Residuals and Biosolids 2012

Advancing Residuals Management: Technologies and Applications

Raleigh Convention Center
Raleigh, North Carolina USA
March 25 – 28, 2012

This conference is held by the Water Environment Federation in cooperation with North Carolina Water Environment Association and the U.S. Composting Council.

March 25, 2012

Dear Conference Attendees:

Welcome to Raleigh, the City of Oaks, in the heart of North Carolina! On behalf of the Water Environment Federation (WEF), the North Carolina Water Environment Association (NCWEA), and the U.S. Composting Council (USCC), we welcome you to the 26th Annual Residuals and Biosolids Conference. This is the third time that North Carolina has hosted the conference and we intend to make this your best conference experience yet. We greatly appreciate your participation in making the Residuals and Biosolids Conference WEF's largest specialty conference and contributing to its success year after year. Vendors, presenters, attendees, active committee members, WEF staff, and all of the individual contributions have worked tirelessly to make this event possible.

We want to thank the Program Committee whose long hours resulted in an exceptional program focused on advancements in solids processing technologies and management practices. Hot topics that we will cover include recovery of renewable energy from solids, nutrient recovery from sidestreams, sustainable practices, biosolids land application, anaerobic digestion and co-digestion, and innovative new products/processes to reduce our demand for energy and provide new avenues for sustainable management. The committee's focus has been to ensure that presentation topics are germane, accurate, and contain as much information as is available, while being both clear and concise. Of the three diverse and insightful pre-conference workshops and twenty technical sessions offered this year, we are certain the knowledge shared will provide practical information you can use on a daily basis.

The Opening General Session includes an update on European biosolids practices, an assessment of biosolids land application sustainability, and an insightful look at the evolution of biosolids technologies by our keynote speaker, Tim Haug. There will also be a message from WEF President Matt Bond, and an update on the latest development on the Sewage Sludge Incinerator Rule. The Opening General Session will be an excellent opportunity to see all of your friends and colleagues in one place, so please attend on Monday morning.

I would like to thank all exhibitors, sponsors, and participants of the conference, and a special thanks to NCWEA for their generous hospitality as they planned a social event this evening – a North Carolina Pig Picking. Without all of your generous support, this conference would not have been possible.

Once again, welcome! We hope you will experience southern hospitality in Raleigh and enjoy your time at the Residuals and Biosolids Conference with the many networking and educational opportunities that are offered.

Thank you,

K. Richard Tsang
Conference Chair

TABLE OF CONTENTS

Federation Officers and Staff 3
Conference Committee and Volunteers 4
Registration 6
Presenter and Moderator Information 6
Reception and Meal Functions 7
Continuing Education 8
Proceedings 8
Sponsorship Information 9
Committee Meetings 10
Tour 11
Workshops 12
Opening General Session 15
Technical Program 16
Exhibition Hours and Exhibitor Directory 36
Index of Exhibitors by Product Category 53
Presenter and Moderator Directory 57
Upcoming Education and Training Events 65
Reduce your Carbon Footprint in Raleigh 66
Sessions At-A-Glance 67

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CONFERENCE COMMITTEE

K. Richard Tsang, *CDM Smith*
Conference Chair

RESIDUALS AND BIOSOLIDS CONFERENCE COMMITTEE

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CONFERENCE COMMITTEE

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Steve Wilson
Brown and Caldwell

Chris Wilson
Greeley and Hansen

Greg Woodward
Stantec

Tim Woody
City of Raleigh, NC

RESIDUALS AND BIOSOLIDS ROOM MONITORS

We would like to thank all the room monitor volunteers who have helped to make this conference a success.

Kyle Bibby, *Yale University*
Pallavi Bishnoi, *Virginia Polytechnic Institute*
Jennifer Cas, *University of North Carolina-Chapel Hill*
Katy Dotery, *North Carolina State University*
Meredith Fotta, *North Carolina State University*
Jared Hostetler, *North Carolina State University*
Ellen Huffman, *NCDENR*
Kara Kopf, *North Carolina State University*
Laura Robertson, *University of North Carolina-Chapel Hill*
Ruth Small, *North Carolina State University*
Shannon Sypolt, *CMUD*
Ross Varin, *Virginia Polytechnic Institute*
Wei (Vivienne) Yi, *North Carolina State University*

REGISTRATION

All events are held in the Raleigh Convention Center.

The Registration Desk is located in the **Convention Center Main Lobby** and will be open at the following times:

Hours:

Sunday, March 25	7:30am – 5:00pm
Monday, March 26	7:30am – 5:00pm
Tuesday, March 27	7:30am – 5:00pm
Wednesday, March 28	8:00am – 11:30am

PRESENTER AND MODERATOR INFORMATION

Speaker Briefing – Room 304

All presenters included in the technical program should sign-in at Conference Registration before presenting and must attend their assigned speaker briefing. If you are unable to attend your assigned briefing, please notify your session moderators.

Presenters and session moderators participating on Sunday, Monday, Tuesday and Wednesday should attend the briefing. Speakers should attend only once unless they are speaking on two different days. The Speaker Briefing schedule is as follows:

Sunday, March 25 *Sessions 1 through 2	12:00pm – 1:00pm
Monday, March 26 *Sessions 3 through 7	7:30am – 8:00am
Tuesday, March 27 *Sessions 8 through 20	7:30am – 8:00am

RECEPTION AND MEAL FUNCTIONS

Networking Reception – Monday, March 26 **5:00pm – 6:30pm**

The Networking Reception will be held in Exhibit Hall A. It is your opportunity to view the exhibits, renew acquaintances, and make new contacts.

Luncheon – Exhibit Hall A

Lunch will be provided for all full conference, daily registrants, and exhibitors. Please advise staff as soon as possible if you have any special dietary requirements. The luncheons will be held:

Monday, March 26 12:00pm - 1:30pm	Tuesday, March 27 12:00pm - 1:30pm

Networking Breaks – Exhibit Hall A

The Networking Breaks will be held:

Monday, March 26
Exhibit Hall A
10:00am – 10:45am and 3:00pm – 3:45pm

Tuesday, March 27
Exhibit Hall A
10:00am – 10:45am and 3:00pm – 3:45pm

Wednesday, March 28
Exhibit Hall A
10:00am – 10:15am

CONTINUING EDUCATION

EDUCATION CREDITS

Participants who attend the conference and accurately document their participation will be issued continuing education credits. For technical sessions WEF will award Professional Development Hours (PDHs) at a rate of 1.0 PDH for every hour of participation. For workshops, WEF will award Continuing Education Units (CEUs) at a rate of 1.0 CEU for 10 hours of participation. Please note that conference attendees are responsible for exploring continuing education requirements in their state to ensure that WEF credits are accepted by the appropriate authority.

To receive the certificate, attendees must be mindful of the following:

- Each session room will have a room monitor at the back of the room holding a hand held scanner;
- Attendees should have their badges scanned when entering a room and when departing a room; and
- Attendees are responsible to have their badges scanned. If there is a problem please visit the registration desk to notify WEF Staff of the issue.

The scan log will be used to create certificates which will be mailed 8-10 weeks after the conclusion of the conference.

PROCEEDINGS

A USB flash drive containing the full proceedings of the materials presented during the conference are given as part of a full or daily conference registration. Proceedings will be distributed at the Conference Registration desk at the time of badge pickup or onsite registration.

Copies of the proceedings may be ordered after the conference at the member rate of $75 USD; nonmember rate of $115 USD, plus shipping and handling. All orders will be processed immediately after the conclusion of the conference. You may call 1-800-666-0206. Ask for Stock Number CPRB 1203.

SPONSORSHIP INFORMATION

We would like to thank the following sponsoring companies for their contributions to the conference and program.

Monday Conference Luncheon
www.aecom.com

Monday Morning Refreshment Break
www.degremont-technologies.com
Booth 205

Printing of the Conference Program
www.as-h.com
Booth 212

Opening General Session
www.insinkerator.com

Printing of the Conference Program
www.bdpindustries.com
Booth 203

Conference Lanyards | Refreshment Breaks
www.krugerusa.com
Booth 111

Printing of the Conference Program
www.hdrinc.com

Printing of the Conference Program
www.nefcobiosolids.com
Booth 305

seepex.com
all things flow
Conference Luncheons | Printing of the Conference Program
www.seepex.com
Booth 211

COMMITTEE MEETINGS

Saturday, March 24

Southeast Regional Regulators
1:00pm – 5:00pm
Room 201

Sunday, March 25

NBP Certified Agencies
9:00am – 12:00pm
Room 201

NBP Steering Committee
4:00pm – 5:30pm
Room 201

Monday, March 26

Agriculture & Industrial Byproducts Subcommittee
7:00am – 8:30am
Room 201

ABBA Biosolids Luncheon
11:30am – 1:30pm
Room 201

Outreach & Education Subcommittee
4:30pm – 5:30pm
Room 201

Tuesday, March 27

Bioenergy Technology Subcommittee
7:00am – 8:30am
Room 306A

Specialty Conference Subcommittee
12:30pm – 2:00pm
Room 306A

Carbon Resource Subcommittee
4:30pm – 5:30pm
Room 306A

Wednesday, March 28

Energy Roadmap Meeting
8:00am – 5:00pm
Room 201

Residuals and Biosolids Committee Meeting
7:00am – 8:30am
Room 304

Thursday, March 29

Energy Roadmap Meeting
8:00am – 12:00pm
Room 201

TOUR

Guided Tour of the Town of Cary's Water Reclamation Facility and the Neuse River Wastewater Treatment Plant (WWTP) Tour

Tuesday, March 27 **4.0 Contact Hours**
1:00pm - 5:00pm

Please note: The bus will begin to load at 12:45pm. Participants will meet in the Convention Center Main Lobby area near the registration desk for the bus loading and drop off. The bus will depart promptly at 1:00pm.

This tour will guide attendees through the Neuse River Wastewater Treatment Plant and the South Cary Water Reclamation Facility focusing primarily on the solids handling processes at each facility.

While both facilities utilize a biological nutrient removal process for wastewater treatment, the Neuse River WWTP portion will highlight 2-stage aerobic digestion, thickening, dewatering, hopper storage and pasteurization with lime kiln dust. At the South Cary WRF, the tour will focus on liquid solids receiving, aerobic holding, thickening, dewatering, drum drying and pellet storage.

WORKSHOP A

Workshop A: The Business of Turning Biosolids into Energy and Fertilizer

Sunday, March 25 **Room: 301AB**
8:30am - 5:00pm **0.6 CEUs**

8:30am **Welcome and Introduction**
Dave Parry, *CDM Smith*

9:00am **Biosolids as a Business**
Scott Vandenburgh, *CDM Smith*

9:30am **Comparing Energy Recovery Opportunities: Anaerobic Digestion to Gasification and Combustion**
Peter Burrowes, *CH2M HILL, Inc*

10:00am **Break**

10:30am **Marketing Dried Biosolids: Fertilizer or Fuel**
Kevin Hardy, *Encina Wastewater Authority*

11:00am **Panel Discussion**
Morning Speakers including Peter Brady, *Alpine Tech*

12:00pm **Lunch**

1:30pm **Multiple Benefits of Controlled Struvite Formation**
Peter Schauer, *Clean Water Services*

2:00pm **Getting the Most Value Out of Your Biogas**
Cameron Clark, *CDM Smith*

2:30pm **Making a Better Fertilizer (Biochar) and Fuel (Biomethane) Out of Dried Biosolids**
Mike Lewis, *CDM Smith*

3:00pm **Break**

3:30pm **Panel Discussion**
Afternoon speakers including John Willis, *Brown and Caldwell*

4:30pm **Conclusion and Wrap-up**
Dave Parry, *CDM Smith*

5:00pm **Adjourn**

WORKSHOP B

Workshop B: Value-Added Green Products Originating from Municipal and Manure Biosolids – The Direction of the 21st Century

Sunday, March 25 **Room: 302AB**
8:30am - 5:00pm **0.6 CEUs**

8:30am **Welcome and Introduction**
Kari Fitzmorris-Brisolara, *Louisiana State University*

- **Management Practices -** Presider: James Smith, *Retired USEPA*

8:40am **Policy, Liabilities and Assessment**
Robert Reimers, *Tulane University*

9:20am **Biosolids Products – Trends and Drivers**
Lynne Moss, *CDM Smith*

10:00am **Break**

- **General Process Products -** Presider: Robert Bastian, *USEPA*

10:30am **Value-Added Products from Composting**
Ron Alexander, *Alexander Associates, Inc.*

11:00am **Biochar Products and Various Applications**
Isabel M. Lima, *United States Dept. of Agriculture*

11:30am **Bioplastics and Biopolymers Applications**
Ryan Smith, *Micromidas, Inc.*

12:00pm **Lunch**

- **Specific Product Development -** Presider: Michael Moore, *HDR*

1:30pm **Biotechnology Applications Utilizing Biosolids**
Suresh Pillai, *Texas A & M*

2:00pm **Biosolids – The Key Ingredient of Commercial Grade Fertilizers**
John Donovan, *CDM Smith*

2:30pm **Production of Activated Carbon from Manures and Municipal Sludge**
Kari Fitzmorris-Brisolara, *Louisiana State University*

3:00pm **Break**

- **Learning Exercise -** Presider: Kari Fitzmorris-Brisolara, *Louisiana State University;* Robert Reimers, *Tulane University*

5:00pm **Adjourn**

WORKSHOP C

Workshop C: Why Develop a Nutrient Management Plan – Emerging Issues in Nutrient Management Programs for Class A and Class B Biosolids

Sunday, March 25 **0.3 CEUs**
8:30am - 12:00pm

Please Note: Workshop attendees should please meet at the Convention Center Main Lobby Area near the registration desk for bus loading. The bus will depart promptly at 8:30am for the training center and will return to the same location at 12:00pm.

8:15am **Transportation from Convention Center**

8:45am **Introduction to the CNMP**
Bob Rubin, *NC State University*
Lynne Moss, *CDM Smith*

9:15am **Components of a CNMP**
Karl Shaffer, *NC State University*

9:45am **Biosolids Recycling Under Evolving Nutrient Management Policies**
Herschel Elliott, *Penn State University*

10:15am **Break**

10:30am **Information Sources for Developing CNMPs**
Tim Sexton, *Virginia Dept. of Conservation and Recreation*

11:00am **Development of a CNMP for Your Operation**
Team and Participants

11:30am **Site Tour**

11:45am **Transportation to Convention Center**

12:00pm **Arrive back at Convention Center**

OPENING GENERAL SESSION

Monday, March 26 **Room: 306**
8:30am – 12:00pm **2.25 PDHs**

Moderators: K. Richard Tsang, *CDM Smith*
Tim Woody, *City of Raleigh, NC*

8:30am **Conference Overview**
K. Richard Tsang, *CDM Smith*

8:35am **WEF Overview**
Matt Bond, *Black & Veatch*

8:40am **Welcome**
Mayor Nancy McFarlane, *City of Raleigh* (Invited)
Dee Freeman, *North Carolina Secretary of Environment* (Invited)

8:45am **Sludge Management in the European Union: Directives and Practice**
Jan Oleszkiewicz, *University of Manitoba*

9:25am **Utilizing a Miner's Canary to Assess the Sustainability of Land-applied Biosolids Strategies**
Lynda McCarthy, *Ryerson University*

10:00am **Networking Break**

10:45am **The Circle of Life in Biosolids**
Tim Haug, *Roger T. Haug Engineering, Inc.*

11:30am **Sewage Sludge Incinerator Rule Update**
Amy Hambrick, *U.S. Environmental Protection Agency*

11:50am **Recognition of Conference Chair/Past Chairs**

12:00pm **Session Adjournment**

TECHNICAL PROGRAM

Session 1: Hot Topics

Sunday, March 25 **Room: 305AB**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: **K.** Richard Tsang, *CDM Smith*
Houssam Eljerdi, *Pima County Regional Wastewater Reclamation Department*

01A 1:30pm **Codigestion: How to Make it a Financial "Win-Win" for All Parties**
W. Krill, C. Muller, *Brown and Caldwell*

01B 2:00pm **Assessment of Pre-Treatments to Mesophilic-Thermophilic Anaerobic Digestion**
G. Mininni, A. Gianico, C. M. Braguglia, A. Gallipoli, *CNR - Istituto di Ricerca Sulle Acque*; G. Bertanza, *Università di Brescia – Facoltà di Ingegneria*

01C 2:30pm **Innovative Disk Thickener Improves Performance of Digester at Chiquita Water Reclamation Facility in California**
T. R. Gregg, *Huber Technology*

3:00pm **Networking Break**

01D 3:45pm **Increasing Digester Gas Production Using Residual Syrup**
C. Pretorius, R. Gupta, *Carollo Engineers*; E. Jorgensen, D. Howell, J. Ahmadpour, G. Buenagua, D. Mathes, *Eastern Municipal Water District*; J. Rosenfield,*The Coca Cola Company*

01E 4:15pm **Analysis of Nutrient Removal Using Membrane Thickening Aerobic Digestion**
B. Woo, *Ovivo*

Alternate **Comparison of Microwave and its Combined Methods on Removal of NP and NP1,2EOS in Sewage Sludge**
H. Yan, Q.C. Xiao, Y.S. Wei, J. Lian, Y.W. Wang, *Chinese Academy of Sciences, Beijing*

4:45pm **Session Adjourns**

TECHNICAL PROGRAM

Session 2: Legislative, Regulatory, and Legal Issues

Sunday, March 25 **Room: 306BC**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Timothy Shea, *CH2M HILL, Inc*
Steve Frank, *Moxa*

02A 1:30pm **Controlling Pathogens and Stabilizing Sludge/Biosolids: A Global Perspective of Where We are Today and Where We Need To Go**
L. Sobrados-Bernardos, *Centro de Estudios Hidrográficos*; J. E. Smith, *USEPA-ORD-NRMRL-Ci (Retired)*

02B 2:00pm **Significance of Legislative and Regulatory Considerations in Evaluation of Renewable Energy Technologies at WWTPs in California**
V. Seeta, S. Thakral, *Parsons*

02C 2:30pm **Update: Key Developments in Biosolids Management Policy**
L.Ochsenhirt, *AquaLaw, PLC*

3:00pm **Networking Break**

02D 3:45pm **Can an Old Multiple Hearth Incinerator Meet the New USEPA Sewage Sludge Incinerator Regulations?**
F. Sapienza, *CDM Smith*; D. Norton, *City of Brockton*; I. Mead, *CDM Smith*; L. Barry, *Chavond Barry Engineering Corp*

02E 4:15pm **Biosolids in Europe**
T. D. Evans, *Tim Evans Environment*

4:45pm **Session Adjourns**

TECHNICAL PROGRAM

Session 3: Bioenergy from Residuals I

Monday, March 26 **Room: 301AB**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Dave Parry, *CDM Smith*
Dustin Craig, *CDM Smith*

03A 1:30pm **Anaerobic Digestion and Energy Recovery from Food Waste**
J. Amador, D. Nelsen, C. McPherson, P. Evans, D. Parry, *CDM Smith*; H.D. Stensel, *University of Washington*; T. Hykes*, U.S. Air Force Academy*

03B 2:00pm **From Onion Waste to Onion Power: An Industrial Solution to Harvesting Power from Food Waste**
P. Ursillo, M. Perinpanayagam, *HDR Engineering*

03C 2:30pm **Use of ADM1 To Evaluate Anaerobic Digestion of Food Waste**
D. Stallman, *University of Washington, Seattle*; D. Nelsen, J. Amador, P. Evans, D. Parry, *CDM Smith*; H. D. Stensel, *University of Washington, Seattle*

3:00pm **Networking Break**

03D 3:45pm **Bergen County Utilities Authority Digests Cheese Whey – Gets Gas an Energy-Community Win-Win**
R. Eschborn, M. Abu-Orf, *AECOM*; M. Duran, *Villanova University*; K. Weisman, *Alaimo Group*; M. Williams, *Bergen County Utilities Authority*

03E 4:15pm **Codigestion of FOG & HSW with Biosolids in North America – Design and Operational Practices and Performance**
J. Kabouris, D. Gabel, K. Yanosek, S. Jalla, T. Shea, B. Forbes, *CH2M HILL, Inc*

4:45pm **Session Adjourns**

Networking Reception – Exhibit Hall A
Immediately following the conclusion of this session, please join us for the Networking Reception held in the Exhibit Hall from 5:00pm – 6:30pm.

TECHNICAL PROGRAM

Session 4: Marketing of Biosolids and Residuals Products

Monday, March 26 **Room: 302AB**
1:30pm - 3:00pm **1.25 PDHs**

Moderators: Cecil Martin, *South Cary Water Reclamation Facility*
Jonathan Treadway, *CDM Smith*

04A 1:30pm **Class A Biosolids… Sorry We're All Sold Out**
K. Riddell, *Smith Environmental*; K. Staton, *Thermal Process Systems*; T. Teman, *City of Delphos, Wastewater Treatment*

04B 2:00pm **Biosolids Compost…What's It Worth?**
T. Datta, T. Williams, *CH2M HILL, Inc*; R. Alexander, *R. Alexander Associates, Inc.*

04C 2:30pm **Key Factors in Building a Successful Biosolids Marketing and Distribution Program**
R. Alexander, *R. Alexander Associates, Inc.*

Alternate **Biosolids Pellets Marketability as a Supplemental Biomass Fuel**
J. Callahan, T. Johnston, *Material Matters, Inc.*

3:00pm **Session Adjourns**

TECHNICAL PROGRAM

Session 5: Thermal Processes I

Monday, March 26 **Room: 305AB**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Jeffrey LeBlanc, *WeCare Organics, LLC*
Greg Woodward*, Stantec, Inc*

05A 1:30pm **Mercury Reduction at the Largest Municipal Incineration Facility in North America**
G. Nunes, *Black & Veatch*; W. Fernandes, *Region of Peel*; F. Dachille, *Black & Veatch*

05B 2:00pm **Three Years Experience with the Urbana Microwave Drying System**
D. Stewart, *Wilbur Smith Associates*; C. Hall, B. Zerkle, *City of Urbana*

05C 2:30pm **An Island Wide Approach for Biosolids Processing – A Focus on Energy and Solids Minimization at Oahu, Hi**
T. Goss, M. Abu-Orf, J. Koch, T. Hamic, *AECOM*

3:00pm **Networking Break**

05D 3:45pm **Energy Recovery from Biosolids and Biomass: A Review of Thermal Conversion Technologies**
C. Polo, Y. Qi, X. Zhao, P. Scanlan, S. Olson*, Black & Veatch*; S. Patnaikuni, K. Campisano, *Melbourne Water Corporation*

05E 4:15pm **Efficiency of Solar Biosolids Drying**
M. Roediger, *Dr. Roediger Consult, Stuttgart, Germany*;
A. Grosser, *Huber SE, Berching, Germany*

Poster **Rethinking an Old Technology – New Digester Design Reduces CAPEX and OPEX**
N. Gurieff, S. Hoejsgaard, J. Boyd, M. Kline, *Veolia Water*

Alternate 1 **Niagara Biosolids: A Case Study**
G. Boyd, *Walker Industries*

Alternate 2 **Comparison of Class A Systems**
J. Currie, *CB&I*; S. Clark, *Biogas, Inc*; D. Leavitt, *London, OH*; J. Brucker, *Franklin Township*, *PA*; S. Lewis, *Lakeland, FL*

4:45pm **Session Adjourns**

Networking Reception – Exhibit Hall A
Immediately following the conclusion of this session, please join us for the Networking Reception held in the Exhibit Hall from 5:00pm – 6:30pm.

TECHNICAL PROGRAM

Session 6: Facilities Operation, Management, and Planning

Monday, March 26 **Room: 306BC**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Chris Parisher, *Town of Cary*
David Oerke, *CH2M HILL, Inc*

06A 1:30pm **Modeling Of the Mesophilic Digestion Process at the San Jose/Santa Clara Water Pollution Control Plant**
B. Yerrapotu, *City of San Jose*; A. Ekster, *Ekster and Associates*; S. Vermande, *City of San Jose*

06B 2:00pm **Are We Over-Mixing Our Digesters?**
T. Shea, T. Bauer, M. Berg, M. Burkhart, *CH2M HILL, Inc*

06C 2:30pm **Successful Long Term Biosolids Planning: Culmination of a Decade Long Biosolids Master Plan**
K. Lackey, *Black & Veatch*; F. Crump, R. Hargrove, *Winston-Salem/Forsyth County Utility Commission*; R. Ashburn, *Black & Veatch*

3:00pm **Networking Break**

06D 3:45pm **Impacts of Water Treatment Plant Residuals on Wastewater Treatment Plant Biosolids Programs – A Case Study**
B. Miller, C. Dassanayake, J. Smith, *ARCADIS-Malcolm Pirnie*

06E 4:15pm **Evaluating Biosolids Management Alternatives in Northeast Tennessee: A Cooperative Masterplanning Effort**
C. M. Bullard, *Hazen and Sawyer*; W. Sorah, *City of Bristol*; J. Coetzee, L. Brown, *Erwin Utilities*; G. Cox, *City of Johnson*; N. Ensor, *City of Kingsport*

Poster **Back to Life: Charting a Course to Resurrect a Failing WWTP**
R. Wimmer, K. Lackey, *Black & Veatch*

4:45pm **Session Adjourns**

Networking Reception – Exhibit Hall A
Immediately following the conclusion of this session, please join us for the Networking Reception held in the Exhibit Hall from 5:00pm – 6:30pm.

TECHNICAL PROGRAM

Session 7: Conditioning and Dewatering Technologies

Monday, March 26 **Room: 302AB**
3:45pm - 5:15pm **1.25 PDHs**

Moderators: Jonathan Treadway, *CDM Smith*
Matthew Higgins, *Bucknell University*

07A 3:45pm **Belt Filter Press Dewatering Trials with Cambi Thermally Hydrolyzed Biosolids – Evaluation of Critical Performance Criteria**
P. Fountain, *Thames Water*; S. Murthy, *DC Water*; K. Kelleher, *Thames Water*; P. Schafer, *Brown and Caldwell*; A. Cooper, E. Kasirga, *Parsons*; K. Lee, *Thames Water;* J. Machisko, *Parsons*; M. Higgins, *Buckenll University*

07B 4:15pm **Process Assessment to Performance Testing: Transitioning from Plate and Frame to High Solids Centrifuge Dewatering**
L. Cubbage, M. Bullard, H. Long, *Hazen and Sawyer*; J. Whitaker, R. Wichser, *Rivanna Water and Sewer Authority*

07C 4:45pm **Innovations for Optimizing Centrifuge Solids Dewatering of Undigested and Separated Primary and Thickened Waste Activated Biosolids Clark County Water Reclamation District Solids Dewatering Facility**
B. Johnson, *CH2M HILL, Inc*; J. Edenburn, *Clark County Water Reclamation District*; M. Montoya, *Alpine Technology, Inc.*

5:15pm **Session Adjourns**

Networking Reception – Exhibit Hall A
Immediately following the conclusion of this session, please join us for the Networking Reception held in the Exhibit Hall from 5:00pm – 6:30pm.

TECHNICAL PROGRAM

Session 8: Bioenergy from Residuals II

Tuesday, March 27 **Room: 301AB**
8:30am - 11:45am **2.5 PDHs**

Moderators: Douglas Fredericks, *ATKINS*
Engin Guven, *CDM Smith*

08A 8:30am **Taking Your Digester Gas on the Road: The Case to Upgrade Digester Gas for Vehicle Fuel**
E. Jacobson, J. Schettler, C. Muller, *Brown and Caldwell*; J. Luo, *Pima County Regional Wastewater Reclamation Department*

08B 9:00am **Coordinating Utility Billing Rates to Maximize the Benefit from Onsite Energy Generation and Combined Heat and Power Systems**
B. Lisk, *Hazen and Sawyer*; J. Dodson, *City of Durham, NC*; M. Bullard, *Hazen and Sawyer*

08C 9:30am **Try Before You Buy – Bench-Scale Digestion Evaluation of Potential Co-Digestion Waste Streams**
S. Hardy, *Hazen and Sawyer*; M. Tandukar, S. Pavlostathis, *Georgia Institute of Technology*; R. Porter, H. Elmendorf, *Gwinnett County Department of Water Resources*

10:00am **Networking Break**

08D 10:45am **Evaluating the Effect of Operating Conditions on the Energy Potential from Anaerobic Digesters**
C. Muller, C. Dimmick, J. Keaney, E. Lynch, *Brown and Caldwell*; S. Pugsely, *Philadelphia Water Department*

08E 11:15am **Optimizing the Value of Your Biogas – Irvine Ranch Water District's Drive for Energy Balance**
P. Scanlan, *Black & Veatch*; S. Malloy, C. Spangenberg, *Irvine Ranch Water District*; G. Queiroz, S. Olson, D. Buhrmaster, C. Polo, J. Clark, *Irvine Ranch Water District*

11:45am **Session Adjourns**

TECHNICAL PROGRAM

Session 9: Research and Development Activities I

Tuesday, March 27 **Room: 302AB**
8:30am - 11:45am **2.5 PDHs**

Moderators: Kari Fitzmorris Brisolara, *Louisiane State University*
Trudy Johnston, *Material Matters, Inc.*

09A 8:30am **Nutrient Recovery from Was Streams for Struvite Control and Recycle Load Reduction**
R. Latimer,V. Nguyen, K. Smeby, E. Vadiveloo, P. Pitt, *Hazen and Sawyer*; R. Harris, R. Porter, H. Elmendorf, T. Richards, *Gwinnett County Department of Water Resources*

09B 9:00am **Reducing Biosolids Phosphorus by Efficient Release and Harvesting of Phosphorus**
A. Grooms, *Madison Metropolitan Sewerage District*

09C 9:30am **Barriers to Biogas Utilization for Renewable Energy – What's Keeping WWTPs from Using Biogas**
L. Stone, Y. Qi, *Black & Veatch*; J. Willis, K. Durden, *Brown and Caldwell*; C. Hemenway, *Hemenway, Inc*.; N. Beecher, *Northeast Biosolids & Residuals Association;* R. Greenwood, *Ross & Associates*; L. Fillmore, *Water Environment Research Foundation*; K. O'Connor, *New York State Energy Research and Development Authority*

10:00am **Networking Break**

09D 10:45am **Pilot Scale Co-Digestion of FOG**
S. Vandenburgh, *CDM Smith*; V. Razaviarini, *University of Alberta*; S. Malik, *Edmonton Waste Management Centre of Excellence*; I. Buchanan, *University of Alberta*; H. Katalambula*, Edmonton Waste Management Centre of Excellence*; D. Parry, *CDM Smith*

09E 11:15am **Investigation of a New Anaerobic Side-Stream Reactor (ASSR) Process for Sludge Reduction in Biological Wastewater Treatment**
E. Bowles, J. Novak, *Virginia Tech*; C. Bott, *Hampton Roads Sanitation District*; A. Pruden, *Virginia Tech*

11:45am **Session Adjourns**

TECHNICAL PROGRAM

Session 10: Sustainability,Climate Change and Greenhouse Gas Issues

Tuesday, March 27 **Room: 305AB**
8:30am - 11:45am **2.5 PDHs**

Moderators: Diane Garvey, *Garvey Resources*
John Willis, *Brown and Caldwell*

10A 8:30am **What Do You Feed a Hungry Digester? Assessing the Market for Co-Digestion in Central Maine**
N. Beecher, *North East Biosolids and Residuals Association*; M. Richardson*, Lewiston-Auburn Water Pollution Control Authority*; J. Donovan, *CDM Smith*

10B 9:00am **Sustainable (Low Energy) Digester Linear Motion Mixing – "Show Me The Data"**
D. Oerke, *CH2M HILL, Inc*; F. Ramirez, *Austin Water Utility, Texas*; M. Berg, *CH2M HILL, Inc*

10C 9:30am **Keeping a Finger on the Pulse of Our Industry: A National Survey of our Biosolids and Digester Gas Reuse Practices**
M. Yoo, *HDR Engineering*.; N. Beecher, *North East Biosolids and Residuals Association*; L. Stone, *Black and Veatch*

10:00am **Networking Break**

10D 10:45am **Sustainability Comparison of Class A And Class B Biosolids Technologies**
D. Devin-Clarke, C. Muller, S. Wilson, *Brown and Caldwell*

10E 11:15am **Reduction of Greenhouse Gas Emission and Conservation of Nitrogen and Phosphorus During Swine Manure Composting**
J. X. Zheng, Y. S. Wei, X. F. Wu, *Chinese Academy of Sciences, Beijing*

Poster **A Sustainable Biosolids Drying Process**
J. Newton, *Kent County Dept. of Public Works*

11:45am **Session Adjourns**

TECHNICAL PROGRAM

Session 11: Odor and Pathogen Control

Tuesday, March 27 **Room: 306BC**
8:30am - 11:45am **2.5 PDHs**

Moderators: Bob Forbes, *CH2M HILL, Inc*
Chris Wilson, *Greeley and Hansen*

11A 8:30am **WERF ROSI Project – Do We Need a Revised Time-Temperature Requirement to Achieve Class A Biosolids**
M.J. Higgins, *Bucknell University*; S. Murthy, *DC Water*; S. Aynur, *George Washington University*; S. Beightol, *Bucknell University*

11B 9:00am **NSF International Develops New Protocol for Sewage Sludge Processing into Organically-Enhanced Granular Fertilizers**
P. Davison, *NSF International*; D. Weber, *Unity Fertilizer LLC*

11C 9:30am **Demonstration of a Process to Further Reduce Pathogens in Biosolids: Wenatchee Biosolids Treatment Method**
D. Frazier, J. Shaw, P. Moser, *City of Wenatchee, WA*; K. Sattler, *Anatek Labs*; R. Danielson, *BioVir Laboratories, Inc*

10:00am **Networking Break**

11D 10:45am **Keeping it Within the Fence: Dispersion Modeling, Piloting, and Innovation Help the City of Bryan, Texas Control Dewatering Odors**
L. Moss, K. Santoro, *CDM Smith*; M. Jurica, V. Harris,
City of Bryan, Texas

11E 11:15am **An Impact of Iron on the Digestion Efficiencies and Odor Generation of Multi-Stage Anaerobic Digestion System**
J. Kim, *Infilco Degremont Inc*; J. Novak, *Virginia Tech*

11:45am **Session Adjourns**

TECHNICAL PROGRAM

Session 12: Thermal Processes II

Tuesday, March 27 **Room: 301AB**
1:30pm - 3:00pm **1.25 PDHs**

Moderators: Jeanette Brown**,** *Manhattan College*
Scott Carr, *CDM Smith*

12A 1:30pm **Valoris™, The Missing Link for the Effective Treatment of Sludge and Digestate**
A. Cheyrou-Lagrèze, A.Mumby, *Mechtronix Environment Inc.*

12B 2:00pm **Improved Solar Biosolids Dryers**
D. Weinert, *Huber Technology, Inc*.; A. Grosser, *Huber SE, Berching, Germany*

12C 2:30pm **Going Waterless For Sewage Sludge Incinerators – Can It Be Done?**
J. Rowan, R. Hooper, A. Kasarabada, G. Queiroz, F. Dachille, J. Welp, *Black & Veatch*

3:00pm **Session Adjourns**

TECHNICAL PROGRAM

Session 13: Biosolids Land Application, Land Reclamation, and Nutrient Management

Tuesday, March 27 **Room: 302AB**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Tim Woody, *City of Raleigh Public Utilities*
Trille Mendenhall, *Brown and Caldwell*

13A 1:30pm **Characterizing the Risk to Groundwater Quality from Biosolids Beneficial Use Activities**
M. McFarland, K. Kumarsamy, *Utah State University*; R. Brobst, *USEPA*; H. Hais, *WERF*; M. Schmitz, *Utah Division of Water Quality*

13B 2:00pm **Development of a Land Application Program for Class B Biosolids at the North Davis Sewer District**
W. Fasth, *Brown and Caldwell*; K. Cowan, *North Davis Sewer District*; P. Heck, A. Fugal, *Brown and Caldwell*

13C 2:30pm **When Your Cup Runneth Over – Experiences at the City of Raleigh, North Carolina Neuse River Wastewater Treatment Plant In Urgent Short-Term Biosolids Removal**
J. Moyer, *URS*; T. Woody, *City of Raleigh, North Carolina Public Utilities*

3:00pm **Networking Break**

13D 3:45pm **Nitrate Movement in Soil Profiles after Biosolids Land Application in a Dryland Ecosystem**
A. Gilley, B. Mitchell, *Metro Wastewater Reclamation District*

13E 4:15pm **Bioassay of Biosolids in an Operational Scale Field Trial**
T. D. Evans, *Tim Evans Environment*; S. R. Smith*, Imperial College, London*

4:45pm **Session Adjourns**

TECHNICAL PROGRAM

Session 14: Sustainability

Tuesday, March 27 **Room: 305AB**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Steve Wilson, *Brown and Caldwell*
Hunter Long, Hazen and Sawyer

14A 1:30pm **Process and Economic Benefits of Sidestream Treatment**
K. Bilyk, R. Taylor, P. Pitt, D. Wankmuller, *Hazen and Sawyer*

14B 2:00pm **Sustainability Evaluation of Food Waste Management Techniques**
S. Vandenburgh, C. Clark, C. McPherson, D. Parry, *CDM Smith*

14C 2:30pm **A Theoretical and Practical Evaluation of Struvite Control and Recovery: Two Case Studies**
E. Vadiveloo, R. Fergen, M. Moncholi, P. Pitt, R. Sharp, D. Wankmuller, R. Latimer, *Hazen and Sawyer*

3:00pm **Networking Break**

14D 3:45pm **Best of Both Worlds Efficiently Managing C for Energy Optimization**
G. Queiroz, H. Santha, E. Kobylinski, *Black & Veatch*

14E 4:15pm **Bridgeport's Sustainable Biosolids Options**
W. McFarland, *GHD*

Alternate 1 **Recovery of Effluent Heat for Beneficial Use in Biosolids Stabilization**
R. Lonergan, M. Maxwell, *Tetra Tech, Inc*.; M. Gilman, *LEED® AP – Active Energies*; D. Deussen, *AAEE – City of Rifle, Colorado*

Alternate 2 **Enhanced Digestion with EXELYS™-DLD – A Direct Pathway to a Sustainable and Cost Effective Wastewater Treatment Plant**
N. Gurieff, B. Nielsen, O. F. Adeler, J. Boyd, M. Kline, *Veolia Water*

4:45pm **Session Adjourns**

TECHNICAL PROGRAM

Session 15: Advances in Stabilization Technologies

Tuesday, March 27 **Room: 306BC**
1:30pm - 4:45pm **2.5 PDHs**

Moderators: Mohammad Abu-Orf, *AECOM*
Alex Travaglia*, CDM Smith*

15A 1:30pm **Anaerobic Membrane Bioreactors (ANMBR) for Sludge Digestion: TWAS Versus Mixed Sludge**
V. Pileggi, M. Dagnew, W. Parker, *University of Waterloo*; P. Seto, *Environment Canada*

15B 2:00pm **Comparing Thermal Hydrolysis Processes (CAMBI™ and EXELYS™) for Solids Pretreatmet Prior to Anaerobic Digestion**
M. Abu-Orf, T. Goss, *AECOM*

15C 2:30pm **A Comparison of the Temperature Phased Anaerobic Digestion System to the Single Stage Anaerobic Digestion System**
J. Kim, *Infilco Degremont Inc*., J. Novak, *Virginia Tech*

3:00pm **Networking Break**

15D 3:45pm **Control of Ammonia Sensitivity in Thermophilic and High Solids Anaerobic Digestion**
C. Wilson, *Greeley and Hansen*; A. Arango Rodriguez, *CH2M HILL, Inc*; J. Novak, *Virginia Polytechnic Institute and State University*

15E 4:15pm **Global Development of the ATAD Process and its Significant Achievements in Energy Recovery and Utilization**
J. Smith*, USEPA-ORD-NRMRL-Ci (Retired)*; P. Bizier, *Pape-Dawson Engineers, Inc.*; L. Sobrados-Bernardos, *Centro de Estudios Hidrográficos*

4:45pm **Session Adjourns**

TECHNICAL PROGRAM

Session 16: Future Opportunities and Emerging Technologies

Tuesday, March 27 **Room: 301AB**
3:45pm - 5:15pm **1.25 PDHs**

Moderators: Patricia Scanlan, *Black & Veatch*
Chul Park, *University of Massachusetts Amherst*

16A 3:45pm **Nutrient Recovery, an Emerging Component of a Sustainable Biosolids Management Program**
S. Jeyanayagam, T. Hahn, *CH2M HILL, Inc*; R. Fergen, *Miami-Dade Water & Sewer*; J. Boltz, *CH2M HILL, Inc*

16B 4:15pm **Does the Addition of High Strength Wastes Affect Biosolids Quality?**
N. Sierra, M. Noibi, B. Jones, *San Francisco Public Utilities Commission*

16C 4:45pm **Considerations in Using Thermal Hydrolysis for Pre-Digestion Processing in North America**
P. Schafer, G. Newman, S. Krugel, T. Stigers, T. Chapman, C. Muller, P. Braswell, *Brown and Caldwell*

Alternate **Sludge Disintegration Application for Enhancing Anaerobic Digester Performance for the Water Conservation Plant, Visalia, CA**
S. Thakral, *Parsons*; M. Roehl, *Siemens*; V. Seeta, M. Arora, *Parsons*; C. Waul, *Siemen*; P. Skager, *Parsons*

5:15pm **Session Adjourns**

TECHNICAL PROGRAM

Session 17: Bioenergy from Residuals III

Wednesday, March 28 **Room: 301AB**
8:30am - 11:15am **2.5 PDHs**

Moderators: Houssam Eljerdi, *Pima County Regional Wastewater Reclamation Department*
Aaron Stephens, *Material Matters, Inc.*

17A 8:30am **Pyrolysis of Dried Biosolids for Increased Biogas Production**
D. Parry, *CDM Smith*; F. M. Lewis; S. Vandenburgh, *CDM Smith*; R. T. Haug; J. Amador, *CDM Smith*

17B 9:00am **Turning Biosolids into Green Energy: Comparing Anaerobic Digestion with Combined Heat and Power to Close-coupled Gasification**
M. Peric, M. Abu-Orf, B. Stinson, G. Davies, T. Goss, *AECOM*; R. Taylor, S. Amad, D. Belschner, F. Hartz, K. Selock, *Washington Suburban Sanitary Commission*

17C 9:30am **Maximizing Energy Recovery from Sludge Kitchener WWTP Case Study**
D. Ross, *CIMA Canada Inc*; J. Bicudo, *Regional Municipality of Waterloo*; P. Coleman, *AECOM*

10:00am **Networking Break**

17D 10:15am **Cornell University Renewable Bioenergy Initiative (CURBI)**
W. McFarland, *GHD*

17E 10:45am **A Net Energy Comparison of Anaerobic Digestion vs. Ultra-High Temperature Gasification to Achieve Zero Energy**
S. Noll, *M2 Renewables, Inc.*

Alternate **FOG - A Proven High Efficiency Renewable Energy Source, Not a Nuisance**
S. Thakral, *Parsons*; R. Palacios, *City of Los Angeles*; L. Sun, *City of Bakersfield*; V. Seeta, *Parsons*

11:15am **Session Adjourns**

TECHNICAL PROGRAM

Session 18: Research and Development Activities II

Wednesday, March 28 **Room: 302AB**
8:30am - 11:15am **2.5 PDHs**

Moderators: Robert Gillette, *Carollo Engineers*
Sam Jeyanayagam, *CH2M HILL, Inc*

18A 8:30am **Effect of Nanosilver and Antibiotic Loading on Fate of Antibiotic Resistance Genes in Thermophilic and Mesophilic Anaerobic Digesters**
J. Miller, J. T. Novak, A. Pruden, W. R. Knocke, K. Young, Y. Hong, *Virginia Tech*

18B 9:00am **Investigation of a New Anaerobic Side-Stream Reactor (ASSR) Process for Sludge Reduction in Biological Wastewater Treatment**
D. Chon, C. Park, *University of Massachusetts Amherst*

18C 9:30am **Morehead City Benefits from New Enhanced Biosolids Drying Technology**
G. Fecher, R. Christy, *RDP Technologies, Inc*.; A. R. Rubin, *North Carolina State University*; R. Van Bramer, *RDP Technologies, Inc*.; D. Williams, *Town of Morehead City*

10:00am **Networking Break**

18D 10:15am **Improving the Digestibility of Green Algae by Anaerobic Co-Digestion with Waste Activated Sludge**
M. Wang, C. Park, *University of Massachusetts Amherst*

18E 10:45am **Determination of Residual Polymer Concentration Using UV-Visible Spectroscopy**
M. Gibbons, B. Ormeci, *Carleton University*

11:15am **Session Adjourns**

TECHNICAL PROGRAM

Session 19: Southeast Regional Issues

Wednesday, March 28 **Room: 305AB**
8:30am - 11:15am **2.5 PDHs**

Moderators: Michael Bullard, *Hazen and Sawyer, PC*
Chris Parisher, *Town of Cary, NC*

19A 8:30am **The Changing Landscape of Biosolids Management In North Carolina - The 21st Century's First Decade and Predictions for the Next One**
R. Forbes, *CH2M HILL, Inc*; C. S. Carpenter, *Soil Plus, LLC*

19B 9:00am **Biosolids- and Yard-Waste-to-Energy Feasibility Study in St. Petersburg, FL**
J. Willis, *Brown and Caldwell*; S. Marshall, G. Cassady, *City of St. Petersburg*; T. Bosso, *Brown and Caldwell*

19C 9:30am **If Not Land Application, Then What? Master Planning for Three Utilities Reveals Trends in Biosolids Management Across the Carolinas**
J. Treadway, K. Tsang, A. Travaglia, *CDM Smith*

10:00am **Networking Break**

19D 10:15am **Biogas Use in Chapel Hill, NC**
P. Schuler, *Brown and Caldwell*; P. Davis, *Orange Water and Sewer Authority*; G. Anipsitakis, J. Willis, *Brown and Caldwell*

19E 10:45am **Digester Gas Energy Recovery - Deciding Between Driving Blowers or Making Electricity**
J. Rohrbacher, B. Lisk, M. Bullard, *Hazen and Sawyer*; J. Whitaker, R. Wichser, T. Frederick, *Rivanna Water and Sewer Authority*

11:15am **Session Adjourns**

TECHNICAL PROGRAM

Session 20: Success Stories and Lessons Learned

Wednesday, March 28 **Room: 306BC**
8:30am - 11:15am **2.5 PDHs**

Moderators: John Kabouris, *CH2M HILL, Inc*
Tania Datta, *CH2M HILL, Inc*

20A 8:30am **Successful Application of the First EXELYS™ Continuous Thermal Hydrolysis System in an Operational WWTP in Denmark**
N. Gurieff, S. Hoejsgaard, B. Nielsen, J. Boyd, M. Kline, *Veolia Water*

20B 9:00am **Criteria for Prescriptive Design Build Focused on DC Water's Biosolids Program Objectives and Constraints**
G. Newman, P. Schafer, *Brown and Caldwell*; D. Stern, *Parsons*; T. Chapman, E. Jacobson, E. Low, J. Garber, *Brown and Caldwell*; S. Kharkar, D. Mukira, *DC Water*

20C 9:30am **Extreme Cost Savings at Extreme Depth: Geothermal Treatment of Biosolids Through Deep Well Injection**
M. Bruno, J. Couture, *GeoEnvironment Technologies*; O. Moghnadam, *City of Los Angeles*

10:00am **Networking Break**

20D 10:15am **Challenges Faced and Solutions Found During the Salt Lake City Water Reclamation Facility Anaerobic Digester Upgrade**
D. Whitlock, *CH2M HILL, Inc*; G. Demke, D. Christensen, *Salt Lake City Department of Public Utilities/Water Reclamation Facility*; J. Schwing, D. Barber, D. Pollock, *CH2M HILL, Inc*

20E 10:45am **A Case Study of Start-Up Considerations for 2TPAD Anaerobic Digestion**
R. Borneman, A. Canella, C. Dassanayake, *ARCADIS, Malcolm Pirnie*

Alternate **Lessons Learned in Design and Commissioning of Digester Gas CHP Energy Recovery Projects in a Design/Build Project Delivery Environment**
S. Hardy, *Hazen and Sawyer*; M. Reisinger, *Crowder Construction Company*; R. Schoeck, A. Minchey, R. Porter, *Gwinnett County Department of Water Resources*; R. Bush, *City of Atlanta Dept of Watershed Management*

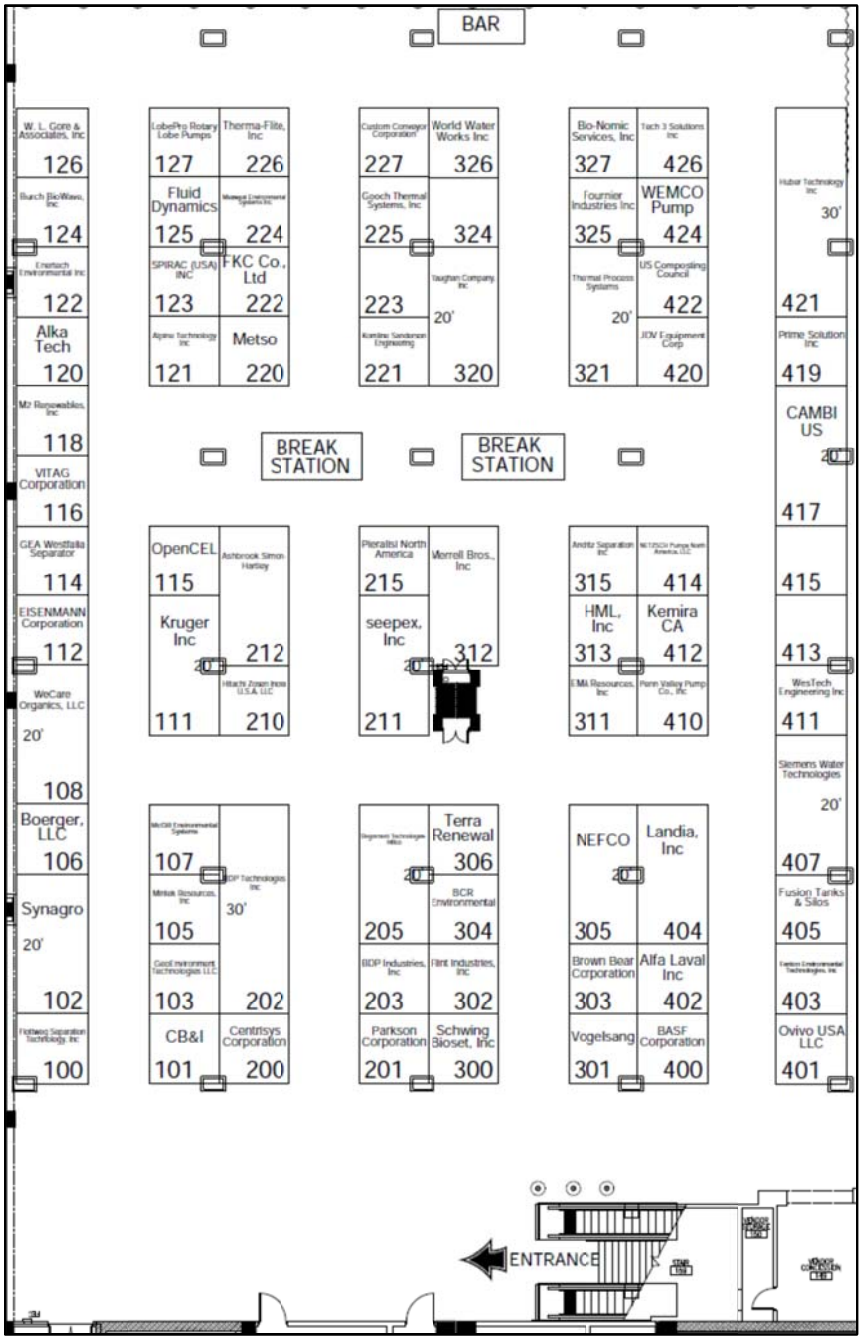
11:15am **Session Adjourns**

EXHIBITION

The exhibition at Residuals and Biosolids 2012 offers networking opportunities with more than 75 companies in over 9,000 square feet of exhibit space. This directory includes listings for exhibitors as of February 17, 2012.

The exhibit hall hosts the morning and afternoon breaks, conference luncheon, and networking reception.

Raleigh Convention Center – Exhibit Hall A



Exhibition Schedule

Monday, March 26

10:00 am – 6:30 pm
Break – 10:00 am
Lunch – 12:00 pm
Break – 3:00 pm

Reception – 5:00 pm

Tuesday, March 27

10:00 am – 3:45 pm
Break – 10:00 am
Lunch – 12:00 pm
Break – 3:00 pm

Children in the Exhibition

WEF welcomes children to visit the exhibition during show hours. For safety reasons, children under the age of 18 must be accompanied by a parent or guardian at all times. The parent or guardian assumes all risks and responsibility for the safety of the children.

Photography in the Exhibit Hall

Due to the proprietary nature of the Exhibit displays, photography of any exhibitor's display and/or materials is forbidden without the exhibitor's express permission.

EXHIBITOR DIRECTORY

Alfa Laval ..... Booth: 402
www.alfalaval.us/wastewater
Phone: 866-ALFA-LAVAL
5400 International Trade Drive
Richmond, VA 23231
USA

Leading manufacturer of centrifuges for dewatering of biosolids, sludge thickeners, and heating and cooling solutions for the wastewater treatment industry.

Alka Tech ..... Booth: 120
Phone: (515) 961-7407
1700 N. 14th Street
Indianola, IA 50125
USA

Alpine Technology, Inc. ..... Booth: 121
www.alpinetechnology.com
Phone: (512) 328-5829
1906 Winter Park Road
Austin, TX 78746-7624
USA

Dewatering and Bioenergy automation. Energy Recovery. Emission and Mercury Control. ALSTOM Boilers and Heat Exchangers. CPPE Mercury Fixed Bed Systems. EnviroCare Scrubbers and WESPs. Elliott Steam Turbine Generators. Metso on line cake sensors.

Andritz Separation Inc. ..... Booth: 315
www.andritz.com
Phone: (817) 419-1708
1010 Commercial Boulevard South
Arlington, TX 76001-7130
USA

Manufacturer of screening, dewatering and drying equipment for sludge applications, including screens, thickeners, belt presses, filter presses, centrifuges, sand filters and drying systems.

EXHIBITOR DIRECTORY

Ashbrook Simon-Hartley ..... Booth: 212
www.as-h.com
Phone: (800) 362-9041
11600 East Hardy
Houston, TX 77093-1098
USA

Ashbrook Simon-Hartley the prime supplier of Optimized Process Results through advanced liquids/solids separation and wastewater treatment technologies. Ashbrook provides retrofit and aftermarket optimization products and flow control systems.

BASF ..... Booth: 400
www.basf.com
Phone: (737) 538-8296
2301 Wilroy Road
Suffolk, VA 23434
USA

BASF provides technical expertise and products to help our customers in the industrial and municipal water sectors meet their commitments and ensure reliable process operations.

BCR Environmental ..... Booth: 304
www.bcrenvironmental.com
Phone: (904) 819-9170
3740 St. Johns Bluff Road, Suite 21
Jacksonville, FL 32224
USA

BCR Environmental is a U.S. based clean technology company focused on wastewater treatment processes that convert organic waste streams into safe, valuable, and marketable end products.

BDP Industries, Inc. ..... Booth: 203
www.bdpindustries.com
Phone: (518) 695-6851
354 Route 29
Greenwich, NY 12834
USA

Manufacturer of filtration equipment: belt press, gravity belt thickener, rotary drum concentrator, pressure filter, mobile dewatering trailer, polymer make-up systems, lime stabilization systems and equipment restorations.

EXHIBITOR DIRECTORY

Bio-Nomic Services Inc ..... Booth: 327
Phone: (704) 529-0000
516 Rountree Road
Charlotte, NC 28217
USA

Boerger, LLC ..... Booth: 106
www.boerger.com
Phone: (612) 435-7300
2960 Water Tower Place
Chanhassen, MN 55317-8004
USA

Brown Bear Corporation ..... Booth: 303
www.brownbearcorp.com
Phone: (641) 322-4220
P.O. Box 29
Corning, IA 50841-0029
USA

Brown Bear Corporation is a manufacturer of hydrostatic tractors and auger/aerator attachments for sludge drying, dewatering, composting and bioremediation.

Burch BioWave ..... Booth: 124
Phone: (740) 694-9146
17860 Ankneytown Road
Fredericktown, OH 43019
USA

CAMBI, INC ..... Booth: 417
Phone: (205) 275-5201
1903 Corona Avenue
Jasper, AL 35501-5425
USA

Cambi's patented Thermal Hydrolysis Process treats municipal and industrial sludge and biowaste prior to anaerobic digestion. It has been applied in 21 plants worldwide.

CB&I ..... Booth: 101
www.cbi.com
Phone: (815) 439-6000
14105 S. Route 59
Plainfield, IL 60544
USA

CB&I furnishes Egg Shaped Anaerobic Digester and 2 Stage, USEPA certified, Class A biosolids treatment systems. Digester gas storage systems round out our storage line.

EXHIBITOR DIRECTORY

Centrisys Corporation ..... Booth: 200
Phone: (262) 654-6006
9586 58th Place
Kenosha, WI 53144-7805
USA

Centrisys manufactures high quality, high performance decanter centrifuges. Centrisys also offers complete service facilities for all brand-name centrifuges, along with training and consulting.

Custom Conveyor Corporation ..... Booth: 227
www.customconveyorcorp.com
Phone: (763) 367-6200
20550 Commerce Boulevard
Rogers, MN 55374-9335
USA
Design and manufacture of material handling and storage equipment for municipal wastewater treatment facilities.

EISENMANN Corporation ..... Booth: 112
www.eisenmann.us.com
Phone: (815) 455-4100
150 E. Dartmoor Drive
Crystal Lake, IL 60014
USA

EMA Resources, Inc. ..... Booth: 311
Phone: (336) 751-1441
www.emaresourcesinc.com
755 Yadkinville Road
Mocksville, NC 27028
USA

Residuals management company providing turnkey services including land application, mobile dewatering, dredging, lagoon closure, digester cleaning, alkaline stabilization, permitting, sampling & analysis, monitoring & reporting, DBO facilities.

Enertech Environmental, Inc. ..... Booth: 122
Phone: (404) 856-5828
3400 Peachtree Road, Suite 1125
Atlanta, GA 30326-1191
USA

EXHIBITOR DIRECTORY

Engineered Compost Systems (ECS) ..... Booth: 324
www.compostsystems.com
Phone: (206) 634-2625
4211 24th Avenue West
Seattle, WA 98199-1214
USA

Engineered Compost Systems (ECS) is an M&E engineering firm that designs, manufactures and supplies In-vessel and ASP technology and services for producing a Class A biosolids compost.

Fenton Environmental Tech., Inc. ..... Booth: 403
www.ifenton.com
Phone: (325) 646-5508
4306 Hwy 377 S.
Brownwood, TX 76801
USA

FKC Co., Ltd. ..... Booth: 222
www.fkcscrewpress.com
Phone: (360) 452-9472
2708 W. 18th Street
Port Angeles, WA 98363
USA

Flint Industries ..... Booth: 302
www.flintusa.net
Phone: (912) 685-3375
1040 E. Lillian Street
Metter, GA 30439
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EXHIBITOR INDEX BY PRODUCT CATEGORY

Absorbents/Adsorbents
Mintek Resources, Inc. 105

Activated Carbon Equipment & Systems
Alpine Technology, Inc. 121

Advanced Wastewater Treatment Processes
Alfa Laval 402
Ashbrook Simon-Hartley 212
Infilco Degremont 205
M2 Renewables, Inc. 118
Ovivo 401
Parkson Corporation 201
Siemens Industry, Inc. 407
World Water Works 326

Aerators
Siemens Industry, Inc. 407

Aerobic Treatment
Ashbrook Simon-Hartley 212
Fusion Tanks & Silos 405
Gooch Thermal Systems, Inc. 225
Infilco Degremont 205
Ovivo 401
Parkson Corporation 201
Siemens Industry, Inc. 407
Thermal Process Systems 321

Agitators
Vaughan Company, Inc. 320

Anaerobic Treatment
Ashbrook Simon-Hartley 212
CAMBI, INC. 417
CB&I 101
Fusion Tanks & Silos 405
Gooch Thermal Systems, Inc. 225
JDV Equipment Corp. 420
OpenCEL 115
Ovivo 401
Siemens Industry, Inc. 407
Vaughan Company, Inc. 320

Biological Nutrient Removal
M2 Renewables, Inc. 118

Biosolids Conditioning & Sterilization
BCR Environmental 304
CAMBI, INC. 417
CB&I 101
EMA Resources, Inc. 311
Gooch Thermal Systems, Inc. 225
Huber Technology, Inc. 421
Mintek Resources, Inc. 105
OpenCEL 115
RDP Technologies 202
Schwing Bioset, Inc. 300
Thermal Process Systems 321
VitAg Corporation 116

Biosolids/Land Application Equipment
Brown Bear Corporation 303
EMA Resources, Inc. 311
Schwing Bioset, Inc. 300

Blowers
Ashbrook Simon-Hartley 212
Siemens Industry, Inc. 407
World Water Works 326

Centrifuges
Alfa Laval 402
Andritz Separation 315
Ashbrook Simon-Hartley 212
Centrisys Corporation 200
Flottweg Separation Tech. 100
Pieralisi North America 215
Synagro 102
World Water Works 326

Chemicals
BASF 400
Mintek Resources, Inc. 105

Chemical Feed Equipment
RDP Technologies 202

Chemicals, Disinfection
Mintek Resources, Inc. 105

Clarifier Equipment
Infilco Degremont 205
Komline-Sanderson 221
M2 Renewables, Inc. 118
Parkson Corporation 201
Siemens Industry, Inc. 407

Coagulants & Flocculents
BASF 400

Coatings & Linings
Fusion Tanks & Silos 405

Composting Equipment & Systems
BCR Environmental 304
Brown Bear Corporation 303
Engineered Compost Systems 324
Fusion Tanks & Silos 405
Siemens Industry, Inc. 407

Conveyors
Alfa Laval 402
Custom Conveyor Corporation 227
JDV Equipment Corp. 420
Jim Myers & Sons, Inc. 223
RDP Technologies 202
Schwing Bioset, Inc. 300

Denitrification
Infilco Degremont 205
OpenCEL 115
Parkson Corporation 201
World Water Works 326

Dewatering Equipment & Services
Alfa Laval 402
Andritz Separation 315
Ashbrook Simon-Hartley 212
Brown Bear Corporation 303
Centrisys Corporation 200
EMA Resources, Inc. 311
Flint Industries 302
Flottweg Separation Tech. 100
Huber Technology, Inc. 421
Infilco Degremont 205
JDV Equipment Corp. 420
Komline-Sanderson 221
LobePro Rotary Pumps 127
Mintek Resources, Inc. 105
Ovivo 401
Pieralisi North America 215
Prime Solution 419
Siemens Industry, Inc. 407
Synagro 102
WeCare Organics, LLC 108

Diffusers
Ashbrook Simon-Hartley 212
Parkson Corporation 201

EXHIBITOR INDEX BY PRODUCT CATEGORY

Digester Cleaning
EMA Resources, Inc. 311
Mintek Resources, Inc..... 105
Synagro..... 102
Vaughan Company, Inc..... 320
WeCare Organics, LLC 108

Digesters
CB&I..... 101
Fusion Tanks & Silos 405
Infilco Degremont..... 205
OpenCEL 115
Ovivo..... 401
Thermal Process Systems 321

Dissolved Air Flotation Systems
Infilco Degremont..... 205
Komline-Sanderson..... 221
Ovivo..... 401

Dredging Services
EMA Resources, Inc. 311
Synagro..... 102
WeCare Organics, LLC 108

Emission Control Equipment
Alpine Technology, Inc..... 121

Engineering & Consulting Services
Engineered Compost Systems.. 324
Synagro..... 102
VOMM DRYERS 415

Environmental Assessment Services
Alfa Laval 402

Filter Equipment
Alfa Laval 402
JDV Equipment Corp. 420
Komline-Sanderson..... 221
M2 Renewables, Inc..... 118

Filter Media
Komline-Sanderson..... 221

Filter Presses & Belt Filter Presses
Andritz Separation..... 315
Ashbrook Simon-Hartley 212
EMA Resources, Inc. 311
Huber Technology, Inc. 421
Komline-Sanderson..... 221

Filters, Biological
Infilco Degremont 205
Siemens Industry, Inc. 407
World Water Works 326

Filters, Gravity
Andritz Separation..... 315
Infilco Degremont 205

Filters, Membrane
Ovivo 401
Siemens Industry, Inc. 407

Filters, Sand
Andritz Separation..... 315
Ashbrook Simon-Hartley..... 212
M2 Renewables, Inc. 118
Parkson Corporation..... 201

Filters, Traveling Bridge
Infilco Degremont 205

Filters, Vacuum
Komline-Sanderson..... 221

Flocculation Equipment
JDV Equipment Corp..... 420
Jim Myers & Sons, Inc..... 223

Flotation Equipment
Komline-Sanderson..... 221
World Water Works 326

Gas Collection & Treatment
M2 Renewables, Inc. 118
OpenCEL..... 115

Gates & Gate Controls
Jim Myers & Sons, Inc..... 223
Schwing Bioset, Inc. 300

Grinders, Shredders & Comminutors
seepex, Inc. 211

Grit Handling Equipment
Custom Conveyor Corporation .. 227
Huber Technology, Inc. 421
JDV Equipment Corp..... 420
Jim Myers & Sons, Inc..... 223

Groundwater Remediation Services
LobePro Rotary Pumps 127

Groundwater Pollution Prevention
Komline-Sanderson 221

Heat Exchangers
Alfa Laval.....402
Alpine Technology, Inc. 121
Gooch Thermal Systems, Inc.....225
JDV Equipment Corp. 420
Thermal Process Systems.....321

Heavy Metals Removal
Infilco Degremont.....205
Mintek Resources, Inc. 105

Hydrogen Sulfide Control
Parkson Corporation.....201

Incinerators
Alpine Technology, Inc. 121
Infilco Degremont.....205
M2 Renewables, Inc. 118
Synagro 102
VOMM DRYERS.....415

Ion Exchange Equipment
Siemens Industry, Inc. 407

Lagoon Equipment
Parkson Corporation.....201
Vaughan Company, Inc. 320

Lime Slakers
Mintek Resources, Inc. 105
RDP Technologies.....202

Liners, Pond & Lagoon
Mintek Resources, Inc. 105

Mixers
Andritz Separation 315
JDV Equipment Corp. 420
RDP Technologies.....202
Schwing Bioset, Inc. 300

Nutrients
OpenCEL.....115

EXHIBITOR INDEX BY PRODUCT CATEGORY

Odor Control Equipment & Systems
BCR Environmental..... 304
Mintek Resources, Inc..... 105
Parkson Corporation 201
Siemens Industry, Inc..... 407

Oil/Water Separators
Mintek Resources, Inc..... 105
World Water Works..... 326

Operations & Maintenance Services
Ashbrook Simon-Hartley 212
Schwing Bioset, Inc..... 300
Synagro..... 102
VOMM DRYERS..... 415
WeCare Organics, LLC..... 108

Oxygen Activated Sludge Systems
Parkson Corporation 201

Package Treatment Plants
Ashbrook Simon-Hartley 212
Infilco Degremont..... 205
M2 Renewables, Inc..... 118
Parkson Corporation 201
Siemens Industry, Inc..... 407
World Water Works..... 326

Pipe Fittings
Schwing Bioset, Inc..... 300

Pipe, Steel
Schwing Bioset, Inc..... 300

Plate Settlers
Jim Myers & Sons, Inc. 223
Parkson Corporation 201

Precipitants
BASF..... 400

Process Control Instrumentation
Alfa Laval 402

Pump Controls
Schwing Bioset, Inc..... 300
seepex, Inc..... 211

Pumps, Centrifugal
Vaughan Company, Inc..... 320

Pumps, Chemical Feed
BASF..... 400
seepex, Inc. 211

Pumps, Diaphragm
Penn Valley Pump Co., Inc..... 410

Pumps, Grinder
Netzsch Pumps North America . 414
seepex, Inc. 211
Vaughan Company, Inc. 320

Pumps, Lift Station
seepex, Inc. 211
Vaughan Company, Inc. 320

Pumps, Metering
Netzsch Pumps North America . 414
seepex, Inc. 211

Pumps, Non-Metallic
Netzsch Pumps North America . 414
seepex, Inc. 211

Pumps, Progressing Cavity
Netzsch Pumps North America . 414
seepex, Inc. 211

Pumps, Reciprocating
LobePro Rotary Pumps 127
Penn Valley Pump Co., Inc..... 410
Schwing Bioset, Inc. 300

Pumps, Screw
Vaughan Company, Inc. 320

Pumps, Sludge
Komline-Sanderson..... 221
LobePro Rotary Pumps 127
Netzsch Pumps North America . 414
Penn Valley Pump Co., Inc..... 410
Schwing Bioset, Inc. 300
seepex, Inc. 211
Vaughan Company, Inc. 320

Pumps, Submersible
Vaughan Company, Inc. 320

Pumps, Sump
seepex, Inc. 211
Vaughan Company, Inc. 320

Pumps, Vertical
seepex, Inc. 211
Vaughan Company, Inc. 320

Respirometers
WeCare Organics, LLC.....108

Screens, Bar
Andritz Separation 315
Huber Technology, Inc.....421
Parkson Corporation.....201

Screens, Fine
Andritz Separation 315
Huber Technology, Inc.....421
JDV Equipment Corp. 420
M2 Renewables, Inc. 118
Ovivo 401
Parkson Corporation.....201
World Water Works.....326

Scrubbers
Alpine Technology, Inc. 121

Sedimentation Equipment
Ovivo 401

Septage Handling
Huber Technology, Inc.....421
Thermal Process Systems.....321

Sequencing Batch Reactors
Ashbrook Simon-Hartley.....212
Siemens Industry, Inc. 407

Sludge Blanket Detectors/Controllers
Mintek Resources, Inc. 105

Sludge Drying Equipment
Alfa Laval.....402
Andritz Separation 315
Brown Bear Corporation 303
Huber Technology, Inc.....421
Infilco Degremont.....205
Komline-Sanderson 221
M2 Renewables, Inc. 118
Parkson Corporation.....201
Pieralisi North America 215
RDP Technologies.....202
Schwing Bioset, Inc. 300
Siemens Industry, Inc. 407
VOMM DRYERS.....415

Sludge Hauling
EMA Resources, Inc. 311
OpenCEL.....115
Schwing Bioset, Inc. 300
Synagro 102
WeCare Organics, LLC.....108

EXHIBITOR INDEX BY PRODUCT CATEGORY

Sludge Mixers
Andritz Separation..... 315
Brown Bear Corporation..... 303
JDV Equipment Corp. 420
OpenCEL 115
RDP Technologies 202
seepex, Inc..... 211
Vaughan Company, Inc..... 320

Sludge Thickeners
Alfa Laval 402
Andritz Separation..... 315
Ashbrook Simon-Hartley 212
Centrisys Corporation 200
Flottweg Separation Tech. 100
Huber Technology, Inc. 421
JDV Equipment Corp. 420
Komline-Sanderson..... 221
OpenCEL 115
Parkson Corporation 201
Pieralisi North America..... 215
World Water Works 326

Software, Operations & Maintenance
Alfa Laval 402

Software, Process Control
Alfa Laval 402
Alpine Technology, Inc..... 121

Spraying Equipment & Nozzles
Komline-Sanderson..... 221

Storage Structures
Fusion Tanks & Silos.....405
RDP Technologies.....202

Stormwater Treatment
Andritz Separation.....315
Huber Technology, Inc. 421
M2 Renewables, Inc. 118

Stormwater/CSO Control Systems
Huber Technology, Inc. 421
Infilco Degremont 205
Vaughan Company, Inc. 320

Strainers
Huber Technology, Inc. 421

Suspended Solids Analyzers
Alpine Technology, Inc. 121

Tank Covers
Fusion Tanks & Silos.....405
JDV Equipment Corp. 420

Tanks, Chemical Storage
Fusion Tanks & Silos.....405

Tanks, Hazardous Waste Storage
Fusion Tanks & Silos.....405

Tanks, Wastewater
Fusion Tanks & Silos 405
Jim Myers & Sons, Inc. 223
World Water Works.....326

Training Courses
Alfa Laval 402

Training Materials
Alfa Laval 402

Ultrafiltration Equipment
Siemens Industry, Inc. 407
World Water Works.....326

Ultraviolet Disinfection Equipment
Andritz Separation 315

Valves, Control
Schwing Bioset, Inc. 300

Valves, Telescoping
Jim Myers & Sons, Inc. 223

Valves, Rotary
LobePro Rotary Pumps 127

Water Recycling/Reuse
Andritz Separation 315
Huber Technology, Inc. 421
M2 Renewables, Inc. 118
VOMM DRYERS.....415

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Peter Brady, *Alpine Tech*, 1906 Winter Park Rd, Austin, TX 78746, **Workshop A**

Kari Brisolara, *Louisiane State University*, 2020 Gravier St., New Orleans, LA 70112, **Workshop B, Session 9 Alternate**

Jeanette Brown, *Manhattan College*, Leo Engineering Building, 3825 Corlear Ave, Bronx, NY 10463, **Session 12 Moderator**

Michael Bruno, *GeoEnvironment Technologies*, 103 E Lemon, Suite 212, Monrovia, CA 91016, **20C**

C. Michael Bullard, *Hazen and Sawyer*, 4011 Westchase Blvd., Suite 500, Raleigh, NC 27529, **6E, Session 19 Moderator**

Peter Burrows, *CH2M HILL*, 72 Victoria Street South, 300, Kitchener, ON N2G 4Y9, Canada, **Workshop A**

Jennifer Callahan, *Material Matters, Inc.*, PO Box 224, Elizabethtown, PA 17022, **Session 4 Alternate**

Scott Carr, *CDM Smith*, 9200 Ward Parkway, Suite 500, Kanasas City, MO 66210, **Session 12 Moderator**

PRESENTER AND MODERATOR DIRECTORY

George Cassidy, *City of St. Petersburg*, 1650 3rd Avenue North, St. Petersburg, FL 33713, **19B**

Arnaud Cheyrou-Lagre, *Mechtronix Environment Inc.*, 6767 cote de Liesse, Saint-Laurent, Quebec H4T 1E5, Canada, **12A**

Cameron Clark, *CDM Smith*, 1218 3rd Ave, Suite 1100, Seattle, WA 98101, **Workshop A**

Dustin Craig, *CDM Smith*, 9200 Ward Pkwy, Suite 500, Kansas City, MO 6411 **Session 3 Moderator**

Laurissa Cubbage, *Hazen and Sawyer*, 209 Carters Grove Ln., Lynchburg, VA 24503, **7B**

John Currie, *CB&I*, 14105 S. Route 59, Plainfield, IL 60544, **Session 5 Alternate**

Richard Danielson, *BioVir Laboratories, Inc.*, 685 Stone Road, Unit 6, Benicia, CA 94510, **11C**

Tania Datta, *CH2M HILL*, 215 S State Street, Suite 1000, Salt Lake City, UT 84111, **4B, Session 20 Moderator**

Grant Davies, *AECOM*, 14504 Greenview Drive, Suite 400, Laurel, MD 20708, **17B**

Patrick Davison, *NSF International*, PO Box 130140, Ann Arbor, Michigan 48113, **11B**

Dana Devin-Clarke, *Brown and Caldwell*, 1015 NE Jarrett St, Portland, OR 97211, **10D**

John Donovan, *Camp Dresser and McKee, Inc.*, 50 Hampshire Place, Cambridge, MA 02139, **Workshop B**

Houssam Eljerdi, *Pima County Regional Wastewater Reclamation Department*, 7101 N. Casa Grande Hwy, Tucson, AZ 85743, **Session 1 Moderator, Session 17 Moderator**

Herschel Elliott, *Penn State University*, University Park, PA 16802, **Workshop C**

Ralph Eschborn, *AECOM*, 1700 Market Street, Suite 1700, Philadelphia, PA 19103, **3D**

Tim Evans, *Tim Evans Environment*, Stonecraft, Park Lane, Ashtead, Surrey KT21 1EU, UK, **2E, 13E**

Bill Fasth, *Brown and Caldwell*, 6500 SW Macadam Ave., Suite 200, Portland, OR 97239, **13B**

Gayla Fecher, *RDP Technologies*, 2495 Blvd of the Generals, Norristown, PA 19403, **18C**

Bob Forbes, *CH2M HILL*, 11301 Carmel Commons Blvd, Suite 304, Charlotte, NC 28226, **19A, Session 11 Moderator**

PRESENTER AND MODERATOR DIRECTORY

Steve Frank, *Moxa*, 3001 Enterprise St, Suite 210, Brea, CA 92821, **Session 2 Moderator**

Douglas Fredericks, *ATKINS*, 11818 Rock Landing Drive, Suite 100, Newport News, VA 23606, **Session 8 Moderator**

Diane Garvey, *Garvey Resources*, 407 S Stone Ridge Dr, Lansdale, PA 19446, **Session 10 Moderator**

Robert Gillette, *Carollo Engineers*, 2880 Gateway Oaks Dr, Suite 300, Sacramento, CA 95833, **Session 18 Moderator**

Alicia Gilley, *Metro Wastewater Reclamation District*, 6450 York St, Denver, CO 80229, **13D**

Charles Terry Goss, *AECOM*, 1700 Market St, Suite 1700, Philadelphia, PA 19103, **5C**

TR Gregg, *Huber Technology, Inc.*, PO Box 750, Huntersville, NC 28078, **1C**

Alan Grooms, *Madison Metroploitan Sewerage District*, 1610 Moorland Road, Madison, WI 53713, **9B**

Nicholas Gurieff, *Veolia Water*, Gladsaxevej 363, Soeborg, 2860, Denmark, **20A**

Engin Guven, *CDM Smith*, 8381 Dix Ellis Trail, Suite 400, Jacksonville, FL 32256, **Session 8 Moderator**

Thomas Hahn, *CH2M HILL*, 113601 Carmel Commond, Charlotte, NC 28226, **16A**

Chad Hall, *City of Urbana*, 205 S. Main Street, Urbana, OH 43078, **5B**

Scott Hardy, *Hazen and Sawyer*, 5775 Peachtree-Dunwoody Road, Suite D-520, Atlanta, GA 30342, **8C, Session 20 Alternate**

Kevin Hardy, *Encina Wastewater Authority*, 6200 Avenida Encinas, Carlsbad, CA 92011, **Workshop A**

Maatthew Higgins, *Bucknell University*, 172 Breakiron Engineering, Lewisburg, PA 17837, **7A, 11A, Session 7 Moderator**

Soren Hojsgaard, *Veolia Water*, Gladsaxevej 363, Soeborg, 2860, Denmark, **Session 5 Poster**

Samuel Jeyanayagam, *CH2M HILL*, 1103 Shrock Road, Suite 400, Columbus, OH 43229, 1**6A, Session 18 Moderator**

Bruce Johnson, *CH2M HILL*, 2485 Village View Drive, Suite 350, Henderson, NV 89074, **7C**

PRESENTER AND MODERATOR DIRECTORY

Trudy Johnston, *Material Matters, Inc.*, PO Box 224, Elizabethtown, PA 17022, **Session 9 Moderator**

John Kabouris, *CH2M HILL*, 2209 Peachford Circle, Atlanta, GA 30342, **3E, Session 20 Moderator**

Jongmin Kim, *Infilco Degremont Inc.*, 8007 Discovery Dr, Richmond, VA 23229, **11E, 15C**

Michele Kline, *Kruger Inc./Veolia*, 401 Harrison Oaks Blvd., Cary, NC 27513, **Session 14 Moderator**

William Krill, *Brown and Caldwell*, 250 East Wisconsin Ave, Milwaukee, WI 53202, **1A**

Kent Lackey, *Black & Veatch*, 8520 Cliff Cameron Dr., Suite 210, Charlotte, NC 28269, **6C**

Ron Latimer, *Hazen and Sawyer*, 5775 Peachtree Dunwoody Road, Atlanta, GA 30342, **9A**

Jeffrey LeBlanc, *WeCare Organics, LLC*, 9289 Bonta Bridge Road, Jordan, NY 13080, **Session 5 Moderator**

Mike Lewis, *Consultant*, 535 East Mariposa Ave, El Segundo, CA 90245, **Workshop A**

Isabel Lima, *United States Dept of Agriculture*, 1100 Robert E Lee Blvd, New Orleans, LA 70124, **Workshop B**

Bryan Lisk, *Hazen and Sawyer*, 4011 Westchase Blvd, Suite 500, Raleigh, NC 27607, **8B**

Robert Lonergan, *Tetra Tech, Inc.*, 1576 Sherman Street, Suite 100, Denver, CO 80203, **Session 14 Alternate**

Hunter Long, Hazen and Sawyer, 498 Seventh Avenue, 11th Floor, New York, NY 10018**,** **Session 14 Moderator**

Cecil Martin, *South Cary Water Reclamation Facility*, 4900 West Lake Road, Apex, NC 27539, **Session 4 Moderator**

Michael McFarland, *Utah State University*, 1405 Mount Logan Drive, Logan, UT 84321,**13A**

Wayne McFarland, *GHD*, 1 Remington Park Drive, Cazenovia, NY 13035, **14E, 17D**

Trille Mendenhall, *Brown and Caldwell*, 1111 Lundy Ln, Charlotte, NC 28214, Session **13 Moderator**

Brandt Miller, *ARCADIS Malcolm Pirnie*, 12400 Coit Road, Suite 1200, Dallas, TX 75251, **6D**

Jennifer Miller, *Virginia Tech*, 418 Durham Hall, Blacksburg, VA 24061, **18A**

PRESENTER AND MODERATOR DIRECTORY

Giuseppe Mininni, *Italian National Research Council*, Area Ricerca RM1 - via Salaria km 29,3, Rome, 00015, Italy, **1B**

Lynne Moss, *CDM Smith*, 12357-A Riata Trace Pkwy, #210, Austin, TX 78727, **11D, Workshop B, Workshop C**

Jack Moyer, *URS*, 1600 Perimeter Park Drive, Suite 400, Morrisville, NC 27560, **13C**

Christopher Muller, *Brown and Caldwell*, 701 Pike Street, Suite 1200, Seattle, WA 98101, **8D**

Gary Newman, *Brown and Caldwell*, 201 East Washington Street, Phoenix, AZ 85004, **20B**

James Newton, *Kent County Dept. of Public Works*, 139 Milford Neck Rd, Milford, DE 19963, **Session 10 Alternate and Poster**

Morayo Noibi, *Carollo Engineers*, 870 Market St, Suite 728, San Francisco, CA 94102, **16B**

Scott Noll, *M2 Renewables, Inc.*, 20996 Bake Parkway, Lake Forest, CA 92630, **17E**

Germana Nunes, *Black and Veatch*, 50 Minthorn Blvd, Markam, ON 7X8 L3T, Canada, **5A**

Lisa Ochsenhirt, *AquaLaw, PLC*, 6 South 5th Street, Richmond, VA 23219, **2C**

David Oerke, *CH2M HILL*, 9193 S. Jamaica Street, Englewood, CO 80112, **10B, Session 6 Moderator**

Banu Ormeci, *Carleton University*, 1125 Colonel By Drive, Ottawa, Ontario K1S 5B6, Canada, **18E**

Chris Parisher, *Town of Cary*, 1900 Old Reedy Creek Road, Cary, NC 27513, **Session 6 Moderator, Session 19 Moderator**

Chul Park, *University of Massaschusetts*, 18 Marston Hall 130 Natural Resources Road, Amherst, MA 01003, **18B, 18D, Session 16 Moderator**

David Parry, *CDM Smith*, 14432 SE Eastgate Way, Suite 100, Bellevue, WA 98007, **17A, Workshop A, Session 3 Moderator**

Marija Peric, *AECOM*, 14504 Greenview Drive, Laurel, MD 20708, **17B**

Vince Pileggi, *University of Waterloo*, 200 University Ave., Waterloo, ON N2L 3G1, Canada, **15A**

Suresh Pillai, *Texas A&M*, 418B Kleberg Center, College Station, TX 77840, **Workshop B**

Christine Polo, *Black & Veatch*, 8400 Ward Parkway, Kansas City, MO 64114, **5D**

PRESENTER AND MODERATOR DIRECTORY

Coenraad Pretorius, *Carollo Engineers*, 10540 Talbert Avenue, Suite 200E, Fountain Valley, CA 92708, **1D**

Gustavo Queiroz, *Black & Veatch*, 8400 Ward Parkway, Kansas City, MO 64114, **14D**

Robert Reimers, *Tulane University*, 1440 Canal Street, Suite 2117, New Orleans, LA 70112, **Workshop B**

Kim Riddell, *Smith Environmental*, 404 E 7th Street, Delphos, OH 45833, **4A**

Markus Roediger, *Dr. Roediger Consult*, Richard-Wagner-Strasse 18, Stuttgart, Germany 70184, Germany, **5E**

Joe Rohrbacher, *Hazen and Sawyer*, 1 Poston Road, Charleston, SC 29407, **19E**

Deborah Ross, *CIMA Canada Inc.*, 7880 Keele Street, Suite 201, Vaughan, ON L4K 497, Canada, **17C**

James Rowan, *Black & Veatch*, 8400 Ward Parkway, Kansas City, MO 64114, **12C**

Robert Rubin, *Self Employed*, 192 Fearrington Post, Pittsboro, NC 27312, **Workshop C**

Frank Sapienza, *CDM Smith*, 50 Hampshire Street, Cambridge, MA 02139, **2D**

Patricia Scanlan, *Black & Veatch*, 8400 Ward Parkway, Kansas City, MO 64114, **8E, Session 16 Moderator**

Perry Schafer, *Brown and Caldwell*, 1600 Duke Street, Suite 310, Alexandria, VA 22314, **16C**

Peter Schauer, Clean Water Service, 2550 SW Hillsboro Highway, Hillsboro, Oregon 97123, **Workshop A**

Jim Schettler, *Brown and Caldwell*, 701 Pike St, Suite 1200, Seattle, WA 98101, **8A**

Peter Schuler, *Brown and Caldwell*, 309 E Morehead Street, Suite 160, Charlotte, NC 28202, **19D**

Tim Sexton, *Virginia Dept. of Conservation and Recreation*, 203 Governor Street, Richmond, VA 23219, **Workshop C5**

Karl Shaffer, *NC State University*, 685 Sanford Rd, Pittsboro, NC 27312, **Workshop C**

Timothy Shea, *CH2M HILL*, 15010 Conference Center Drive, Suite 200, Chantilly, VA 20151, **6B, Session 2 Moderator**

Natalie Sierra, *San Francisco Public Utilities Commission*, 726 Clementina Street, San Francisco, CA 94103, **16B**

PRESENTER AND MODERATOR DIRECTORY

Jim Smith, *Independent Consultant*, 5821 Marlborough Drive, Cincinnati, OH 45230, **Workshop B, 2A, 15E**

Ryan Smith, *Micromidas, Inc.*, 930 Riverside Parkway, Suite 10, West Sacramento, CA 95605 **Workshop B**

Donnie Stallman, *University of Washington*, 336 More Hall, Seattle, WA 98195, **3C**

Aaron Stephens, *Material Matters, Inc.*, PO Box 224, Elizabethtown, PA 17022, **Session 17 Moderator**

David Stewart, *Wilbur Smith Associates*, David W. Stewart, 741 Christopher, Marion, OH 43302, **5B**

Surendra Thakral, *Parsons*, 100 West Walnut Street, Pasadena, CA 91124, **2B**, **Session 16 Alternate, Session 17 Alternate**

Alex Travaglia, *CDM Smith,* 5400 Glenwood Avenue, Suite 300, Raleigh, NC 27612 **Session 15 Moderator**

Jonathan Treadway, *CDM Smith*, 5400 Glenwood Avenue, Suite 300, Raleigh, NC 27612, **19C, Session 4 Moderator, Session 7 Moderator**

K. Richard Tsang, *CDM Smith*, 5400 Glenwood Avenue, Suite 300, Raleigh, NC 27612, **Opening Session Moderator, Session 1 Moderator**

Pepi Ursillo, *HDR*, 412 E Parkcenter Blvd, Suite 100, Boise, ID 83706, **3B**

Enrique Vadiveloo, *Hazen and Sawyer*, 4000 Hollywood Blvd 750N, Hollywood, FL 33021, **14C**

Scott Vandenburgh, *CDM Smith*, 1218 3rd Avenue, Suite 1100, Seattle, WA 98101, **9D, 14B, Workshop A**

Yuansong Wei, *Research Center for Eco-Environmental Sciences*, 18 Shuangqing Road, Beijing, 100085, China, **Session 1 Alternate, 10E**

Dieter Weinert, *Huber Technology, Inc.*, 9735 Northcross Center Court, Suite A, Huntersville, NC 28078, **12B**

Drury Whitlock, *CH2M HILL*, 215 S. State St., Suite 1000, Salt Lake City, UT 84111, **20D**

John Willis, *Brown and Caldwell*, 990 Hammond Dr. Suite 400, Atlanta, GA 30328, **19B, Session 10 Moderator, Workshop A**

Christopher Wilson, *Greeley and Hansen*, 9020 Stony Point, Suite 475, Richmond, VA 23235, **15D, Session 11 Moderator**

PRESENTER AND MODERATOR DIRECTORY

Steve Wilson, *Brown and Caldwell*, 6500 SW Macadam Ave, Suite 200, Portland, OR 97239, **Session 14 Moderator**

Bob Wimmer, *Black & Veatch*, 2533 Paso Fino Dr, Finksburg, MD 21048, **Session 6 Poster**

Bryen Woo, *OVIVO USA, LLC*, 2404 Rutland Drive, Austin, TX 78758, **1E**

Greg Woodward, *Stantec*, 2000 S Colorado Blvd, Suite 2-300, Denver, CO 80222, **Session 5 Moderator**

Tim Woody, *City of Raleigh Public Utilities*, P.O. Box 590, Raleigh, NC 27602, **13C, Opening Session Moderator, Session 13 Moderator,**

Bhavani Yerrapotu, *City of San Jose*, 700 Los Esteros Road, San Jose, CA 95134, **6A**

Megan Yoo, *HDR*, 4092 Blackfin Ave, Irvine, CA 92602, **10C**

UPCOMING EDUCATION AND TRAINING EVENTS

Odors and Air Pollutants 2012
April 15 – 18
Kentucky International Convention Center
Louisville, Kentucky
www.wef.org/OdorsAir

Collection Systems 2012
June 3–6
St. Louis Convention Center
St. Louis, Missiouri
www.wef.org/CollectionSystems

Stormwater Symosium 2012
July 18 – 20
Sherton Baltimore City Center
Baltimore, Maryland
www.wef.org/Stormwater2012

EWA/WEF/JSWA Specialty Conference on Cutting-Edge Technologies and Best Practices on Sewerage
July 26 – 27
Kobe City, Japan
www.gesuikyou.jp/conference/english

WEFTEC 2012
September 29 – October 3
New Orleans, Louisiana
www.weftec.org

Residuals and Biosolids 2013
May 6 – 9
Nashville, Tennessee
www.wef.org/ResidualsBiosolids

REDUCE YOUR CARBON FOOTPRINT IN RALEIGH

Supporting WEF's ongoing mission to support sustainable programming, we would like to ask conference attendees to please consider their carbon footprint as they travel to, stay in, and depart from Raleigh and WEF's Residuals and Biosolids Conference.

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Use Capital Area Transportation (CAT) or the R-Line bus systems rather than a taxi when traveling around Raleigh after attending a full day of technical sessions.

Dine at local farm-to-table restaurants:
For local food advocates, reduce the transportation costs of your meal by eating from restaurants who receive food supplies from local farms. A brief list of close-by dining venues is provided below. For a more comprehensive listing, please visit the website at the link at the bottom of this page.

BuKu
110 E. Davie St.
919.834.6963
http://bukuraleigh.com/buku/

Glenwood Grill
2603 Glenwood Ave.
919.782.3102
http://www.glenwoodgrill.com

Tribeca Tavern
6004 Falls of Neuse Rd.
919.790.9992
http://www.tribecatavernnc.com

Lucky 32
7307 Tryon Rd.
919.233.1632
http://www.lucky32.com

18 Seaboard
18 Seaboard Ave.
919.861.4318
http://www.18seaboard.com

J. Betski's
10 W. Franklin St.
919.833.7999
http://www.jbetskis.com

Maximillian's Grille
8314 Chapel Hill Rd.
919.465.2455
http://www.maximilliansgrill.com

Sitti Restaurant
137 S. Wilmington St.
919.239.4070
http://www.sitti-raleigh.com

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SESSIONS AT-A-GLANCE

Session #	Session Title	Credits	Room
SUNDAY			
Workshop A	The Business of Turning Biosolids into Energy and Fertilizer	0.6 CEUs	301AB
Workshop B	Value-Added Green Products Originating from Municipal and Manure Biosolids – The Direction of the 21st Century	0.6 CEUs	302AB
Workshop C	Why Develop a Nutrient Management Plan – Emerging Issues in Nutrient Management Programs for Class A and Class B Biosolids	0.3 CEUs	Offsite
Session 1	Hot Topics	2.5 PDHs	305AB
Session 2	Legislative, Regulatory, and Legal Issues	2.5 PDHs	306BC
MONDAY			
OGS	Opening General Session	2.25 PDHs	306
Session 3	Bioenergy from Residuals I	2.5 PDHs	301AB
Session 4	Marketing of Biosolids and Residuals Products	1.25 PDHs	302AB
Session 5	Thermal Processes I	2.5 PDHs	305AB
Session 6	Facilities Operation, Management, and Planning	2.5 PDHs	306BC
Session 7	Conditioning and Dewatering Technologies	1.25 PDHs	302AB
TUESDAY			
Session 8	Bioenergy from Residuals II	2.5 PDHs	301 AB
Session 9	Research and Development Activities I	2.5 PDHs	302AB
Session 10	Sustainability, Climate Change, and Greenhouse Gas Issues	2.5 PDHs	305AB
Session 11	Odor and Pathogen Control	2.5 PDHs	306BC
Session 12	Thermal Processes II	1.25 PDHs	301AB
Session 13	Biosolids Land Application, Land Reclamation, and Nutrient Management	2.5 PDHs	302AB
Session 14	Sustainability	2.5 PDHs	305AB
Session 15	Advances in Stabilization Technologies	2.5 PDHs	306BC
Session 16	Future Opportunities and Emerging Technologies	1.25 PDHs	301AB
WEDNESDAY			
Session 17	Bioenergy from Residuals III	2.5 PDHs	301AB
Session 18	Research and Development Activities II	2.5 PDHs	302AB
Session 19	Southeast Regional Issues	2.5 PDHs	305AB
Session 20	Success Stories and Lessons Learned	2.5 PDHs	306BC

NOTES