



Residuals and Biosolids 2014 Conference

Sustainability Made Simple: Facilitating Resource Recovery

**May 18 – 21, 2014
Austin, Texas
Austin Convention Center**



This conference is held by the Water Environment Federation in cooperation with the Water Environment Association of Texas.

TECHNICAL PROGRAM

Session 1: Resource Recovery in the Lone Star State

Monday, May 19, 2014

1:30PM - 5:00PM

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|------------|---------------|---|
| 01A | 1:30PM | Co-Digestion and Thermal Drying Maximize Resource Recovery in Waco, Texas
Mike Jupe, City of Waco; Toshio Shimada, Carollo Engineers |
| 01B | 2:00PM | The Road to Co-Digestion: Steps and Hurdles to Program Development and Implementation
Jeff Sober, Garver USA; Scott Baggett, City of Longview |
| 01C | 2:30PM | Leveraging Synergies for Resource Recovery in Austin, Texas: When Long-term Plans for Source Separated Organics and Biosolids Converge
Jody Slagle, Austin Water Utility; Lynne Moss, CDM Smith |
| | 3:00PM | Networking Break |
| 01D | 3:30PM | Hot in Texas: Thermal Hydrolysis Pretreatment Comes to the Lone star State
Lynne Moss, CDM Smith |
| 01E | 4:00PM | San Angelo Builds a Successful Composting Program - Without Bulking Agent |
| 01F | 4:30PM | Houston's Biosolids: Production to Market
Paul Zappi, City of Houston |
| | 5:00PM | Session Adjourns |

TECHNICAL PROGRAM

Session 2: Thickening and Dewatering

Monday, May 19, 2014

1:30PM - 5:00PM

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| 02A | 1:30PM | Howard F. Curren AWTP Biosolids Dewatering Technology Evaluation
Jacob L. Porter, Daniel Schmidt, Michael Bullard, Hazen and Sawyer; Charles Lynch, City of Tampa |
| 02B | 2:00PM | Applying European Experience to Screen and Select A Sustainable Dewatering System for Green Bay
David W. Oerke, CH2M HILL; Bill Angoli, Bruce Bartel, Nathan Qualls, NEW Water; Peter Burrowes, Bill Desing, CH2M HILL |
| 02C | 2:30PM | High Dry Solids Dewatering Digested Sludge – Thames Water’s Experience, Plans and Opportunities
Nick Mills, Paul Fountain, Thames Water |
| | 3:00PM | Networking Break |
| 02D | 3:30PM | Technical, Environmental and Economic Assessment of Sludge Thickening Processes: A Comparison of Conventional Thickening and Energy Efficient Centrifugal Thickening Technologies
Josh Gable, Centrisys; Hiroko Yoshida, Technical University of Denmark; Jae K. Park, University of Wisconsin |
| 02E | 4:00PM | Biosolids Dewatering and Drying by Novel Use of a Breathable Membrane Process
Steven K. Dentel, Solmaz Marzooghi, Shray Saxena, University of Delaware; Nathalia Aquino de Carvalho, Universidad Federal de Paraiba; Paul T. Imhoff, University of Delaware |
| 02F | 4:30PM | In-Line Real Time Measurement of Polymer Concentration
Rich DiMassimo, Kruger |
| | 5:00PM | Session Adjourns |

Session continues on next page.

TECHNICAL PROGRAM

Session 2: Thickening and Dewatering, Continued

**Alternate 1 Rethinking Dissolved Air Flotation Thickening:
Improvements to Lower Energy, Simplify Operation and
Reduce Maintenance**

Brad E. Leidecker, HDR Engineering; Jerry Valladao,
Monterey Regional Water Pollution Control Agency;
Dave Reardon, HDR Engineering

**Alternate 2 Irreversible Impact of Temperature on Rheological
Behavior of Anaerobic Digested Sludge**

Nicky Eshtiaghi, Ehsan Farno, Raj Parthasarathy,
RMIT University; Jean Christophe Baudez, IRSTEA

TECHNICAL PROGRAM

Session 3: Integrated Organics Management

Monday, May 19, 2014

1:30PM - 5:00PM

03A	1:30PM	Lessons Learned on Organic Solid Waste Digestion and Composting Projects in Europe Christian Cabral, Boris Efremenko, Francois Eveillard, Veolia Water
03B	2:00PM	Palo Alto, CA's Integrated Source-Separated Organics Management Solution to Achieve Zero Waste Goals Drury D. Whitlock, David W. Green, Leswin Dcunha, CH2M HILL; James Allen, Mathew Krupp, Phil Bobel, City of Palo Alto, CA
03C	2:30PM	Feasibility of High Strength Waste Co-Digestion for the San Francisco Public Utilities Commission Mohammad M. Abu-Orf, Terry Goss, AECOM Water; Eric Casares, Corallo Engineers; Mary Fong, Parsons; Bonnie Jones, Rosanna Tse, Humphrey Ho, Kari Ving, Caorlyn Chiu, SFPUC
	3:00PM	Networking Break
03D	3:30PM	Effect of Food Waste Co-Digestion on Dewatering and Cake Quality, and Digestion Parameters Ganesh Rajagopalan, Kennedy Jenks Consultants; Mathew Higgins, Bucknell University; Andre Miller, Orange County Sanitation District; Robert Goepfert, Mona Mohammed, Bucknell University
03E	4:00PM	High Solids Anaerobic Digestion Process to Treat High Strength Municipal and Industrial Organic Waste Sudhakar Viswanathan, Jongmin Kim, Nabin Chowdhury, INFILCO DEGREMONT INC; Pratap Pullammanappallil, University of Florida
	4:30PM	Facilitated Discussion
	5:00PM	Session Adjourns

Session continues on next page.

TECHNICAL PROGRAM

Session 3: Integrated Organics Management, Continued

Alternate 1 Fast Anaerobic Digestion of Organic Residuals: Case Studies for the Treatment of Municipal Sludge and Source Separated Organics
David Lacasse, Berlie Technologies Inc.

Alternate 2 Benefits and Costs of Co-Digestion for a Large Utility
Eric M. Spargimino, John F. Donovan, CDM Smith; Dan O'Brien, MWRA; David L. Parry, CDM Smith; Dave Duest, MWRA

TECHNICAL PROGRAM

Session 4: Solids Handling Process Considerations

Monday, May 19, 2014

1:30PM - 5:00PM

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| 04A | 1:30PM | Stepping Up To Inorganics: Sludge Screening
Troy Laman, Carollo Engineers |
| 04B | 2:00PM | I Will Squeeze and I Will Shear and I Will Blow the Water out: Dewatering Biosolids
Rudy Killian, Carollo Engineers |
| 04C | 2:30PM | Digestion Pretreatment - Gas and VS Destruction and Cake Quality
John Novak, Virginia Tech |
| | 3:00PM | Networking Break |
| 04D | 3:30PM | Characterizing Polymer Thickened Biosolids for Pumping Applications
Brian Hilts, CDM Smith; Glenn Dorsch, Vaughan Company Inc |
| 04E | 4:00PM | Liquid and Solids Are a Good Mix: Benefits of Transparently Linking Solids Handling and Liquid Treatment Operations at MSDGC
Ryan Welsh, MSDGC; Ting Lu, Black & Veatch; Biju George, Donald Linn, Ali Bahar, MSDGC; Deborah Metz, GCWW; Andy Shaw, Scott Reed, Black & Veatch |
| 04F | 4:30PM | Lessons Learned in FOG Waste Receiving Station Design
Dale D. Gabel, CH2M HILL; Susan Pekarek, Johnson County Wastewater; Dan Robillard, CH2M HILL; Randy Neaf, Clean Water Services; Bartek Puchajda, CH2M HILL; Jifan Liu, City of Calgary |
| | 5:00PM | Session Adjourns |

TECHNICAL PROGRAM

Session 5: Thermal Hydrolysis Processes

Tuesday, May 20, 2014

8:30AM - 12:00PM

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| 05A | 8:30AM | Influence of Time and Temperature on Thermal Hydrolysis Performance
Weizhong (Steven) Xiao, C.C. Johnson & Malhotra, P.C.; Hung-Wei Lu, Joshua Mah, Virginia Tech; Bipin Pathak, Ahmed Al-Omari, DC Water; Matthew Higgins, Bucknell University; Sudhir Murthy, DC Water |
| 05B | 9:00AM | Effect of Thermal Hydrolysis Temperature on Anaerobic Digestion
Matthew J. Higgins, Bucknell University |
| 05C | 9:30AM | Characterization and Removal of Refractory Dissolved Organic Nitrogen after Thermal Hydrolysis and Mesophilic Anaerobic Digestion
Matthew J. Higgins, Bucknell University |
| | 10:00AM | Networking Break |
| 05D | 10:30AM | The Different Solutions Proposed by Thermal Hydrolysis Process: Successful Implementation Of Ld, Dl and Dld Configurations On Several WWTP
Julien CHAUZY, Veolia; Michele Kline, Kruger Inc. |
| 05E | 11:00AM | Second Generation Thermal Hydrolysis Process Configurations
Nick Mills, Thames Water; Keith Panter, Cambi |
| | 11:30AM | Facilitated Discussion |
| | 12:00PM | Session Adjourns |

TECHNICAL PROGRAM

Session 6: Thermal Processes

Tuesday, May 20, 2014

8:30AM - 12:00PM

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| 06A | 8:30AM | <p>Gains in Operating Efficiency Achieved with the Implementation of Continuous, Real-time Analysis of Firing Rate and Cake Solids From Fluid Bed Incinerator Flue Gas Data</p> <p>Matthew R. Strickland, Metropolitan Council Environmental Services; F. M. Lewis, Michael Lewis Inc.; Rene Heflin, Dave Quast, Nicholas Davern, Metropolitan Council Environmental Services; Scott D. Fronek, Black & Veatch</p> <p>Continuous, Real Time Analysis of Firing Rate and Cake Solids from Fluid Bed Incinerator Flue Gas Data</p> <p>F Michael Lewis, F Michael Lewis Inc; Matthew Strickland, Metropolitan Council Environmental Systems, St. Paul; David A. Hoecke, Enercon Systems, Inc.</p> |
| 06B | 9:00AM | <p>Pyrolysis of Wastewater Biosolids: Batch Energy and Mass Balances</p> <p>Patrick J. McNamara, Jon Koch, Daniel Zitomer, Marquette University</p> |
| 06C | 9:30AM | <p>Utilizing Recovered Heat to Economically Produce Class A Biosolids</p> <p>Steve Wilson, Brown & Caldwell</p> |
| | 10:00AM | <p>Networking Break</p> |
| 06D | 10:30AM | <p>Implementation of a Medium Temperature Belt Dryer in North Carolina to produce Class A Biosolids - Case Study</p> <p>Dieter W. Weinert, Huber Technology Inc.; Barry McKinnon, Town of Mooresville</p> |
| 06E | 11:00AM | <p>Meeting "New" Multiple Hearth Mact 129 Limits: Have You Considered Everything?</p> <p>James Rowan, James Welp, Gustavo Queiroz, C. Patrick Schlotzhauer, Heather Cheslek, Black & Veatch</p> |

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TECHNICAL PROGRAM

Session 6: Thermal Processes, Continued

**06F 11:30AM Evaluating the Future of Biosolids Drying -
Louisville MSDs Decision Process**
Robert Bates, Alex Novak, Sharon Worley, Robin
Burch, Joe Falleri, Louisville Metropolitan Sewer
District

12:00PM Session Adjourns

**Alternate 1 Continuous Processes: Solar Drying of Biosolids at
Tooele City Water Reclamation Facility, UT**
Dieter Weinert, Huber Technology Inc.; Dan Olson, Tooele
City

**Alternate 2 Demonstrated Mercury Reduction for SSI MACT using
Mercury Absorption Modules**
Brian Higgins, Marcel Pomerleau, EnviroCare; Pamela
Randolph, Edmonds Wastewater Treatment Plant; Tim Bauer,
CH2M HILL; Jeff Kolde, W.L. Gore

TECHNICAL PROGRAM

Session 7: Energy Recovery Case Studies

Tuesday, May 20, 2014

8:30AM - 12:00PM

07A	8:30AM	Optimization and Retrofit of a Solids Processing System for Energy Recovery Ed St.Peter, Kenosha Water Utility; George Tchobanoglous, Harold Leverenz, UC Davis; Mary Martis, Consultant; Elke SELLER, SH+E Group
07B	9:00AM	Renewable CNG with Combined Heat and Power Provides Flexible End Use for Biogas Jay S. Kemp, Cornerstone Environmental Group
07C	9:30AM	Co-Digestion to Feed the Energy Engine: A Major Texas Plant Moves Toward Energy Independence Leonard E. Ripley, Freese And Nichols Inc.; Sebastian Fichera, City of Fort Worth Water Department; Peter V. Cavagnaro, Johnson Controls
	10:00AM	Networking Break
07D	10:30AM	Energy Recovery at Blue Lake WWTP - An Award Winning Experience Patricia A. Scanlan, Black & Veatch
07E	11:00AM	Integrating Major Components of a New Landfill Gas System - Coordination of Multiple Contracts for Gas Treatment, Pipeline Transmission and Turbine Energy Generation - An Update Ralph B. Schroedel, Brown & Caldwell; Michael Martin, Cary Solberg, William Krill, Milwaukee Metropolitan Sewerage District
07F	11:30AM	Leaded or Unleaded: Considering an Alternative Use of Biogas at the Columbia Boulevard Wastewater Treatment Plant Jeremy Holland, Stephane Larocque, HDR Engineering; Vu Han, City of Portland, Bureau of Environmental Services
	12:00PM	Session Adjourns

Session continues on next page.

TECHNICAL PROGRAM

Session 7: Energy Recovery Case Studies, Continued

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| Alternate 1 | Keeping Recovered Energy from Biosolids within the Fence: When Does it Make Sense?
Charles T. Goss, Mohammad Abu-Orf, AECOM |
| Alternate 2 | Austin Water Utility's Hornsby Bend Biogas to Energy CHP Project - Commissioning and Startup
Adam Bogusch, Richard T. Grubbs, Chevron Energy Solutions |
| Poster | Wastewater Treatment Energy Use: How Can Primary Treatment Help Attain Energy Neutrality?
Gustavo F. Queiroz, Hari Santha, Edmund Kobylinski, Neil Massart, Black & Veatch |

TECHNICAL PROGRAM

Session 8: Stabilization Processes

Tuesday, May 20, 2014

8:30AM - 12:00PM

08A	8:30AM	Anaerobic Digestion Dave Parry, CDM Smith
08B	9:00AM	Aerobic Digestion Elena Bailey, Ovivo
08C	9:30AM	Biosolids Composting Technology: Where it Has Come from and Where it is Going Todd O. Williams, CH2M HILL
	10:00AM	Networking Break
08D	10:30AM	Drying Scott Carr, CDM Smith
08E	11:00AM	Incineration Jim Welp, Black and Veatch
08F	11:30AM	Providing Operational Flexibility by Adding Lime Stabilization as a Backup for Sludge Incinerator Anna Neugebauer, CDM Smith; Maureen O'Shaughnessy, Steve Bennett, PWCSA; Peter Loomis, William Schafer, CDM Smith
	12:00PM	Session Adjourns

TECHNICAL PROGRAM

Session 9: Digestion Pretreatment

Tuesday, May 20, 2014

1:30PM - 3:00PM

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| 09A | 1:30PM | Effect of Pretreatment using Ultrasound and Hydrogen Peroxide on Digestion of Waste Activated Sludge in an Anaerobic Membrane Bioreactor
Priyanka D. Joshi, Wayne Parker, University of Waterloo |
| 09B | 2:00PM | High Pressure Homogenization and Temperature Phased Anaerobic Digestion for Enhanced Biogas Conversion from Municipal Waste Sludge
Abdullahil Kafi Md Wahidunnabi, Cigdem Eskicioglu, University of British Columbia |
| 09C | 2:30PM | Enhanced Biogas Production Using Ozone - Lysis Reactor Design and Integration with Anaerobic Digestion of Biosolids
Richard A. Novak, Bruce Xu, Soujanya Jampala, Purvish Shah, Malcolm Fabiyi, Praxair, Inc. |
| | 3:00PM | Session Adjourns |
| Alternate | | Can We Minimize Biosolids Production in Activated Sludge Systems by Process Manipulations-Process Sustainability and Nutrient Removal
Pei Huang, University of Utah; Ramesh K. Goel, University of Utah |
| Poster | | Improvements in the Anaerobic Digestibility of TWAS Using an Established Thermal-Alkaline Hydrolysis Technology
George Nakhla, Western University; Elsayed Elbeshbishy, Western University; Andrew Lugowski, CRA; Ajay Singh, Bill Mullin, Lystek International Inc. |

TECHNICAL PROGRAM

Session 10: Sidestream Nutrient Removal

Tuesday, May 20, 2014

1:30PM - 5:00PM

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| 10A | 1:30PM | The First North American Full Scale Post Aerobic Digestion Success Story
Heidi Bauer, Bruce R. Johnson Adam McClymont,
David W. Oerke, CH2M HILL |
| 10B | 2:00PM | Biological Side Stream Ammonia Treatment Utilizing Membrane Thickening of Waste Activated Sludge
Bryen Woo, Kevin S. Crane, Ovivo USA, LLC |
| 10C | 2:30PM | Single-Stage Deammonification Process Performance - MBBR versus IFAS Configurations
Hong Zhao, Kruger Inc. |
| | 3:00PM | Networking Break |
| 10D | 3:30PM | A Unique Retrofit to Treat Centrate with Ras Reaeration at the Kitchener WWTP
Jose R. Bicudo, Associated Engineering; Trevor Brown, Khalid Mehmood, Region of Waterloo; Warren Saint, Laura Seaman, CH2M Hill; Deborah Ross, Troy Briggs, Cima+ |
| 10E | 4:00PM | Large-Scale Nutrient Harvesting: Making the Case for Resource Recovery in Atlanta
Randall S. Booker, Gresham, Smith and Partners; JoAnn J. Macrina, Frank Stephens, Sandra Glenn, City of Atlanta; Chris Haney, Jody Barksdale, Gresham, Smith and Partners; Matt Kuzma, Ostara |
| | 4:30PM | Facilitated Discussion |
| | 5:00PM | Session Adjourns |
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| Alternate 1 | | Anaerobic Digestion for Phosphorus Recovery
Carlos F. Gutierrez, Sedat Yalcinkaya, Joseph Malina, Kerry Kinney, Lynn Katz, University of Texas at Austin |
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| Alternate 2 | | Positive Impacts of Struvite Recovery on Biosolids Programs & Operations
Matthew Kuzma, Ostara USA, LLC; William Balzer, Hampton Roads Sanitation District; Peter Schauer, Clean Water Services |

TECHNICAL PROGRAM

Session 11: Digester Volume Expansion: Gas Holdup and Foaming

Tuesday, May 20, 2014

1:30PM - 5:00PM

	1:30PM	Introduction
11A	1:45PM	Management of Digester Foaming at Denver Metro's Central WWTP Craig Barnes, Denver Metro Wastewater Reclamation District
11B	2:00PM	Management of Foam Formation at the Des Moines Co-Digestion Facility Royce Hammitt, Des Moines Metro Wastewater
11C	2:15PM	Management of Rapid Rise Foam Formation at a co-Digestion Facility Dale Gabel, CH2MHILL
11D	2:30PM	Management of Rapid Rise Foam Formation at a Cambi THP Facility Keith Panter, Odd Egil Solheim
	2:45PM	Facilitated Discussion
	3:00PM	Networking Break
11E	3:30PM	Digester Gas Hold-up and Rapid Rise Foam Formation Steve Krugel or Tom Chapman, Brown and Caldwell
11F	4:00PM	Insights into Rapid Volume Expansion in Anaerobic Digesters Associated with Gas Holdup Matthew J. Higgins, Bucknell University
11G	4:30PM	Foam Busters: Investigating the Causes of Foaming in Anaerobic Digesters Amanda M. Siebels, Carollo Engineers; Dan Noguera, University of Wisconsin-Madison; Cliff Lange, Auburn University; Robert A. Gillette, Carollo Engineers
	5:00PM	Session Adjourns

TECHNICAL PROGRAM

Session 12: Considerations for Resource Recovery

Tuesday, May 20, 2014

1:30PM - 5:00PM

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| 12A | 1:30PM | Biosolids Recycling: 40 Years of Perspective
Robert G. O'Dette, State of Tennessee |
| 12B | 2:00PM | Maximizing Biosolids Benefits to Soils: Nutrients, Carbon and Beyond
Andrew Carpenter, Northern Tilth |
| 12C | 2:30PM | Overview of Cake Quality Issues: Odors and Regrowth
Chris Wilson, Greeley and Hansen |
| | 3:00PM | Networking Break |
| 12D | 3:30PM | What is your Flare Philosophy? - Impacts on Digester Gas System Design
Ralph B. Schroedel, Ted Hull, Eron Jacobsen, Brown and Caldwell |
| 12E | 4:00PM | The Multiple Benefits of Phosphorus Recovery
Andrew R. Shaw, David Koch, Black & Veatch; Matt Kuzma, Steve Wirtel, Ostara |
| 12F | 4:30PM | Finding the Right Fit - CHP Optimization Tools
Christine A. Polo, Jim Rowan, David Long, Black & Veatch |
| | 5:00PM | Session Adjourns |

TECHNICAL PROGRAM

Session 13: Codigestion

Tuesday, May 20, 2014

3:30PM - 5:00PM

13A 3:30PM Investigating Anaerobic Co-Digestion of Sewage Sludge and Food Waste Using a Bench-Scale Pilot Study

Wenye C. Kuo-Dahab, University of Massachusetts; Parviz Amirhor, Meredith Zona, Fay, Spofford & Thorndike; Dave Duest, Massachusetts Water Resources Authority; Chul Park, University of Massachusetts

13B 4:00PM Mesophilic Anaerobic Co-Digestion of Municipal Wastewater Sludge with Grease Trap Residuals

Sedat Yalcinkaya, Joseph F. Malina, University of Texas at Austin

13C 4:30PM Effects of Long Chain Fatty Acids on Completely Mixed Anaerobic Digesters Treating Municipal Sewage Sludge

Kuang Zhu, John T. Novak, Virginia Tech

5:00PM Session Adjourns

Alternate Green Bay Co-Digestion Bench-Scale Study: Comprehensive Lab Analyses to Streamline Codigestion Predesign

Drury D. Whitlock, Peter Burrowes, William E. Desing, Steven J. Graziano, CH2M HILL; Bill Angoli, Bruce Bartel, Nathan Qualls, Patrick Wescott, New Water; Jonathan A. Kusowski, Daniel H. Zitomer, Marquette University

Poster Fats, Oil, and Grease (FOG) and Food Waste Receiving Facilities: Revenue Windfalls or Boondoggles?

David J. Reardon, Ryan Hougham, HDR Engineering

TECHNICAL PROGRAM

Session 14: Digester Operation and Optimization

Wednesday, May 21, 2014

8:30AM - 10:00AM

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| 14A | 8:30Am | Anaerobic Digestion Startups and Process Changeovers for Class A and Advanced Processes
Perry L. Schafer, Chris Muller, John Willis, Michael Beattie, Tom Chapman, Brown and Caldwell |
| 14B | 9:00AM | Relationship between Performance and Microbial Community Structure in Two-Phase Anaerobic Digestion
Toshio Shimada, Carollo Engineers; David Epperson, City of Phoenix; Adam L. Smith, Lutgarde Raskin, University of Michigan |
| 14C | 9:30AM | Examination of Digester Gas Production on an Hourly and Minute Time Scale
Eric Auerbach, Arcadis; Thomas E. Kunetz, Metropolitan Water Reclamation District of Greater Chicago; Krishna Pagilla, MPR Engineering; Arun Mande, CH2M Hill |
| | 10:00AM | Session Adjourns |
| Alternate | | Alexandria Renew Enterprises Utilizes a Pasteurization System to Achieve Exceptional Quality Class A Biosolids
Hong Yin, Yanjin Liu, Harold Lee, Adrienne Fancher, Alexandria Renew Enterprises |
| Poster | | Magnesium Hydroxide for pH and Alkalinity Control in Biosolids Digestion
Alan Bowers, Nathaniel Barnes, Vanderbilt University; Matthew Madolara, Premier Magnesia, LLC |

TECHNICAL PROGRAM

Session 15: Biosolids Use: Benefits and Challenges**Wednesday, May 21, 2014****8:30AM - 12:00PM**

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| 15A | 8:30AM | Building a Framework for Resource Recovery in California
Greg Kester, California Association of Sanitation Agencies |
| 15B | 9:00AM | 10 Years of Deep Row Biosolid Application Research with Hybrid Poplar: Lessons Learned
Gary Felton, Jonathan Kays, University of Maryland |
| 15C | 9:30AM | Effect of Nitrogen-Based Biosolid Application on Soil Phosphorus, Water Quality, and Tree Growth in Hybrid Poplar Plantations
Jonathan Kays, Gary Felton, University of Maryland |
| | 10:00AM | Networking Break |
| 15D | 10:15AM | Evaluation of Long Term Storage Conditions on Fecal Coliform and Odors for Clackamas County
Christopher Muller, Brown & Caldwell; Kathryn Spencer, Mona LaPierre, Water Environmental Services, Clackamas County, OR; Matthew Higgins, Bucknell University; Steven Beightol, Penn State University |
| 15E | 10:45AM | Addition of Metal Salts to Reduce Odor Causing Volatile Sulfur Compounds and Pathogens from Anaerobic Digestion of Municipal Waste Sludge
Tim Abbott, Dr. Cigdem Eskicioglu, University of British Columbia |
| 15F | 11:15AM | Overcoming Obstacles at the City of Raleigh's Neuse River Wastewater Treatment Plant Land Application Site
Tim Woody, Marti Gibson, City of Raleigh Public Utilities |
| | 11:45AM | Session Adjourns |

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TECHNICAL PROGRAM

Session 15: Biosolids Use: Benefits and Challenges, Continued

Alternate 1 Odors and Alkaline-Stabilized Biosolids In-House Assessment Strategy to Improve Product Quality
Robin C. Brandt, Dept of Agriculture and Biological Engineering; Lisa C. Boudeman, Trudy E. Johnston, Material Matters, Inc.

Alternate 2 Explaining Sources of Biosolids Odors at Wastewater Treatment Plant (WWTP) by Utilizing Real-Time Odor Monitoring System and Statistical Models: A Case Study of District of Columbia Water and Sewer Authority (DC Water)
Ampun Janpengpen, Chulachomklao Royal Military Academy (CRMA); Tortrakul Yomnak, Sripatum University; Mark Ramirez, Chris Peot, District of Columbia Water and Sewer Authority

TECHNICAL PROGRAM

Session 16: Biosolids Marketing

Wednesday, May 21, 2014

8:30AM - 10:00AM

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| 16A | 8:30AM | Biosolids Beneficial Use Options for the Edmonton Region, Alberta
Alan Mangory, Fernando Sacluti, David Curran, City of Edmonton |
| 16B | 9:00AM | Utilizing Biosolids Marketing to Improve your Bottom Line
Eric M. Have, Kevin Hardy, Encina Wastewater Authority |
| 16C | 9:30AM | Driving Innovation by Challenging the Marketplace: Palo Alto's Organics Processing in 2020
Matthew A. Krupp, Phil Bobel, Ron Arp, Ken Torke, City of Palo Alto; Jim Osborn, Alternative Resources, Inc.; James J. Binder, J Binder Consulting |

10:00AM Session Adjourns

Alternate Fertilizing Outside the Box: Marketing EQ Biosolids Beyond the Agricultural Industry
Jennifer Callahan, Aaron B. Stephens, Material Matters

Poster Planning for a Large-Scale Soil Blending Program using CAMBI Biosolids
Ron Alexander, R. Alexander Associates Inc.; Chris Peot, DC Water

TECHNICAL PROGRAM

Session 17: Biological Phosphorus Removal - Impacts on Dewatering**Wednesday, May 21, 2014****10:15AM - 11:45AM**

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| 17A | 10:15AM | Bio-P, Digestion and Dewatering: Unexpected Consequences in the Midwest?
Leon S. Downing, Bill Marten, Eric Lynne, Donohue & Associates |
| 17B | 10:45AM | Improving Dewaterability of Digested Sludge from EBPR Facilities
Mario Benisch, HDR; Peter Schauer, Clean Water Services; JB Neethling, HDR |
| 17C | 11:15AM | Does Bio-P Impact Dewatering After Anaerobic Digestion? Yes, And Not In A Good Way!
Matthew J. Higgins, Bucknell University |
| | 11:45AM | Session Adjourns |
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| Alternate | Struvite Reduction and Harvesting Study at Deer Island Treatment Plant
Eric M. Spargimino, David Parry, CDM Smith; Dan O'Brien, Dave Duest, MWRA |
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TECHNICAL PROGRAM

Session 18: Constituents of Emerging Concern**Wednesday, May 21, 2014****10:15AM - 11:45AM**

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| 18A | 10:15AM | Fate and Risk Characterization of Trace Organic Compounds (TOCs) in Land Applied Biosolids
Lakhwinder Hundal, MWRDC |
| 18B | 10:45AM | The Implications of Triclosan on Methanogenic Community Structure, Function, and Multidrug Resistance
Patrick J. McNamara, Marquette University; Timothy LaPara, Paige Novak, University of Minnesota |
| 18C | 11:15AM | Fate of Antibiotic Resistance Genes in Thermophilic and Mesophilic Anaerobic Digestion
Jennifer Miller, John Novak, Amy Pruden, Virginia Tech |
| | 11:45AM | Session Adjourns |