paper # 1165462

James Norris, National Institute of Standards and Technology

4:30 PM

International Guideline for Odor Dispersion Modeling

Paper # 1166244

Raymond Porter, Porter Odor Science; Phyllis Diosey, Hazen & Sawyer

4:50 PM

Can Column Formaldehyde Observations Inform Ozone Air Quality Monitoring Strategies?

Paper # 1166234

Katherine Travis, Laura Judd, NASA Langley Research Center

Hydrogen Fuel for Power Generation, Decarbonization, and Emissions Control

Track: CLIM/INDU

6/29/2022, 3:30 PM

Room: Seacliff B

Panel – TCC: AAC and PWR

Chair: Masoud Jahandar Lashaki, Florida Atlantic University

Vice Chair: Bhaskar Chandan, South Coast Air Quality Management District

The U.S. Department of Energy considers hydrogen an attractive clean fuel for transportation and power generation. Hydrogen is an energy carrier that can be produced from different sources, including steam reforming of natural gas, electrolysis of water, biomass, and

TECHNICAL SESSIONS – WEDNESDAY

biological processes involving bacteria and microalgae. The energy requirements for hydrogen production can be fulfilled by different renewable and non-renewable sources, namely nuclear power, fossil fuels, and solar- and wind-driven processes. A recent report by McKinsey & Company projected that, by 2030, hydrogen economy in the U.S. may generate an annual revenue of \$140B while supporting 700,000 jobs. Hydrogen could fulfill 14% of the U.S. energy demand by 2050. The panelists will present an overview of (i) fundamentals of hydrogen fuel, including its carbon footprint, (ii) the role of hydrogen fuel in lowering future emissions, (iii) hydrogen in gas turbines and its impact on SCR systems, and (iv) hydrogen infrastructure.

Panelists:

- *Jordan Haywood, Siemens Energy, Inc*
- *Jeffrey Goldmeer, General Electric Gas Power*
- *Arijit Pakrasi, Edge Engineering and Science*
- *Aaron Guthrey, Los Angeles Department of Water and Power*
- *Chris DiGiovanni, Pacific Gas and Electric Company*

Accelerating the Transition Away from Diesel

Track: TRAN/CLIM

6/29/2022, 3:30 PM

Room: Seacliff B

Panel – TCC: PLU/CCP

Chair: Monte DiPalma, Bay Area Air Quality Management District

Vice Chair: Dominic Scarano, HMMH

This panel will present on regional and state efforts to transition away from diesel fuel usage and address the health, climate, and equity impacts of diesel usage; zero-emission heavy-duty technology availability and market growth; the role of incentive funding in market growth; and the perspective of local government on the transition away from diesel usage. Diesel exhaust causes significant public health effects and accelerates climate change and can have an immediate impact on the health of residents in communities where emissions are most concentrated. The transition away from diesel fuel usage requires the collaboration and coordination of municipal, regional, state, and private stakeholders to spur the commercialization of zero-emission heavy-duty technology and achieve air quality, health, and climate benefits for communities impacted by diesel air pollution. By targeting funding at key points in commercialization, we can accelerate the adoption of new technologies and achieve health and climate benefits sooner than we otherwise would.

Panelists:

- *Karen Scholnick, Bay Area Air Quality Management District*
- *Jason P. Crow, California Air Resources Board*
- *Daniel Hamilton, City of Oakland*

Site Remediation and Metals Treatment

Track: WAST

6/29/2022, 3:30 PM

Room: Regency AB

Platform – TCC: WMR

Chair: Paul Ruehl, LafargeHolcim

Vice Chair: Mingming Lu, University of Cincinnati

3:30 PM

In-Situ Remediation Program Paves Way for the Redevelopment of a Brownfield Site in Santa Clara County California

Paper # 1165427

John Freim, Chris Lee, Regenesys Bioremediation

46 Final Program

3:50 PM

Forensic Waste Stream Characterization at a Former Coking/MGP Facility in Support of Brownfield Site Investigation Work Planning

Paper # 1166355

Thomas Morahan, The Earth and Environmental Sciences Technology Transfer Working Group, LLC

4:10 PM

Phytoremediation Study: Comparison of Heavy Metal Removal from Leachate Using Plant Species Native to Grenada

Paper # 1174995

Sasha Jones, Melanie Sattler, Arpita Bhatt, University of Texas at Arlington

4:30 PM

PFAS Encapsulation in Soil

Paper #1186266

Paul Reuhl, LafargeHolcim

Solid Waste Emissions: Regulations and Modeling

Track: WAST

6/29/2022, 3:30 PM

Room: Seacliff D

Platform – TCC: WMB

Chair: Melanie Sattler, University of Texas at Arlington

Vice Chair: David Greene, SCS Engineers

3:30 PM

Compliance with New Landfill Air Regulations

Paper # 1162283

Julie Hall, Melissa Green, Weaver Consultants Group

3:50 PM

ILGAM Model for Predicting Generation and Emission of Methane from Landfills in Semi-Arid Regions of Iran

Paper # 1164689

Sayyed Hossein Khazaei, University of Texas at Arlington & University of Tehran

4:10 PM

PFAS Emissions to Ambient Air from Landfills

Paper # 1174787

Stephen Zemba, Sanborn, Head & Associates

4:30 PM

New Landfill Regulations the Jumble from NSPS WWW to NESHAP AAAA

Paper # 1167613

Cassandra Drotman, SCS Engineers

4:50 PM

Development of Thermodynamic Modelling of Waste Incineration Plant with High Moisture Content and Low Heating Value

Paper # 1164703

Somrat Kerdsuwan, University of Technology North Bangkok

TECHNICAL SESSIONS – THURSDAY

Thursday, June 30, 2022				
Time	Title	Track	Session	Room
8:00 am – 10:30 am	A&WMA Critical Review: Circular Economy for Clean Energy Technologies	SUST	panel	Bayview B
Thursday AM2				
9:40 am – 11:40 am	Building Decarbonization: Local Governments Take the Lead	MINI/CLIM	panel	Bayview A
9:40 am – 11:40 am	PM2.5 and Ozone Implementation Issues	REGU	panel	Marina
9:40 am – 11:40 am	AERMOD Modeling Techniques	AQMO	platform	Seacliff C
9:40 am – 11:40 am	Health and Environmental Effects: Wildfires, Hospitals and Soils	H&EE	platform	Regency AB
9:40 am – 11:40 am	Electric Power Industry – Industry Transition and Regulatory Issues	INDU	panel	Seacliff A
9:40 am – 11:40 am	Energy-Water-Waste Nexus	SUST	platform	Seacliff D
9:40 am – 11:40 am	Community Health Risk Assessment Methods Addressing Cumulative Risk in Overburdened Communities	REGU/H&EE	panel	Seacliff B
11:50 am – 1:20 pm	Honors & Awards Ceremony and Luncheon			Grand Ballroom BC
Thursday PM1				
1:30 pm – 3:30 pm	Decarbonization through Circular Economy Actions	MINI/SUST	panel	Bayview B
1:30 pm – 3:30 pm	Air Legislation, Regulation & Policy Developments	REGU	panel	Bayview A
1:30 pm – 3:30 pm	Bay Area Healthy Homes Initiative: A Blueprint for a Comprehensive Approach to Address Cumulative Air Pollution Exposure in Overburdened Communities	CLIM	panel	Marina
1:30 pm – 3:30 pm	Installation, Startup, and Operation of World's First Regenerable Resin System for PFAS Removal	SUST	panel	Seacliff D
1:30 pm – 3:30 pm	Emissions for Point and Nonpoint Sources	AQES	platform	Seacliff C
1:30 pm – 3:30 pm	Climate Change Mitigation and Adaptation	CLIM	platform	Seacliff B
1:30 pm – 3:30 pm	Petroleum, Industry, and Mining - Issues and Case Studies	INDU	platform	Seacliff A
1:30 pm – 3:30 pm	Waste Treatment and Reuse	WAST	platform	Regency AB



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TECHNICAL SESSIONS – THURSDAY

Building Decarbonization: Local Governments Take the Lead

Track: MINI/CLIM
6/30/2022, 9:40 AM
Room: Bayview A

Panel Session – TCC: CCP

Chair: Amy Dao, Bay Area Air Quality Management District
Vice Chair: Bruce Mast, Ardenna Energy, LLC

This panel will cover the experiences of cities pursuing building decarbonization through local policy and building codes, as well as broader analyses on related costs and financing, and themes of local policy initiatives, building measures, energy efficiency and fuel switching. Ten percent of GHG emissions in the San Francisco Bay Area are due to building use of natural gas, and in some cities, this is as high as 40 percent. As electricity becomes carbon-free in the Bay Area, to meet state goals by 2045, building electrification will be essential for meeting regional and local GHG reductions. This panel will discuss San Francisco's building ordinance banning natural gas in new construction; the process and analyses behind Berkeley's future strategy to electrify existing buildings; as well as the cost implications and potential financing options. Speakers will discuss their experiences tackling the challenges and opportunities of building decarbonization.

Panelists:

- Billi Romain, City of Berkeley
- Barry Hooper, City and County of San Francisco

AERMOD Modeling Techniques

Track: AQMO
6/30/2022, 9:40 AM
Room: Seacliff C

Platform – TCC: APM

Chair: Abhishek Bhat, Ramboll
Vice Chair: Jared Anderson, Wenck Associates, Inc.

9:40 AM

AERMOD Model Setup Automation – Can AI and Machine Learning Be Involved?

Paper # 1166556
Qi Zhang, GHD

10:00 AM

Air Dispersion Modeling for Data Centers in the United States

Paper # 1167428
Ali Farnoud, Ramboll US Consulting

10:20 AM

Data Resources and Their Application for AERMOD Model Development

Paper # 1166618
Anthony Schroeder, Brian Otten, Trinity Consultants

10:40 AM

PVMMR Theoretical Issues and Solutions

Paper # 1166178
Ron Petersen, Petersen Research and Consulting; Jim Paumier; Sergio Guerra, Braun Intertec

11:00 AM

A Short Stroll Down Modeling Memory Lane

Paper # 1188284
George Schewe, Trinity Consultants

Health and Environmental Effects: Wildfires, Hospitals and Soils

Track: H&EE
6/30/2022, 9:40 AM
Room: Regency AB

Platform – TCC: HEE

Chair: David McCready, EnviroCalc Consulting
Vice Chair: James Morrow

9:40 AM

Wildfires and the Changing Landscape of Air Pollution-Related Health Burden

Paper # 1165505
Sumi Hoshiko, Andrew Rosenberg, California Department of Public Health; Ruwan Thilakaratne, University of California, Berkeley; Thomas Hayashi, Sequoia Foundation; Ryan Buckman; Ana Rappold

10:00 AM

Translocation of PFAS from Soil to Soybean and the Related Effect on Nitrification, Denitrification, and Nitrogen Fixation

Paper # 1166327
Tao Jiang, Weilan Zhang, University at Albany, State University of New York; Yanna Liang

10:20 AM

Impact of Fluoroalkylether Compounds on Soil Microbial Community Structures and Abundance of Nitrogen Cycling Genes

Paper # 1166116
Tao Jiang, Weilan Zhang, University at Albany, State University of New York; Yanna Liang

10:40 AM

Knowledge, Attitudes and Behaviors of Individuals Exposed to Wildfire Smoke

Paper # 1166606
Brianna Dorie, Gonzaga University

11:00 AM

Airborne Virus and PM Transmission and Removal in Hospitals

Paper # 1165592
Mutasem El Fadel, Khalifa University

Electric Power Industry – Industry Transition and Regulatory Issues

Track: INDU
6/30/2022, 9:40 AM
Room: Seacliff A

Panel Session – TCC: PWR

Chair: John Kinsman, Edison Electric Institute

The U.S. electric industry is leading a major clean energy transition through investments in the energy grid, renewable energy, energy storage, electric vehicle charging infrastructure, switching to cleaner fuels, and use of traditional air pollution controls. The industry is

TECHNICAL SESSIONS – THURSDAY

working toward cleaner use of natural gas, renewable natural gas, zero-carbon fuels, such as hydrogen or ammonia, and technologies such as advanced renewables, nuclear energy (both fission and fusion), carbon capture, demand efficiency and long-duration storage. The industry continues modernizing the grid to make it more dynamic, resilient, and secure. The Biden Administration is working on the issues of greenhouse gases, national ambient air quality standards, interstate air pollution transport, hazardous air pollutants, reasonable haze, waste issues, and environmental justice. This panel will address the clean energy transition, uncertainties, and the Biden Administration agenda.

Panelists:

- *Geoffrey Blanford, Electric Power Research Institute (EPRI)*
- *David Long, American Electric Power Service Corporation*
- *James Walker, Consumers Energy*
- *Allison Watkins Mallick, Baker Botts*

Community Health Risk Assessment Methods Addressing Cumulative Risk in Overburdened Communities

Track: REGU/H&EE

6/30/2022, 9:40 AM

Room: Seacliff B

Panel Session – TCC: REG

Chair: Chris Easter, Environmental Science Associates

Vice Chair: Darren Wilton, Environmental Science Associates

This panel examines health risk assessment (HRA) methods (tools) and approaches used to evaluate elevated cancer and respiratory disease risks within overburdened communities. Our panelists will discuss approaches to conducting project-level HRAs, including those related to CEQA, within communities exposed to high-levels of toxic air pollution. We will all discuss cumulative health impacts in context of Assembly Bill (AB) 617 the Community Air Protection Program (CAPP). A number of tools exist to assess the cumulative impact of traffic and other sources contributing to health impacts across specific geographic regions. These tools highlight the role of other emission sources, historically not always considered under the CalEPA health risk assessment framework, and provide a direction for the development of a broader set of analytical tools for use by other communities experiencing health impacts.

Panelists:

- *Brian Schuster, Environmental Science Associates (ESA)*
- *Alan Sako, Environmental Science Associates (ESA)*
- *Jessica Range, San Francisco Planning Department*
- *Philip Martien, Bay Area Air Quality Management District*
- *Lijin Sun, South Coast Air Quality Management District*

PM_{2.5} and Ozone Implementation Issues

Track: REGU

6/30/2022, 9:40 AM

Room: Marina

Panel Session – TCC: REG

Chair: Gurinder (Gary) Saini, RTP Environmental Associates, Inc.

Vice Chair: Peter Keller, US EPA Air Quality Policy Division

Significant challenges remain regarding best available control technology (BACT) and air quality modeling for a prevention of significant deterioration (PSD) permit for PM_{2.5} emissions. Over the years, U.S. Environmental Protection Agency (EPA) and State agencies have issued several BACT determinations for both PM_{2.5} and precursors. PM_{2.5} air quality modeling for PM_{2.5} direct emissions are complex when considering offsite sources. In addition, the regulatory uncertainty remains regarding addressing PM_{2.5} and ozone precursor emissions impacts. The EPA has provided MERPs that are somewhat useful in this endeavor. This panel will provide an overview of the recent PM_{2.5} BACT developments highlight recent BACT determinations issued by the EPA and various State agencies. BACT reviews typically involve input by the applicants and comments from citizens, EPA, and other stakeholders. They are also part of significant legal challenges. The panel experts will also address recent developments regarding PM_{2.5} and ozone modeling impacts and various options in regard to precursor demonstrations.

Panelists

- *Gurinder (Gary) Saini, RTP Environmental Associates, Inc.*
- *Peter Keller, U.S. EPA - Air Quality Policy Division*
- *Eric Hiser, Hiser Joy*
- *Ralph Morris, Ramboll*

Energy-Water-Waste Nexus

Track: SUST

6/30/2022, 9:40 AM

Room: Seacliff D

Platform – TCC: SRC

Chair: Mingming Lu, University of Cincinnati

Vice Chair: Ketan Shah, SCS Engineers

9:40 AM

The THEOGEO Process: A New Solution to the Potable Water Crisis

Paper # 1165663

Louis Theodore, Theodore Tutorials; R. Dupont, Utah State University, Department of Civil and Environmental Engineering

10:00 AM

Modeling of Hydrogen Sulfide Generation and Rates of Microbially Induced Concrete Corrosion in Manhole Shafts

Paper # 1166386

Sunakshi Hada, University of Texas at Arlington

10:20 AM

How Can a Very High Diversion of Organics from Landfill Be Reached and at the Same Time Be Ecologically and Economically Viable?

Paper # 1167711

Glen Tobiason, InnoWaCon LLC

10:40 AM

Methane Emissions from Disposal of Biodegradable Polyester in U.S. Landfills

Paper # 1174501

Ketan Shah, SCS Engineers

TECHNICAL SESSIONS – THURSDAY

11:00 AM

Greenhouse Gas Emissions Life-Cycle Comparison: Waste-to-Energy vs. Landfilling

Paper # 1177000

Christopher Campbell, CDM Smith

11:20 AM

Sustainability or Waste Disposal? Use of Manure as a Nutrient in the Maumee River Lake Erie Watershed

Paper # 1234601

Peter Hess, BAAQMD (retired)

Decarbonization through Circular Economy Actions

Track: MINI/SUST

6/30/2022, 1:30 PM

Room: Bayview B

Panel Session – TCC: SUS

Chair: Chic C. Chao, Cantech Environmental Service

Vice Chair: Ning Ai, University of Illinois at Chicago

Out of various mitigation options, many regions or industries have implemented circular economy actions which have proven to be effective in decarbonization and greenhouse gas reduction. In this panel, world experts representing various circular economy implementers will share their approach and experiences in respective plans and programs and illustrate the circular economy benefits to economic gain as well as carbon emission reductions. Implementation barriers, challenges and ways of resolution will also be discussed. Examples and case studies will be given by the panelists, for comparison and reference purpose. Presentations will be followed by interactive discussions among panelists and participants, to stimulate further thoughts on advancing circular economy actions, aiming to help achieving carbon neutrality goals.

Panelists:

- *Thomas Sterr, SRH*
- *Martin Charter, University for the Creative Arts*
- *Chih Chao, Cantech Environmental Service*
- *Chung Huang Huang*

Emissions for Point and Nonpoint Sources

Track: AQES

6/30/2022, 1:30 PM

Room: Seaciff C

Platform – TCC: AAE

Chair: Juan Carlos Ramirez-Dorransoro, Marietta College

1:30 PM

COVID and Beyond: Impact of COVID-19 Intervention on 2020 Power Plants Emissions in the United States Using Generalized Synthetic Control Methods

Paper # 1166648

Munshi Md Rasel, George Mason University

1:50 PM

Updates and Improvements Made to US EPA's Webfire Database

Paper # 1172046

Casey Myers, US EPA

2:10 PM

Study of Residential Wood Burning for Minnesota

Paper # 1189847

Chun Yi Wu, Azra Kovacevic, Megan Kuhl-Stennes, Anne Jackson, Minnesota Pollution Control Agency

2:30 PM

Methods for Mitigating Wind Blown Dust

Paper # 1185763

Rob Farber, Atmospheric Clarity

2:50 PM

Procedure to Quantify Variability in Air Pollution Infiltration Factors for a Selected Pollutant and Selected Homes

Paper # 1198368

Sailaja Eluri, North Carolina State University

Bay Area Healthy Homes Initiative: A Blueprint for a Comprehensive Approach to Address Cumulative Air Pollution Exposure in Overburdened Communities

Track: CLIM

6/30/2022, 1:30 PM

Room: Marina

Panel Session – TCC: CCI

Chair: Idania Zamora, Bay Area Air Quality Management District

Vice Chair: Michael Kent, Contra Costa Health Services

This panel will present on the different aspects of a comprehensive initiative to improve the health outcomes of residents in communities overburdened by air pollution. The Bay Area Healthy Homes Initiative builds on an existing pilot project in Contra Costa County and seeks to expand it to new regions in the Bay Area. It seeks to improve health outcomes for residents living in communities disproportionately impacted by air pollution by integrating multiple interventions that address cumulative air pollution burden. To achieve this, the Air District is partnering with public health departments, regional agencies, and non-profit organizations to: 1) provide in-home asthma education and identification of asthma triggers; 2) implement home retrofit improvements that address these triggers and reduce exposure to outdoor air pollution; and 3) quantify and document benefits of home retrofits on indoor air quality and health. These indoor air quality data can help demonstrate the multiple benefits and cost-effectiveness of these interventions, paving the way for this program to serve as a model for future adoption in other regions.

Panelists:

- *Amy Dryden, Association for Energy Affordability, Inc.*
- *Jenny Kauffman, StopWaste*

Climate Change Mitigation and Adaptation

Track: CLIM

6/30/2022, 1:30 PM

Room: Seaciff B

Platform – TCC: CCP

Chair: Joshua Fu, University of Tennessee Knoxville

Vice Chair: Michael Slavick, EnSafe Inc.

TECHNICAL SESSIONS – THURSDAY

1:30 PM

Climate Change Risk Assessment Best Practices

Paper # 1165184

Kristian Macoskey, Civil & Environmental Consultants, Inc.

1:50 PM

Tonawanda Tomorrow: A Model for Alternative Electricity Transition in the Rust Belt

Paper # 1166344

Thomas Morahan, The Earth and Environmental Sciences Technology Transfer Working Group, LLC

2:10 PM

Mega-Event Greenhouse Gas Management

Paper # 1169180

Doug Huxley, Nour Mardini, Jeff Kersey, Mary Pat Campbell, Carolyn Meisner, Jacobs

2:30 PM

Developing Communitywide Greenhouse Gas Targets: Best Management Practices from Sacramento County

Paper # 1162872

Shaena Ulissi, Ramboll; Shari Libicki, Ramboll USA; Paul Philley, Karen Huss, Sacramento Metropolitan Air Quality Management District

2:50 PM

Enabling and Understanding Air Quality and Climate Change Co-Benefits via the NASA PACE Applications Program

Paper # 1201585

Natasha Sadoff, NASA Goddard Space Flight Center / SSAI; Erin Urquhart, NASA Goddard Space Flight Center

Petroleum, Industry, and Mining - Issues and Case Studies

Track: PIM/PWR

6/30/2022, 1:30 PM

Room: Seacliff A

Platform – TCC: PIMPWR

Chair: Kaitlyn Watkins, Florida Power and Light

Vice Chair: Christina Akly, NextEra Energy

1:30 PM

Reducing Green House Gas (GHG) Emissions – A Success Story

Paper # 1164700

Ensan Elayoubi, Saudi Aramco

1:50 PM

Important Non-Air Considerations for a Major Source Manufacturing Plant

Paper # 1166046

Leah Blinn, Civil and Environmental Consultants, Inc.

2:10 PM

Reducing NOx and CO Emissions from Petroleum Refineries and Related Operations in the South Coast Air Basin

Paper # 1188781

Bhaskar Chandan, Michael Krause, Heather Farr, South Coast Air Quality Management District

2:30 PM

Quantification of VOC Emissions Using Optical Gas Imaging Technology

Paper # 1174519

Ram Hashmonay, Opgal Optronics Industries

Air Legislation, Regulation and Policy Developments

Track: REGU

6/30/2022, 1:30 PM

Room: Bayview A

Panel Session – TCC: REG

Chair: Kevin Eldridge, Environmental Resources Management

Vice Chair: Paul Siebert, Weston Solutions, Inc.

Updates on the development and implementation of air quality regulations, particularly emission regulations, promulgated under the U.S. and Canadian air quality legislation will be presented and discussed. Standards development of particular interest includes new source performance standards under Section 111, emission guidelines under Section 111(d), and maximum achievable control technology (MACT) standards under Section 112 of the Clean Air Act. The current state of standards development and the current schedule for developing and proposing standards will be discussed as well as the implementation of promulgated standards and revisions. Recent court rulings and cases will also be addressed. EPA's required evaluations of the residual risks remaining after the application of MACT standards, as required by Section 112(f) of the Clean Air Act, will also be noted. This panel session will present views of EPA; state and local agencies; industry; and environmental advocates on the status, direction, and expectations regarding new source performance standards (NSPS) under 40 CFR 60 and maximum achievable control technology (MACT) standards under 40 CFR 63, as well as criteria pollutant and air toxics regulations of other jurisdictions – local, state, and national.

Panelists:

- *Jason Krawczyk, ERM*
- *Raymond Allen, POWER Engineers*
- *Thomas Sullivan, POWER Engineers*
- *Kristin Marshall, Boeing*

Installation, Startup, and Operation of World's First Regenerable Resin System for PFAS Removal

Track: SUST

6/30/2022, 1:30 PM

Room: Seacliff D

Panel Session – TCC: SRC/WMR

Chair: Nicole Bolea, ECT2

Vice Chair: Patrick McKeown, ECT2

The US Air Force Civil Engineering Center (AFCEC) is conducting on-going response activities to remove and remediate groundwater impacted by PFAS substances at the former Pease Air Force Base. AFCEC conducted a side-by-side pilot test in 2016, comparing the performance of ECT2 regenerable ion exchange (IX) resin and bituminous granular activated carbon (GAC). The regenerable resin system was selected for full-scale application, based on system

TECHNICAL SESSIONS – THURSDAY

performance and a lower overall lifecycle cost than GAC. The PFAS remediation system has treated more than 31 million gallons of groundwater having a total average influent PFAS concentration of 55 µg/l. The effluent quality from the IX resin system has been consistently non-detect for PFOS and PFOA, readily achieving compliance with the 70 ng/l HAL target. Five successful resin regenerations have been performed to date. The original superloading media is still operational, having removed and concentrated greater than 99.99 percent of the recovered PFAS mass, and therefore no PFAS waste has needed to be hauled off site

Panelists:

- Will Rice, *Enthalpy Analytical, LLC*
- Ryan Casey, *City & County of San Francisco*

Waste Treatment and Reuse

Track: WAST

6/30/2022, 1:30 PM

Room: Regency AB

Platform – TCC: WMR/WMB

Chair: Paul Ruehl, *LafargeHolcim*

Vice Chair: Melanie Sattler, *University of Texas at Arlington*

1:30 PM

Characterization of Fats, Oils, and Greases from Various Wastewater Treatment Plants and Its Potential as Biodiesel Feedstock

Paper # 1166346

Andres Mata, Esther Hughes, University of Cincinnati

1:50 PM

Molecular-Level Understanding of Waste Cooking Oil on the Reclamation of Aged Asphalt Pavement

Paper # 1165689

Qiu hao Chang, University of Oklahoma

2:10 PM

Screening Methodology for Assessing Chemicals in Biosolids Applied for Agricultural Purposes

Paper # 1164886

Ann Verwiel, Seneca Fitch, Stephanie Vivanco; Laurie Haws, Tox Strategies, Inc.

2:30 PM

Study on Photodegradation of Norfloxacin in Water by Using Iron Cerium Oxide Aerogel

Paper # 1165748

Cheng-Han Yang, Air Pollution and Prevention and Nanometer Measurement and Application Laboratory



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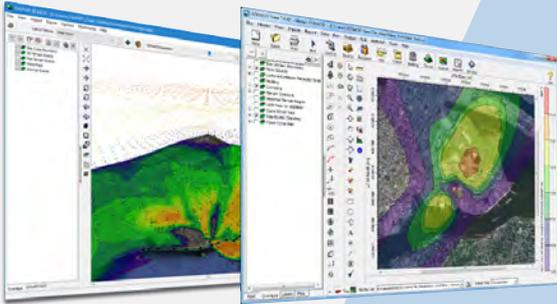


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- AERMOD Parallel Version for Faster Runs
- Easy Automated Download of Satellite Maps, Terrain, Landuse Data Files

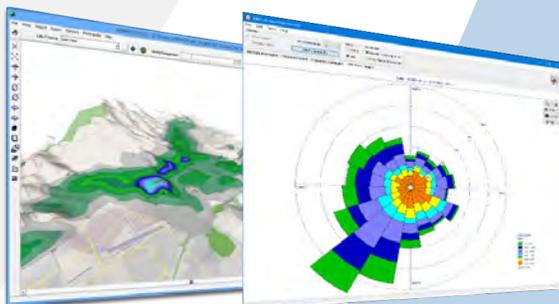
EMISSIONS INVENTORY MANAGEMENT

AQMIS CLOUD

- Comprehensive Emissions Inventory and Intelligent Air Monitoring Analytics
- Forecasts Air Concentrations and AQI's with Neural Net Artificial Intelligence
- Employs Advanced Air Models such as CALPUFF, SCIPUFF/SCICHEM, WRF-CHEM, and CMAQ



METEOROLOGICAL DATA SERVICES



WRF | STATION | CUSTOM

- AERMET-Ready and CALMET-Ready WRF Met Data
- Ideal for Locations Without Met Stations
- Custom WRF Runs Available
- AERMOD-Ready Station Data (USA Only)