



**WEF/IWA Residuals and Biosolids Conference
2019**

Draft Technical Program

(Updated January 18, 2019)

May 7 - 10, 2019

**Greater Fort Lauderdale-Broward County
Convention Center**

Fort Lauderdale, Florida, USA

Session 01: Incineration

Wednesday, May 8, 1:30 PM - 4:45 PM

- 1:30 PM** **Autocatalytic Pyrolysis for a NEWAGE (Nutrient, Energy, Water for Agriculture and Green Environment): Overview of Bench, Sub-Pilot, and Pilot Scale Studies**
Zhongzhe Liu, Daniel Zitomer, Marquette University; Patrick McNamara
- 2:00 PM** **The R2E2 Experience: Commissioning and Initial Energy Performance at the Green Bay Facility**
Peter Burrowes, Jacobs; William Angoli, Bruce Bartel, Nathan Qualls, New Water, Green Bay Metro Sewerage Dist; Steve Graziano; David Parry, CDM Smith
- 2:30 PM** **Can an Old Dog Learn New Tricks: The Use of Modern Incineration with Phosphorous Recovery in Germany**
Harald Plank, Edward Fritz, Chip Pless, Huber Technology, Inc.
- 3:00 PM** **Networking Break**
- 3:45 PM** **The Road to Adding a Fourth Incinerator at the Metropolitan Wastewater Treatment Plant**
Stephen Norton, Joe Ward, Katherine Heflin, Metropolitan Council Environmental Services; Scott Smrekar
- 4:15 PM** **Mattabassett Experience: The First New Fluid Bed Municipal Sludge Incinerator in the U.S. Meeting the New Mact LIII Emission Limits**
Levent Takmaz, SUEZ; David Stille, Arthur Simonian, Michael Manfre, Mattabassett District; Gary Claytor, Ken Glass, SUEZ
- 4:45 PM** **Session Adjourns for Networking Reception in Exhibit Hall**
- Alternate 1** **The Restoration of an Existing Sewage Sludge Incinerator: Bayshore Regional Sewerage Authority's NIRO Incinerator Repairs and Mitigation Project**
Edward Barboe, Hazen & Sawyer; Robert Fischer, Peter Canal, Bayshore Regional Sewerage Authority; Bryan Atieh, Hazen & Sawyer
- Alternate 2** **Bioenergy Recovery from a Fluidized Bed Incinerator Using Organic Rankine Cycle Technology**
Stanley Chilson, GHD; Geordie Gauld, Mark Elliott, Kirby Oudekerk, City of London; Throstur Gretarsson, Ian Scott, GHD

Session 02: Economic Drivers and Cost Recovery
Wednesday, May 8, 1:30 PM - 4:45 PM

- 1:30 PM** **Key Criteria for Considering the Economic Viability of Co-Digestion at Small Water Resource Recovery Facilities: Rockland Case Study**
John Ross, John Loughlin Sr; Tracy Chouinard, Brown and Caldwell; Wenye Kuo-Dahab; Natalie Sierra, Christopher Muller, Brown and Caldwell
- 2:00 PM** **Comparing Approaches for Financing and Delivering Your Biogas to RNG Project**
Becky Luna, Tyler Dougherty, Carollo Engineers; Thomas Mossinger; David Pier, Carollo Engineers
- 2:30 PM** **Getting out of the Incinerator Business: Constructing the First Egg Shaped Digesters in Upstate New York**
John Story, GHD; Steven Devan, Oneida County WPC; Nicholas Hatala
- 3:00 PM** **Networking Break**
- 3:45 PM** **Revenue from Electric Vehicle Fueling with Combined Heat and Power**
Drury Whitlock, Rod Schebesch, Stantec
- 4:15 PM** **Resource Recovery Could Unlock Economic Opportunity and Leverage Dormant Industrial Infrastructure**
Chloe Greenberg, Donald Song, Edward Sharood, Woodard & Curran; Ned Beecher
- 4:45 PM** **Session Adjourns for Networking Reception in Exhibit Hall**
- Alternate 1** **Reviving a Biosolids Workhorse: The Rehabilitation of Passaic Valley Sewerage Commission's Wet Air Oxidization's Decant Facility**
Julian Chianelli, Hazen & Sawyer; Elizabeth Engelbert, Passaic Valley Sewer District; Bridget McKenna, Patricia Lopes, Passaic Valley Sewerage Commissioners; William Gettings, Hazen & Sawyer
- Alternate 2** **Leveraging Existing Assets First (LEAF): Developing a Progressive Biosolids Management Approach Through Intentional Infrastructure Repurposing**
Ruth Borgmann, C Bullard, James Struve, Hazen & Sawyer; David Wiman

Session 03: Codigestion

Wednesday, May 8, 1:30 PM - 4:45 PM

- 1:30 PM** **Learning from Co-Digestion Practices and Experiences in Europe and the US**
Tanja Rauch-Williams, Carollo Engineers; Christian Schaum, Petersenstrasse 13
- 2:00 PM** **Sustainable Bioenergy Production by High Solids Anaerobic Digestion of Food Waste, Yard Waste, and Biosolids: A Case Study**
Eunyoung Lee, Paula Bittencourt, University of South Florida; Lensey Casimir; Eduardo Jimenez, Kimley-Horn and Associates, Inc.; Deborah Oliveira, Luiza Oliveira, University of South Florida; Gregory Hinds; Sarina Ergas, Meng Wang, Qiong Zhang, University of South Florida
- 2:30 PM** **Residues from the Dairy Industry as Co-Substrate for the Flexibilization of Digester Operation**
Christian Hubert, Bettina Steiniger, Universität der Bundeswehr München; Christian Schaum, Petersenstrasse 13
- 3:00 PM** **Networking Break**
- 3:45 PM** **Co-digestion of Source Separated Organic Waste (SSO) with Thickened Waste Activated Sludge (TWAS) for Improving Biomethane Production- Effect of Mixture Ratio**
Anahita Rabii, Frances Okoye, Yaser Dahman, Saad Aldin, Ryerson University; Elsayed Elbeshbishy
- 4:15 PM** **Small Facilities Can Co Digest Too! Easton, PA Looks to the Future**
Micah Blate, Mohammad Abu-Orf, Hazen & Sawyer; Hossain Azam, Univ of Illinois; Robert Sharp, Manhattan College
- 4:45 PM** **Session Adjourns for Networking Reception in Exhibit Hall**
- Alternate 1** **Impact of Co-digestion of Food Waste on Microbial Communities**
Michael Keleman, InSinkErator; George Nakhla, Western University
- Alternate 2** **Enhancement of Biogas Production in Anaerobic Co-Digestion of Wastewater Sludge and Food Waste by Natural Fermentation Pretreatment**
Agne Cunha, UFRJ; Isaac Volschan, LAGOA; Magali Cammarota, UFRJ

Session 04: Advances in Stabilization
Wednesday, May 8, 1:30 PM - 3:00 PM

- 1:30 PM** **Determination of the Optimal Thermal Dose Input for Maximum AD Kinetics Based on the Gelation Potential of Sludge**
Munshi Md Raseel, George Washington University; Mandy Mitchell; Rumana Riffat, George Washington University; Matthew Higgins, Bucknell University; Charles Bott, Hampton Roads Sanitation District; Sudhir Murthy; Ahmed Al-Omari
- 2:00 PM** **Critical Assessment and Optimisation of Sewage Sludge Mesophilic Anaerobic Digestion Processes at Operational Wastewater Treatment Plant**
Stephen Smith, Jin Liu, Imperial College London
- 2:30 PM** **How Class 'A' Can Have a Lower Overall Cost than Class 'B' - Evaluation and Implementation of the ATAD Process**
Heidi Bauer, Jacobs; Chris Matkins, Eric Bailey, South Fort Collins Sanitation District; David Oerke, Kile Snider, Jacobs
- 3:00 PM** **Session Adjourns for Networking Break in Exhibit Hall**
- Alternate 1** **Which Thermal Hydrolysis Process Configuration Do I Choose?**
David Solley, Rahul Chhillar, GHD
- Alternate 2** **Simple Improvement of Digested Sludge Quality: Is Post-Aeration the Key?**
Pavel Jenicek, Marie Vojtiskova, Barbora Satkova, Jan Bindzar, UCT Prague
- Poster** **Enhanced Biogas Production from Organized Industrial District Sludge**
Selim Sanin, Hacettepe University; Hazal Aksu Bahçeci, Faika Dilek Sanin, Middle East Technical University

Session 05: Emerging Issues
Wednesday, May 8, 3:45 PM - 4:45 PM

- 3:45 PM** **Per-and Polyfluorinated Alkyl Substances in Commercially Available Biosolid-based Fertilizers: Effect of Post Treatment Processing Technologies**
Rooney Kim Lazcano, Michael Mashtare, Linda Lee, Purdue University
- 4:15 PM** **Strategies for Treating Biodegradable and Recalcitrant Nutrient Fractions Generated from THP Processes**
Wendell Khunjar, Hazen & Sawyer; Katya Bilik; Gregory Pace
- 4:45 PM** **Session Adjourns for Networking Reception in Exhibit Hall**

Session 06: Thickening, Dewatering, Drying I
Thursday, May 9, 8:30 AM - 11:45 AM

- 8:30 AM** **Full Scale Testing of HydroFLOW for Scale Prevention in Dewatering Systems**
Jose Bicudo, Amber Klassen, Region of Waterloo; Patryk Dorozynski, Wilfrid Laurier University;
Wayne Parker, University of Waterloo; Scott Smith, Wilfrid Laurier University, Department of
Chemistry; Jason Mank, Ontario Clean Water Agency; Micah Blate, Hazen & Sawyer
- 9:00 AM** **A New Spectrophotometry Based Method to Determine the Optimum Maturation and
Activation Time for Polymers**
Banu Ormeçi, Carleton University; Narek Martirosyan
- 9:30 AM** **State-of-the-Practice in Biosolids/Polymer Blending for Biosolids Dewatering**
David Oerke, Jacobs; Robert Harris; Kent Kilby, The City of Gainesville, Department of Water
Resources; John Horton; Nicholas Freeman; Katie Snyder, JACOBS
- 10:00 AM** **Networking Break**
- 10:45 AM** **Volute Thickening and Linear Motion Mixing: A Tale of Two Technologies**
Clay Rahn, HDR, Inc.
- 11:15 AM** **Polymer Contract up for Expiration? Oh no! What Now? Challenges & Resolutions with
Finding the Right Thickening and Dewatering Polymer**
Maria Vega-Rodriguez, Nory Hancock, Pinellas County Utilities; Ivy Drexler; Stephanie
Kapfenstein; Faustino Prado, Prado & Associates
- 11:45 AM** **Session Adjourns for Lunch**
- Alternate 1** **Thickening: Unlocking Idle Capacity for Capital Savings and Improved Operations**
Christopher Muller, Patricia Tam, Brown and Caldwell
- Alternate 2** **Dewatering Process Optimization through Mechanical Inline Polymer Mixing**
Edward Fritz, Chip Pless, Harald Neumann, Huber Technology

Session 07: Preconditioning I
Thursday, May 9, 8:30 AM - 11:45 AM

- 8:30 AM** **Determination of Inhibition Constants for Free Ammonia in Anaerobic Digesters Pretreated by Thermal Hydrolysis**
Baoqiang Li, DC Water; Haydee De Clippeleir, District of Columbia Water and Sewer Authority; Rumana Riffat, George Washington University; Ahmed Al-Omari; Adrian Romero, CH2M; Matthew Higgins, Bucknell University; Sudhir Murthy
- 9:00 AM** **Application of Hydrothermal Pre-Treatment for Enhanced Two-Stage Anaerobic Digestion of Wastewater Sludge and Source Separated Organics**
Armineh Azizi; Ehssan Hosseini Koupaie, Amir Abbas Bazyar Lakeh, Ryerson University; H Hafez, Greenfield Ethanol Inc; Elsayed Elbeshbishy
- 9:30 AM** **Disintegration and Siloxane Removal of Sewage Sludge by Ultrasonic Treatment Prior to Anaerobic Digestion**
Kazuyuki Oshita, Atsuki Yana, Masaki Takaoka; Takashi Fujimori, Taketoshi Kusakabe, Kyoto University
- 10:00 AM** **Networking Break**
- 10:45 AM** **Evaluation of Biological Hydrolysis Pretreatment for the Sludge Anaerobic Digestion and Class A Biosolids**
Youngseck Hong, Michael Theodoulou, SUEZ WTS; Adam Bentham
- 11:15 AM** **Waste and Biomass Valorisation: Energy Production from Agro-Wastes Enhanced by Ultrasonic and Microwave Pre-Treated Wastewater Sludges**
B. Aylin Alagoz, Ayşen Erdiñçler, Orhan Yenigun, Bogazici University
- 11:45 AM** **Session Adjourns for Lunch in Exhibit Hall**
- Alternate 1** **Becoming a Utility of the Future - Achieving Energy Neutrality Through Co-digestion**
Alan Johnson, Quasar Energy Group
- Alternate 2** **Grease Removal Units (GRUs) as an Alternative Way to Manage Fats, Oils and Grease (FOG) in Food Outlets: a Case Study**
Thomas Collin, Rachel Cunningham, Thames Water Utilities; Bruce Jefferson, Raffaella Villa, Cranfield University

Session 08: Biosolids Products and Marketability
Thursday, May 9, 8:30 AM - 10:00 AM

- 8:30 AM** **Building Relationships Through Research: Coupling Outreach with an On-Farm Trial of Bloom**
Saul Kinter, William Brower, DC Water & Sewer Authority
- 9:00 AM** **Getting to “Class A” - Beyond a Technology, a Strong Biosolids Program Requires a Class A Business Strategy**
Manon Fisher, San Francisco Public Utilities Commission; Natalie Sierra, Brown and Caldwell;
Karri Ving, City and County of San Francisco
- 9:30 AM** **Starting with the End in Mind: How a Biosolids Market Assessment Revealed an Unexpected Alternative for the Goleta Sanitary District**
Lisa Challenger, Material Matters; Derya Dursun, Mohammad Abu-Orf, Hazen & Sawyer
- 10:00 AM** **Session Adjourns for Networking Break in Exhibit Hall**
- Alternate** **Successful Marketing Strategies for a Biosolids Fertilizer: BMPs, Nutrient Stewardship and Third party agronomic trials**
Mike Dougherty, Lystek International Inc

Session 09: Biogas
Thursday, May 9, 8:30 AM - 10:00 AM

- 8:30 AM** **Operational Characteristics of Simultaneous Removal of Siloxane and H₂S from Biogas Using a Biotrickling Filter**
Yuyao Zhang, Kyoto University; Daisuke Minami, Ebarajitsugyo.Co.,Ltd.; Toshihiro Tanaka, Ebara Corporation Environmental; Kazuyuki Oshita, Masaki Takaoka, Kyoto University
- 9:00 AM** **Finding the Best Use for Biogas - How Site Specific Factors Impact the Decision Making Process**
Tyler Dougherty, Becky Luna, Carollo Engineers; Thomas Mossinger; Gunter Ritter, South Platte Water Renewal Partners; John Gage, City of Longmont
- 9:30 AM** **Uniform Basis for Estimating Methane Production with Co-Digestion**
Ron Appleton, Carollo
- 10:00 AM** **Session Adjourns for Networking Break in Exhibit Hall**
- Alternate** **Demand-Driven Biogas Production from Anaerobic Digestion of Sewage Sludge: Potential Environmental Benefits and Strategies**
Mauro Lafratta, Thames Water; Rex Thorpe, Sabeha Ouki, Jacquetta Lee, University of Surrey; Achame Shana, Mark Willcocks, Thames Water
- Poster** **Cost-Effective Biogas Treatment: Understanding Factors That Affect Media Life**
Alison Nojima, Nancy Andrews, Brown and Caldwell; Shawn Redmond, Delta Diablo SD; Jon Diller

Session 10: Land Applications and Management
Thursday, May 9, 10:45 AM - 11:45 AM

- 10:45 AM** **Composting, an Option to Reduce Nitrogen Release Rate and Optimize Environmental Benefits of Biosolids**
Olawale Oladeji, Guanglong Tian, Pauline Lindo, Kuldip Kumar, Metropolitan Water Reclamation District of Greater Chicago; Albert Cox; Lakhwinder Hundal; Heng Zhang, MWRD of Greater Chicago At Cicero Stickney WTP
- 11:15 AM** **Puketutu Island Quarry Rehabilitation with Biosolids - the First 10 Years**
Rob Tinholt, Watercare Services Ltd; Shane Morgan
- 11:45 AM** **Session Adjourns for Lunch in Exhibit Hall**
- Alternate** **Planning for Agricultural Use of Compost Produced with Sewage Sludge and Coffee Husks: The Case for Coffee Plantations in Brazil**
Renata Bortolini, Antonio Matos, UFMG; Lucas Chamhum-Silva, UMG; Cesar Mota Filho, UFMG

Session 11: Energy

Thursday, May 9, 10:45 AM - 11:45 AM

- 10:45 AM** **Energy Positive Operations - City of Los Angeles Hyperion Bio-Energy Facility**
David Copp, Michael Sarullo, Hi-Sang Kim, City of Los Angeles
- 11:15 AM** **Focus on Energy Recovery in Developing Capital Upgrades Recommendations Offers Many Benefits at For Solids Management at Peel Region Wastewater Treatment Plants**
Deborah Ross, Jacobs; John Glass, Regional Municipality of Peel; Emma Shen, Jacobs; Cindy Kambeitz, Region of Peel
- 11:45 AM** **Session Adjourns for Lunch**
- Alternate** **RNG vs CHP: Comparing Value, Energy Output, and Carbon Emissions Reductions for Digester Gas**
Chris Peot, William Brower, James Fotouhi, DC Water

Session 12: Thickening, Dewatering, Drying II
Thursday, May 9, 1:30 PM - 4:45 PM

- 1:30 PM** **Improvements in Process Performance of Dewatering Centrifuges With Super-deep Pond Operation**
Scott Scholtz, Frank Scriver, Flottweg Separation Technology, Inc.
- 2:00 PM** **Drying Can Be Odor-Free (and Headache Free), if Managed Holistically from Design Through Operation**
Zdenek Frcek, VODAKVA; Lynne Bouchy, SUEZ Water Technologies and Solutions; Gerardo Aguilera Soriano, Suez Environment; Françoise Rousseille, Suez Eau France; Naïke Noyon, Suez
- 2:30 PM** **The Impact of Base Pretreatment on Dewaterability of Conventional vs. Bio-P Anaerobically Digested Biosolids**
Eileen Kennedy, Marquette University; Patrick McNamara; Brooke Mayer, Marquette University
- 3:00 PM** **Networking Break**
- 3:45 PM** **Using Cerium Chloride to Control Soluble Orthophosphate Concentration and Improve the Dewaterability of Sludge**
Dian Zhang, Virginia Tech; Robert Angelotti; Erick Schlosser, Upper Occoquan Service Authority; Zhi-Wu Wang, Virginia Tech
- 4:15 PM** **Progressing to Class A Biosolids: A Guide to Thermal Hydrolysis Process Pre-Treatment Options**
Frances Burlingham, Perry Schafer, Tracy Stigers, Jann Yamauchi, Brown and Caldwell
- 4:45 PM** **Session Adjourns**
- Alternate 1** **Dust Hazard Analysis and Thermal Dryer Design Safety Considerations**
Brandon Gott, Vincent Maillard, GHD Inc
- Alternate 2** **Pilot-study: An approach to Improve the Performance of Existing Sludge Dewatering Process**
Pranoti Kikale, David Schuman, Globaltech Inc; Brent Weidenhamer, Seacoast Utilities Authority

Session 13: Preconditioning II
Thursday, May 9, 1:30 PM - 4:45 PM

- 1:30 PM** **Impact of Ozone Pretreatment on Anaerobic Degradability of Aqueous Pyrolysis Liquid (APL) from Biosolids**
Saba Seyedi, Kaushik Venkiteshwaran, Daniel Zitomer, Marquette University
- 2:00 PM** **THP Without the use of Steam or Chemicals**
James Goldhardt, Ovivo; Gloria Cadavid, Eliquo Water
- 2:30 PM** **Economic Analysis of Implementing Centrifugal Thickening and Thermal Alkali Hydrolysis Technologies in a Medium Sized Water Resource Recovery Facility**
Zhongtian Li, Centrisys/CNP; Hiroko Yoshida; Gerhard Forstner; Michael Stenstrom, UCLA
- 3:00 PM** **Networking Break**
- 3:45 PM** **The Effects of Thermal Hydrolysis, Hydraulic Retention Time and Ammonia Concentration on Digestion Rates and Dewatering Across Digestion Sites in Thames Water UK. Keith Panter, THP Consultant Cambi, Paul Fountain, Achame Shana, Sludge Process Specialists, Keith Panter, Consultant**
- 4:15 PM** **A Fresh Start for Palo Alto: Building the Biosolids Program of the Future**
Donald Song, Shalini Trivedi, Woodard and Curran
- 4:45 PM** **Session Adjourns**
- Alternate 1** **Thermal Hydrolysis of Waste Activated Sludge for Digestion Enhancement**
Yu Lei, Winson Lay, Public Utilities Board of Singapore
- Alternate 2** **Turbocharging Egg-Shaped Digesters with WAS-Only Thermal Hydrolysis at the Hengelo WWTP**
Hans Ellenbroek, Water Authority Vechtstromen; Davy Ringoot, Cambi AS

Session 14: El Panorama de Biosólidos en Latinoamérica: Reglamentación y Tecnología (Running the Gamut of Biosolids in Latin America: Regulations and Technology)
Thursday, May 9, 1:30 PM - 4:45 PM

- 1:30 PM** **Facilitated Panel Discussion**
Panelists will be confirmed shortly
- 2:20 PM** **Factores que Impulsan la Selección De Procesos de Biosólidos en Latinoamérica: Siete Casos de Studio**
Kathryn Snyder, Hazen & Sawyer
- 2:40 PM** **Impacto de Tecnologías de Espesamiento y Deshidratación de Lodos en el Manejo Estratégico de Biosólidos**
Adrian Romero, Jacobs
- 3:00 PM** **Networking Break**
- 3:45 PM** **Recuperación de Estruvita e Hidroxiapatita Como Estrategia de Gestión Integral de Agua Residual Municipal: Caso de Estudio Universidad Autónoma de Occidente**
Diego Alejandro Larrahondo, Universidad Autónoma De Occidente
- 4:05 PM** **Sludge Electrocoagulation: Effect on Physicochemical Properties and Extracellular Polymeric Substances**
José Antonio Barrios Pérez, Instituto de Ingeniería UNAM
- 4:25 PM** **Sácale el Jugo al Biogás: Maximizando el Valor del Gas Producido por Digestión Anaerobia**
Christine Polo, Black and Veatch
- 4:45 PM** **Session Adjourns**
- Poster** **Reactor Biológico de Electrohidrogénesis Como Alternativa Para la Recuperación de Energía a Partir del Tratamiento de Lixiviados Generados en Sitios de Disposición Final de Residuos Sólidos Municipales**
Nancy Vasquez Sarria, Universidad Autónoma de Occidente

Session 15: Process Optimization and Lessons Learned
Thursday, May 9, 1:30 PM - 3:00 PM

- 1:30 PM** **Hydraulic Mixing System Optimization for Anaerobic Digestion**
Matthew Bronk, Evoqua Water Technologies; Kevin Jankowski, Milwaukee Metropolitan Sewerage District; Tom Mangione, Evoqua Water Technologies
- 2:00 PM** **Dewatering Optimization at Capital Region Water: Effects of Biological Nutrient Removal, Polymer Selection and Mixing, and Chemical Addition on Dewatering Efficiency**
Wade Yankey, Trudy Johnston, Material Matters Inc; Jess Rosentel, City of Harrisburg; Raymond Hoke, Capital Region Water
- 2:30 PM** **Its Alive: Bringing the Rehabilitated Columbia Metropolitan WWTP Anaerobic Digesters Back to Life**
C Michael Bullard, Hazen & Sawyer; David Wiman; David Wagoner; Meredith Bridwell, Barry Bickerstaff, Hazen & Sawyer; Michael Foisy, Upper Blackstone Water
- 3:00 PM** **Session Adjourns for Networking Break in Exhibit Hall**
- Alternate** **Electrokinetic Thickening and Solubilization of Secondary Sludge Prior to Anaerobic Digestion**
Fred Mussari; Michael Norris, BCR
- Poster** **Life-cycle Cost Analysis of Heavy Metal Removal from Electromagnetic Wave-Pretreated Dewatered Biosolids**
Simeng Li, Gang Chen, FAMU-FSU College of Engineering
- Poster** **Deep Earth Digestion - An Innovative Technique for Sewage Wastewater and Biosolids Management in the Miami-Dade County of Florida**
Yashesh Panchal, Ibrahim Mohamed, Nihal Mounir, Omar Abou-Sayed, Advantek Waste Management Svcs LLC; Homayoun (Omar) Moghaddam, Geoenvironment Technologies

Session 16: Regionalization and Master Planning I
Thursday, May 9, 3:45 PM - 4:45 PM

- 3:45 PM** **Regionalization of Biosolids Treatment with New Digestion, Advanced Energy Recovery, and Beneficial Reuse at Albany and Saratoga Counties**
Eric Auerbach, Arcadis; Robert Ostapczuk, Malcolm Pirnie Inc; Timothy Murphy, Albany County Water Purification District; Dan Rourke, Saratoga County Sewer District No 1
- 4:15 PM** **Sludge Management Master Plan For Istanbul Metropolitan Municipality**
Osman Arikan, Kaan Dereli, Evren Ersahin, Istanbul Technical University; Fatih Turan, Istanbul Water and Sewerage Administration
- 4:45 PM** **Session Adjourns**
- Alternate** **Biosolids Planning with the Opening of the Metropolitan Water Reclamation District of Greater Chicago's 7.9 Billion Gallon Thornton Composite Reservoir**
Dominic Brose, Peter O'Brien, Judy Moran-Andrews, Metropolitan Water Reclamation District Chicago
- Poster** **Co-incineration Possibility and Regional Analysis of Municipal Solid Waste and Sewage Sludge**
Masaki Takaoka; Zheng Zhang, Kazuyuki Oshita, Ryo Matsuo, Kyoto Univeristy; Kazue Shibata, Masaru Sakamoto, SANKI Engineering Co., LTD.

Session 17: Regionalization and Master Planning II
Friday, May 10, 8:30 AM - 11:15 AM

- 8:30 AM** **A Test Case for Centralized Thermal Hydrolysis and Anaerobic Digestion for Medium Sized Communities**
Rahul Chhillar, David Solley, GHD; Lauren Randall, David Derkenne, Hunter Water Corporation; Mayur Sathe, GHD
- 9:00 AM** **DC Water's Greenhouse Gas Modelling Results and Implications for Master Planning**
James Fotouhi, Chris Peot, DC Water & Sewer Authority; John Willis, Brown and Caldwell; William Brower, DC Water & Sewer Authority
- 9:30 AM** **Developing a Sustainable Biosolids Program Through a Comprehensive, Collaborative Approach for Arlington County**
Kwok-Wai Tsang, CDM Smith; Mary Strawn, Thomas Broderick, Arlington County; Jonathan Treadway, CDM Smith
- 10:00 AM** **Networking Break**
- 10:15 AM** **Integrated Biosolids and Energy Management Planning: Achieving Energy Self-Sufficiency for Small Utilities**
Derya Dursun, Mohammad Abu-Orf, Hazen & Sawyer; Hersy Enriquez; Dawn Guendert; Bryan Lisk, Allan Briggs, Hazen & Sawyer; Steve Wagner, Goleta Sanitary District
- 10:45 AM** **Comprehensive Solids and Energy Analysis Leads to Long Term Facilities Plan at the Encina Water Pollution Control Plant**
Natalie Sierra, Thomas Chapman, Adam Ross, Scott Lacy, Brown and Caldwell; Scott McClelland, Encina Wastewater Authority; Perry Schafer, Brown and Caldwell
- 11:15 AM** **Conference Adjourns**
- Alternate 1** **Metropolitan Sewer District of Greater Cincinnati System-wide Biosolids Master Plan**
Tracy Chouinard, Brown and Caldwell; Matthew Spidare, Metropolitan Sewer District of Greater Cincinnati; Timothy Koch, John Ross, Natalie Sierra, John Willis, Brown and Caldwell
- Alternate 2** **Which Hydrolysis System is Best for You? A Review of Hydrolysis Technologies**
Thomas Nangle, Perry Schafer, Brown and Caldwell

Session 18: Nutrient and Resource Recovery
Friday, May 10, 8:30 AM - 11:15 AM

- 8:30 AM** **Nutrient Recovery: Mature and Ready for the Big Stage**
Bryan Atieh, Wendell Khunjar, Ron Latimer, Hazen & Sawyer; Gayathri Mohan, Gwinnett County Department of Water Resources
- 9:00 AM** **Enzyme Recovery From Waste Activated Sludge**
Stephen Smith, Ziyi Liu, Imperial College London
- 9:30 AM** **Doubling Down on Phosphorus**
Rachel Lee, Ostara Nutrient Recovery Technologies Inc.; Matt Seib, Madison Metropolitan Sewerage; Derek Lycke, Ostara; Mikaela Verigin; Katherine Lai, Ostara Nutrient Recovery Technologies Inc.
- 10:00 AM** **Networking Break**
- 10:15 AM** **The DEMON® Anammox Process: Case Study at Pierce County Chambers Creek WWTP**
Chandler Johnson, World Water Works, Inc; Amanda Summers, Pierce County Public Works and Utilities; Adam Klein, Henryk Melcer, Brown and Caldwell
- 10:45 AM** **To Recover or Not to Recover? Controlling Phosphorus Recycles and Scaling with Struvite Precipitation**
Chris Moline, HDR; Brian Balchunas, Lawrence Hentz, Atkins; Robert Hindt, DELCORA
- 11:15 AM** **Conference Adjourns**
- Alternate 1** **Quantification of Struvite Content of Biosolids is Necessary to Avoid Bias in the Assessment of Digester and Dewaterability Performance**
Wendell Khunjar, Hazen & Sawyer
- Alternate 2** **High Efficiency Calcium Phosphate Recovery Technology at The Madison Metropolitan Sewerage District: Stability Metrics, Design Optimization, and Performance.**
Menachem Tabanpour, Centrisys-CNP; Phillip Barak, Nutrient Recovery & Upcycling; Hiroko Yoshida; Zhongtian Li, Centrisys/CNP; Mauricio Avila, Nutrient Recovery & Upcycling; Gerhard Forstner

Session 19: Recent Advances in Biosolids Technology
Friday, May 10, 8:30 AM - 11:15 AM

- 8:30 AM** **The Smell of Successful Biosolids Resource Recovery by the University Area Joint Authority**
Aaron Stephens, Material Matters, Inc.; Robin Brandt; Jason Brown, Corey Miller, University Area Joint Authority; Ben Burns, Herbert Rowland & Grubic Inc
- 9:00 AM** **New GHG Methodology for Estimation of Methane Emissions from Digested-Biosolids Storage and Dewatering**
John Willis, Brown and Caldwell; William Brower, James Fotouhi, Chris Peot, DC Water & Sewer Authority; Pusker Regmi
- 9:30 AM** **Effluent Phosphorous Control through Facultative Biosolids Stabilization**
Albert Bock, Aquaconeer
- 10:00 AM** **Networking Break**
- 10:15 AM** **Supercritical Water Oxidation for Sludge Treatment and Removal of Emerging Compounds**
Banu Ormeci, Carleton University
- 10:45 AM** **Techno-Economical Analysis of Anaerobic Digestion Pre-Treatment Technologies for a UK Site**
Ester Rus, Jacobs; Richard Smith
- 11:15 AM** **Conference Adjourns**
- Alternate 1** **Production and Treatment of Dewatering Side-Streams Following Thermal Hydrolysis and Anaerobic Digestion of Sewage Sludge**
Bill Barber, Cambi, Inc.
- Alternate 2** **Torque Rheology and UV-Vis Spectrophotometry for Monitoring Sludge Characteristics and Optimization of Treatment Processes**
Banu Ormeci, Carleton University; Jordan Smyth

Session 20: Regulatory and Environmental Drivers
Friday, May 10, 8:30 AM - 11:15 AM

- 8:30 AM** **Protecting Beneficial Use - Current Legal Issues Impacting Land Application**
Andrew Silton, Beveridge & Diamond PC
- 9:00 AM** **Biosolids Management in Circular Economy: Lessons from Around the World**
Banu Ormeçi, Carleton University
- 9:30 AM** **How the Regulatory Environment in Germany is Driving Sludge Disposal**
Harald Plank, Edward Fritz, Chip Pless, Huber Technology, Inc.
- 10:00 AM** **Networking Break**
- 10:15 AM** **Full System Understanding, Integration, and Optimization Lead to Low Emissions**
Joseph Ward, George Sprouse, Laura Fletcher, Stephen Norton, Metropolitan Council
Environmental Services; Scott Smrekar
- 10:45 AM** **Travelling Calgary's "Yellow Brick Road" to Biosolids Diversification - A Case Made for
Capitalizing on Benefits, Feeding Giraffes, and Discovering the Wizard Behind the Curtain**
Catalina Nadeau-Bonilla, City of Calgary; John Lavery; Sam Bailey, City of Calgary
- 11:15 AM** **Conference Adjourns**
- Alternate 1** **Evaluation of Short Term Biosolids Management Options in Response to a Settlement
Agreement**
Bill Fasth, Brown and Caldwell
- Alternate 2** **Inorganic Parameters of Sewage Sludge for Agricultural Use in Paraná State, Brazil**
Simone Bittencourt, Companhia De Saneamento Do Paraná