Residuals and Biosolids 2016 Conference

Biosolids as a Resource

April 3 – 6, 2016
Wisconsin Center
Milwaukee, Wisconsin
Further information on the Opening General Session will be forthcoming in the coming week.
Session 1: Regulatory

Monday, April 4, 2016  
1:30PM - 3:00PM

01A  1:30PM  
Navigating State Biosolids and Fertilizer Requirements: Milorganite® Distribution In The United States  
Jessica Nanes, Milwaukee Metropolitan Sewerage District

01B  2:00PM  
NEW Water’s Challenge To Achieve Compliance With New Sewage Sludge Incinerator Rules For Existing and New Incinerators  
Julie Maas, Bruce Bartel, Green Bay Metropolitan Sewerage District ("NEW Water")

01C  2:30PM  
State Phosphorus Fertilizer Regulations Impact Biosolids Recycling  
Ned Beecher, North East Biosolids & Residuals Association; Herschel Elliott, Penn State University

3:00PM  
Session Adjourns

Alternate  
Biosolids - A Wicked Problem: Land Application Regulations In Sweden and B.C. Canada  
Gunilla Oberg, Margaret Morales, University of British Columbia
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30PM</td>
<td>02A</td>
</tr>
<tr>
<td></td>
<td>The Application of Fractal-Like Kinetics To The Solid-state Anaerobic Digestion</td>
</tr>
<tr>
<td></td>
<td>Zhiwu (Drew) Wang, Virginia Tech; Fuqing Xu, Yebo Li, Ohio State University</td>
</tr>
<tr>
<td>2:00PM</td>
<td>02B</td>
</tr>
<tr>
<td></td>
<td>Development of A Mechanistic Model To Understand Volume Expansion Due To Gas Holdup In Anaerobic Digesters</td>
</tr>
<tr>
<td></td>
<td>Nicholas Bartek, Matthew Higgins, Bucknell University; Sudhir Murthy, DC Water; Steven Beightol, Bucknell University; Ahmed Al-Omari, DC Water</td>
</tr>
<tr>
<td>2:30PM</td>
<td>02C</td>
</tr>
<tr>
<td></td>
<td>Methane Production Rates Can Be Predicted From Anaerobic Digester Microbial Community Structure</td>
</tr>
<tr>
<td></td>
<td>Kaushik Venkiteswaran, Michael Johnson, Daniel Zitomer, Marquette University</td>
</tr>
<tr>
<td>3:00PM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Networking Break</td>
</tr>
<tr>
<td>3:45PM</td>
<td>02D</td>
</tr>
<tr>
<td></td>
<td>Long-Term Biochemical Methane Potential (BMP) Test For Estimation of Non-Biodegradable Fraction In Biosolids</td>
</tr>
<tr>
<td></td>
<td>Elsayed Elbeshbisy, Ryerson University; Bipro Dhar, University of Waterloo; George Nakhla, Western University</td>
</tr>
<tr>
<td>4:15PM</td>
<td>02E</td>
</tr>
<tr>
<td></td>
<td>Optimizing Anaerobic Digestion Performance With Silo-Shaped Reactor Configurations</td>
</tr>
<tr>
<td></td>
<td>Drury Whitlock, Todd Williams, Tom Johnson, Corey Klibert, Peter Burrowes, CH2M Charles Goss, AECOM</td>
</tr>
<tr>
<td>4:45PM</td>
<td>Session Adjourns</td>
</tr>
</tbody>
</table>
Session 3: Bioenergy

Monday, April 4, 2016
1:30PM - 4:45PM

03A  1:30PM  Selection of Gas Turbines For Energy Recovery At San Francisco’s Southeast Treatment Plant
Christine Polo, Black & Veatch; Humphrey Ho, George Engel, Rosanna Tse, San Francisco Public Utilities Commission; Bruce Chow, David Long, Greg Knight, Black & Veatch

03B  2:00PM  Kenosha Waste Water Treatment Plant “Energy Optimized Resource Recovery Project”
Curtis A. Czarnecki, Kenosha Water Utility

03C  2:30PM  New Water’s Resource Recovery and Electrical Energy Project - The Value of Biosolids
Peter Burrowes, CH2M; Bill Angoli, Bruce Bartel, Mike Erschnig, Nathan Qualls, Pat Westcott, NEW Water; Bill Desing, David Oerke, CH2M

3:00PM  Networking Break

03D  3:45PM  Demand-Driven Energy Supply On Municipal WWTP Using An Anaerobic Membrane Digester
Robert Lutze, Peter Cornel, Christian Schaum, Technische Universität Darmstadt

03E  4:15PM  Thermophilic Biomethane Production From Thin Stillage Using Anaerobic Fluidized Bed Bioreactors (AnFBRs)
Hisham Hafez, GreenField Specialty Alcohols Inc.; Ahmed Eldyasti, York University; Elsayed Elbeshbishy, Ryerson University

4:45PM  Session Adjourns

Session continues on the next page
Session 3: Bioenergy (Continued)

Monday, April 4, 2016
1:30PM - 4:45PM

Alternate  
Exploring the Best And Highest Use of Biogas From Wastewater Utilities
Greg Knight, Kent Lackey, Christine Polo, Scott Carr, Jay Kemp, Black & Veatch; Aaron Brower, T.J. Lynch, City of Raleigh
Session 4: Facilities Operation, Management, and Planning I

Monday, April 4, 2016
1:30PM - 4:45PM

04A 1:30PM  Scum - A Liability Or An Asset?
Chad Simmons, Leonard Ripley, Freese & Nichols, Inc.; Farida Goyderya, City of Fort Worth

04B 2:00PM  Planning for an Uncertain Future: Sometimes Simple is Best
Matthew Van Horne, Deborah Mahoney, Hazen and Sawyer; Hans Tuneblom, Veolia; Roger Brooks, City of Leominster

04C 2:30PM  Holistic Approach To Residuals Handling At F. Wayne Hill Water Resources Center: Did The Upgrades Work?
Scott Hardy, Ron Latimer, Vivi Nguyen, Edward McCallum, Michael Bullard, Hazen and Sawyer; Brandon Brown, Robert Harris, Eric Hancock, JC Lan, Gwinnett County Department of Water Resources

3:00PM  Networking Break

04D 3:45PM  A Cohesive Strategy for Wastewater Sludge (Biosolids) Management: A UK Case Study
Sade Olapade-Olaopa CEng MIChemE, Jorge Pacas PE, Hatch Mott MacDonald Inc.

04E 4:15PM  Anaerobically Digested Liquid to Cake - Managing Biosolids without Long-Term Storage
Jose Bicudo, Dominika Celmer-Repin, Tammy Bellamy, Trevor Brown, Region of Waterloo

4:45PM  Session Adjourns
Session 5: Sidestream Deammonification

Monday, April 4, 2016
3:45PM - 4:45PM

05A  3:45PM  Sidestream Deammonification Startup – Overcoming Challenges In Centrate Pretreatment Process
         Hong Yin, Alexandria Renew Enterprises

05B  4:15PM  Thermal Hydrolysis Sidestreams: Treatment By Post Aerobic Digestion Versus Anammox
         Heidi Bauer, Thomas Johnson, Bruce Johnson, David Oerke, CH2M

        4:45PM  Session Adjourns

Alternate  Mainstream Deammonification Using The ANITA™ Mox Process
            Chris Thomson, Hong Zhao, Kruger Inc.
Session 6: Codigestion I

Tuesday, April 5, 2016
8:30AM - 11:45AM

06A  8:30AM  WERF: Evaluation of The Unintended Consequences of Co-digestion
Rajagopalan Ganesh, Kennedy Jenks Consultants; Sudhir Murthy, DC Water; Charles Bott, Hampton Road Sanitation District; Krishna Pagilla, University of Nevada, Reno; Steven Beightol, Mathew Higgins, Bucknell University

06B  9:00AM  Effect of High Strength Food Wastes On Anaerobic Digestion of Sewage Sludge
Ramola Vaidya, Gregory Boardman, John Novak, Virginia Tech; Robert Wimmer, Energy Systems Group; Mike Hanna, Black and Veatch Corporation

06C  9:30AM  Co-Digestion of Solid Waste At WWTPs – The Next Frontier?
Joerg Blischke, Black & Veatch

10:00AM  Networking Break

06D  10:45AM  Biomethane Production From Anaerobically Digested Bioplastics
Nicholas Benn, Marquette University - Water Quality Center; Anne Schauer-Gimenez, Margaret Morse, Mango Materials Inc.; Daniel Zitomer, Marquette University - Water Quality Center

Session Continues on next page
Session 6: Codigestion I (Continued)

Tuesday, April 5, 2016
8:30AM - 11:45AM

06E 11:15AM  Getting An Energy Boost From Co-Digestion Though P3/ESCO Project Delivery
Kurt Pfeffer, Hazen and Sawyer; Vin Morello, Broward County Water and Wastewater Services; Adam Bogusch, Opterra Energy Solutions; Alonso Griborio, Hazen and Sawyer

11:45AM  Session Adjourns

Alternate
Kam Law, John Gage, Greeley and Hansen

Poster
You Have Co-digestion, Now What? WERF Research Into The Operational Impacts of Co-digestion
Matthew Vanhorne, Jared Hostetler, Hazen and Sawyer; Lauren Fillmore, WERF
Session 7: Residuals and Product Issues

Tuesday, April 5, 2016
8:30AM - 11:45AM

07A  8:30AM  Biosolids As A Resource: Using Biochar Derived From Pyrolyzed Biosolids To Remove Trace Organic Compounds
Yiran Tong, Brooke Mayer, Patrick McNamara, Marquette University

07B  9:00AM  Planning For and Developing A Large-Scale Soil Blending Program Using CAMBI Biosolids
Ronald Alexander, R Alexander Associates Inc; Christopher Peot, DC Water & Sewer Authority

07C  9:30AM  Management Protocols For Development of Value-Added Products
Robert Reimers; Lynne Moss; James Smith

10:00AM  Networking Break

07D  10:45AM  Modern Composting In Oklahoma
Arlene Over, Black & Veatch; William Janacek, City of Midwest City, Oklahoma

07E  11:15AM  City of Bend Water Reclamation Facility Class A Biosolids Abstract Unlikely Path To Class A Biosolids
Scott Thompson, Water Reclamation Facility

11:45AM  Session Adjourns
Session 8: Facilities Operation, Management, and Planning II

Tuesday, April 5, 2016
8:30AM - 11:45AM

08A  8:30AM  Replace or Rehabilitate? MMSD’s 24 Belt Filter Press Upgrade Challenge
Patrick Carnahan, Symbiont; Lori Cipparone, Milwaukee Metropolitan Sewerage District; Pavel Hajda, Symbiont

08B  9:00AM  Maximizing The Life of Biosolids Drying Assets
Micki Klappa-Sullivan, Jennifer Wright, Milwaukee Metropolitan Sewerage District; Webster Hoener, Paul Boersma, Black & Veatch

08C  9:30AM  From Energy Intensive Incineration To Energy Neutral Anaerobic Digestion - The Dubuque Case Study
Randall Wirtz, Strand Associates, Inc.

10:00AM  Networking Break

08D  10:45AM  The Ultimate Test of A Long Term Partnership How Charlotte Water and Synagro Partnered To Safely Manage Solids Contaminated With Polychlorinated Biphenyls
Jean Creech, Charlotte Water; William Cotter

08E  11:15AM  How To Survive In The Fertilizer Marketplace: Lessons From Milorganite(R)
Tom Nowicki, Milwaukee Metropolitan Sewerage District

11:45AM  Session Adjourns
Session 9: Nutrient Recovery

Tuesday, April 5, 2016
8:30AM - 11:45AM

09A 8:30AM  Sustainable Ammonium Recovery From Wastewater By Using Bioelectrochemical Systems
Mohan Qin; Zhen (Jason) He, Virginia Tech

09B 9:00AM  Nutrient Recovery At The F. Wayne Hill Water Resources Center: WASSTRIP Design and Full Scale Start Up
Scott Hardy, Vivi Nguyen, Edward McCallum, Ron Latimer, Michael Bullard, Hazen and Sawyer; Brandon Brown, Robert Harris, JC Lan, Tyler Richards, Gwinnett County Department of Water Resources

09C 9:30AM  Applying Process Modeling With GPS-x™ For Understanding WASSTRIP® Impact On Nutrient Recovery And Net Solids Production
Malcolm Fabiyi, Hydromantis USA; Ahren Britton, Ostara Nutrient Recovery Technologies; Peter Schauer, Clean Water Services; Andrew Shaw, Black & Veatch; Rajeev Goel, Hydromantis, Inc.

10:00AM  Networking Break

09D 10:45AM  Bringing It All Back to Nature: A New Process to Produce Renewable Natural Gas and High Fertilizer Value Products
Meltem Urgun-Demirtas, Yanwen Shen, Jessica Linville, Seth Snyder, Argonne National Laboratory

Session Continues on next page
Session 9: Nutrient Recovery (Continued)

Tuesday, April 5, 2016
8:30AM - 11:45AM

09E  11:15AM  Commissioning Anuvia's First Green Fertilizer Manufacturing Facility Incorporating Municipal Organics
John Donovan, Carl Hendrickson, CDM Smith;
Jeffrey Burnham, Gary Dahms, Anuvia

11:45AM  Session Adjourns

Alternate  Solution To Phosphorus Overloading Through Nutrient Recovery System
Mel Kurtz, Quasar Energy Group
Session 10: Digestion II - Operations

Tuesday, April 5, 2016
1:30PM - 4:45PM

10A  1:30PM  Clean The Digester? Maybe Next Year . . .
      Harry Mathos, City of Beloit

10B  2:00PM  Capacity Increase Without Evasive Retrofits
             – Maximize Digester Efficiency With Biological Hydrolysis
             Michael Theodoulou, Dorian Harrison, Nicholas Bonkoski, GE Power & Water

10C  2:30PM  Turning Up The Heat - Advanced Digestion To Meet Disposal Constraints
             Kurt Pfeffer, Hazen and Sawyer, D.P.C.; Vivek Galav, City of West Palm Beach; Michael Bullard, John Koroshec, Caitlin Klug, Hazen and Sawyer

3:00PM  Networking Break

             John Willis, Brown and Caldwell; Luis Carrio, NYC DEP; Jonathan Keaney, Gary Newman, Brown and Caldwell; Peter Pianelli, NYC DEP; Perry Schafer, Brown and Caldwell

Session Continues on next page
Session 10: Digestion II – Operations (Continued)

Tuesday, April 5, 2016
1:30PM - 4:45PM

10E     4:15PM  Effect of Sequential Improvements To Plant Operations On Biogas Generation and Solids Reduction In Bethlehem, Pennsylvania
Angela Hintz, Lauren Schifferle, ARCADIS; Jack Lawrence, City of Bethlehem

4:45PM  Session Adjourns

Alternate
Session 11: Chemical and Biological Microconstituents In Biosolids

Tuesday, April 5, 2016
1:30PM - 4:45PM

11A  1:30PM  Consumer Product Antimicrobials Select For Antibiotic Resistance In Anaerobic Digesters
       Daniel Carey, Daniel Zitomer, Patrick McNamara, Marquette University

11B  2:00PM  Effect of Influent Variation In Antibiotic Resistant Bacteria and Resistance Genes On Their Fate During Anaerobic Digestion
       Jennifer Miller, Amy Pruden, John Novak, William Knocke, Virginia Tech

11C  2:30PM  Antibiotic Resistance From Digesters To Soil
       Timothy LaPara, University of Minnesota

            3:00PM  Networking Break

11D  3:45PM  Fate, Exposure, and Bioavailability of Microconstituents In Biosolids
       Kuldip Kumar, Lakhwinder Hundal, Metropolitan Water Reclamation District of Greater Chicago

11E  4:15PM  Impact of Emerging Contaminants and Biosolids Aging On Ecotoxicity In Soils
       Ryan Holzem, University of Wisconsin-GB

            4:45PM  Session Adjourns

Session Continues on next page
Session 11: Chemical and Biological Microconstituents In Biosolids (Continued)

Tuesday, April 5, 2016
1:30PM – 4:45PM

Alternate 1  Application of Ferrate And Ferric Iron On The Short-term Stabilization of The Raw Heat-Dried Municipal Sludge and Deactivation of EDCs Constituents (Estradiol, Ethinyl Estradiol And Bisphenol A)
Yue Xu; Robert Reimers; Andrew Englande, Tulane University

Alternate 2  Examining Methods For Estimating Risks From Compounds of Emerging Concern In Biosolids-amended Soil - p-Nonylphenol As A Test Case
Charles Staples, Assessment Technologies, Inc.; Katie Coady, The Dow Chemical Company; Barbara Losey, RegNet Environmental Services
Session 12: Thermal Processes

Tuesday, April 5, 2016
1:30PM - 4:45PM

12A  1:30PM  Energy Recovery From Thermal Oxidation Of Wastewater Solids: State of Science Review
       Webster Hoener, James Welp, Gustavo Queiroz, Black & Veatch; Robert Dominak, Friar Consulting

12B  2:00PM  Increasing The Fine Particulate Collection Efficiency of Existing Scrubbers Without Increasing Pressure Drop: All It Takes Is Water

12C  2:30PM  The Little Blue Experience New Fluid Bed Municipal Sludge Incinerator With Plume Suppression System and A Provision For Future MACT Retrofit
       Levent Takmaz, Ky Dangtran, IDI; Keith Navarro, LBVSD

       3:00PM  Networking Break

12C  3:45PM  Getting Greener and Cleaner
       Steve Janosko, Northeast Ohio Regional Sewer District; Ben Wester, Brown and Caldwell

12D  4:15PM  Cedar Rapids Water Pollution Control Facility -Successful Recovery of A Solids Management System From A Catastrophic Flood
       Lloyd Winchell, Brown and Caldwell; Roy Hesemann, John Ernst, City of Cedar Rapids; David Sapp, Brown and Caldwell

       4:45PM  Session Adjourns

   Session Continues on next page
Session 12: Thermal Processes (Continued)

Tuesday, April 5, 2016
1:30PM - 4:45PM

Alternate An Innovative Chemical Thermal Hydrolysis Process With Multiple Beneficial Applications In Bio-resource Recovery
Ajay Singh, Bill Mullin, Mike Dougherty, Rick Mosher, Lystek International Inc.; Owen Ward, University of Waterloo; George Nakhla, University of Western Ontario; Jeanette Brown, Manhattan College
Session 13: Thickening and Dewatering / Drying

Tuesday, April 5, 2016
1:30PM - 4:45PM

13A  1:30PM  Mixed Hydrolysis Enzyme As An Environmentally Friendly Conditioner For Enhanced Dewatering of Waste Activated Sludge
       Boran Wu, TXiaoli Chai, Tongji University

13B  2:00PM  Impact Of Orthophosphate On Achievable Dry Cake Solids Content And Polymer Consumption In The Dewatering Process - A Summary From Four US-Phosphorus Recovery Tests And Two Full Scale Phosphorus Recovery Installations In Europe
       Gerhard Forstner, Sarah Gruel CNP Technology Water and Biosolids, Hamburg, Germany

13C  2:30PM  Medium Temperature Belt Dryer In Wisconsin To Produce Class A From Anaerobic Digested Sludge Containing High Strength Waste
       Dieter Weinert, Huber Technology Inc.

3:00PM  Networking Break

13D  3:45PM  Got Cake? Implementing Dewatering and Cake Receiving and Truck Unloading Facilities Saves Approximately $500,000 Annually
       David Oerke, CH2M; William Suchodolski, Ocean County Utilities Authority

Session Continues on next page
Session 13: Thickening and Dewatering / Drying (Continued)

Tuesday, April 5, 2016
1:30PM - 4:45PM

13E  4:15PM  Product Upgrading During Biosolids Pyrolysis By Using A Low-Cost Natural Catalyst
Zhongzhe Liu, Patrick McNamara, Daniel Zitomer, Marquette University

4:45PM  Session Adjoins
Session 14: Digestion III

Wednesday, April 6, 2016
8:30AM - 11:15AM

14A  8:30AM  Thermophilic Startup From Mesophilic Digestate: Implementing Lab-scale Results At The Full-scale
Karla Guevarra, Tracy Chouinard, Alexandre Miot, Bonnie Jones, San Francisco Public Utilities Commission

14B  9:00AM  Alternative Configurations of Anaerobic Digestion and Thermal Hydrolysis To Enhance Performance
William Barber, Diran Adalian, Jim Marx, AECOM

14C  9:30AM  Biosolids Master Planning Uncovers Ample Resource Recovery Opportunities

10:00AM  Networking Break

14D  10:15AM  Achieving Advanced Digestion Using Recuperative Digestion Options
Alan Cooper, Alan Cooper Consulting

14E  10:45AM  High Solids Anaerobic Digestion With Recuperative Thickening: An Effective Method To Increase Digester Capacity, Consolidate Existing Capacity, and Achieve Energy Positive Water Resource Recovery Facilities
Juan Jossse, Sasha Rollings-Scattergood, Andrew Dale, Andrew Bendek, Anaergia, Inc.; Logan Olds, Victor Valley Wastewater Reclamation Authority (VVWRA); Yaniv Scherson, Gilbert Perez, Anaergia, Inc.

...
Session 15: Thermal Hydrolysis

Wednesday, April 6, 2016
8:30AM - 11:45AM

15A  8:30AM  So Now You Need To Cool The Sludge
       Yinan Qi, Brown & Caldwell

15B  9:00AM  Optimizing Thp - The Intermediate Thermal Hydrolysis Process
       Ester Rus, Nick Mills, Aurelien Perrault,
       Achame Shana, Thames Water; Paal Jahre Nilsen, CAMBI

15C  9:30AM  Continuous "Digestion-thp-Digestion At Lille (France) Wwtp réSults After One Year
       Operation
       Malik Djafer, Veolia

10:00AM  Networking Break

15D  10:15AM  Anaerobic Digestion of Primary Solids and Thermally Hydrolyzed Waste Activated Solids
       Todd Williams, Peter Burrowes, Drury Whitlock,
       Kim Fries, Colin Newbery, CH2M

15E  11:15AM  Thermal Hydrolysis - The Next Generation
       Peter Loomis, CDM Smith; Tom Jacobs, Trinity River Authority;
       Paul Christy, Cambi Inc.; Engin Guven, Samir Mathur, CDM Smith

11:45AM  Conference Adjourns
Session 16: Biosolids Science

Wednesday, April 6, 2016
8:30AM - 10:00AM

16A  8:30AM  Reducing Biosolids Production By Oxic-Settling-Anoxic (OSA) Process
Galilee Semblante, Faisal Hai, University of Wollongong; Heriberto Bustamante, Nelly Guevara, Sydney Water; William Price, Long Nghiem, University of Wollongong

16B  9:00AM  Biofermentation: A Novel Process For Reducing Biosolids Residuals In The Biological Treatment Plant
Rob Whiteman, ABS Inc.

16C  9:30AM  A New Wastewater Treatment Process For Achieving A Net Energy Production
Christopher Waul, Argun Erdogan, Michael Doyle, George Smith, Evoqua Water Technologies

10:00AM  Session Adjourns
Session 17: Codigestion II

Wednesday, April 6, 2016
10:15AM - 11:45AM

17A 10:15AM Lessons Learned From Co-digestion Projects From Concept Through Implementation
Christopher Muller, Brown and Caldwell

17B 10:45AM Got Gas? Identifying High Strength Wastes Suitable For Co-Digestion at Blue Plains AWWTP
Lisa Boudeman, Material Matters; Bill Barber, AECOM; Christopher Peot, DC Water

11:45AM Conference Adjourns