

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.

Session 1: Resource Recovery in the Lone Star State

Monday, May 19, 2014 1:30PM - 5:00PM

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

Session 2: Thickening and Dewatering

Monday, May 19, 2014 1:30PM - 5:00PM

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 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

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.

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

Session 4: Solids Handling Process Considerations

Monday, May 19, 2014 1:30PM - 5:00PM

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

Session 5: Thermal Hydrolysis Processes

Tuesday, May 20, 2014 8:30AM - 12:00PM

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, DI and DId 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

Session 6: Thermal Processes

Tuesday, May 20, 2014 8:30AM - 12:00PM

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

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 2Demonstrated 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

Session 7: Energy Recovery Case Studies

Tuesday,	May	20,	2014
8:30AM -	12:00	DPN	

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 Sellering, 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 7: Energy Recovery Case Studies, Continued

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

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

Session 9: Digestion Pretreatment

Tuesday, May 20, 2014 1:30PM - 3:00PM

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 3:00PM	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. Session Adjourns
Alternat	e	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.

Session 10: Sidestream Nutrient Removal

Tuesday, May 20, 2014 1:30PM - 5:00PM

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
Alternate 1		Anaerok Carlos F Kinney,	ic Digestion for Phosphorus Recovery . Gutierrez, Sedat Yalcinkaya, Joseph Malina, Kerry Lynn Katz, University of Texas at Austin
Alternate 2		Positive Program Matthew Roads Services	Impacts of Struvite Recovery on Biosolids as & Operations Kuzma, Ostara USA, LLC; William Balzer, Hampton Sanitation District; Peter Schauer, Clean Water

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	

Session 12: Considerations for Resource Recovery

Tuesday, May 20, 2014 1:30PM - 5:00PM

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

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 Authroity; 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 5:00PM	Effects of Long Chain Fatty Acids on Completely Mixed Anaerobic Digesters Treating Municipal Sewage Sludge Kuang Zhu, John T. Novak, Virginia Tech Session Adjourns
Alternat	e	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

Session 14: Digester Operation and Optimization

Wednesday, May 21, 2014 8:30AM - 10:00AM

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
	10:00AN	M Session Adjourns
Alternate Alexar System Hong Y Alexan		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 Madolora, Premier Magnesia, LLC

Session 15: Biosolids Use: Benefits and Challenges

Wednesday, May 21, 2014 8:30AM - 12:00PM

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 Eskiciolgu, 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

Session continues on next page.

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 2Explaining 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

Session 16: Biosolids Marketing

Wednesday, May 21, 2014 8:30AM - 10:00AM

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	Л	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 Session Adjourns
Alternate Fertilizi Beyond Jennifer		Fertilizin Beyond Jennifer	ng Outside the Box: Marketing EQ Biosolids the Agricultural Industry Callahan, Aaron B. Stephens, Material Matters
Poster		Planning CAMBI E Ron Alex Water	g for a Large-Scale Soil Blending Program using Biosolids ander, R. Alexander Associates Inc.; Chris Peot, DC

Session 17: Biological Phosphorus Removal - Impacts on Dewatering

Wednesday, May 21, 2014 10:15AM - 11:45AM

17A	10:15AN	Λ	Bio-P, Digestion and Dewatering: Unexpected Consequences in the Midwest? Leon S. Downing, Bill Marten, Eric Lynne, Donohue & Associates
17B	10:45AN	Λ	Improving Dewaterability of Digested Sludge from EBPR Facilities Mario Benisch, HDR; Peter Schauer, Clean Water Services: JB Neethling, HDR
17C	11:15AM	Л	Does Bio-P Impact Dewatering After Anaerobic Digestion? Yes, And Not In A Good Way! Matthew J. Higgins, Bucknell University
	11:45AN	Λ	Session Adjourns
Alternat	e	Struvite Treatme	Reduction and Harvesting Study at Deer Island ont Plant

Eric M. Spargimino, David Parry, CDM Smith; Dan O'Brien, Dave Duest, MWRA

Session 18: Constituents of Emerging Concern

Wednesday, May 21, 2014 10:15AM - 11:45AM

18A	10:15AM	Fate and Risk Characterization of Trace Organic Compounds (TOrCs) 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