

Residuals and Biosolids 2013 Conference

Emerging Opportunities for Sustainable Resource Recovery

May 5 - 8, 2013







This conference is held by the Water Environment
Federation in cooperation with the
Kentucky-Tennessee Water Environment Association, Air
& Waste Management Association (A&WMA) and US
Composting Council

Energy and Water 2013 Conference

Integrated Solutions for Advancing Technology and Management

May 6 - 9, 2013





IMAGINE | H20



This conference is organized by the Water Environment Federation in cooperation with the Kentucky-Tennessee Water Environment Association, Water Environment Research Foundation, Alliance to Save Energy, American Council for an Energy-Efficient Economy, Imagine H2O, and the Alliance for Water Efficiency.

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CONSIDER ECO-FRIENDLY OPTIONS IN NASHVILLE



Supporting WEF's ongoing mission to support sustainable programming, we would like to ask conference attendees to please consider their carbon footprint as you travel to, stay in, and depart from Nashville and the Nashville Convention Center.

Recognize the efforts of the Nashville Convention Center:

The Nashville Convention Center is committed to supporting and encouraging sustainable practices, including the hosting of environmentally-friendly "green" meetings in their facilities. Because conservation of energy and natural resources is a high priority for the Nashville Convention Center, they have made substantial efforts through the years to minimize their carbon footprint, such as: heating/cooling via steam/chilled water, energy management software, low-flow automatic faucets/flush valves, automatic soap/paper towel dispensers, environmentally-responsible cleaning products/supplies, donation of excess food, donation of unclaimed lost/found items to the local rescue mission, and recycling of various items, including cardboard, paper, and fluorescent light bulbs. Nashville Convention Center provides recycling containers for paper, aluminum cans, and cardboard as space permits.

Dine at local farm-to-table restaurants:

Nashville Originals are local restaurateurs dedicated to sustaining the independent restaurant as a fixture of Nashville's culture and community. What Nashvillians eat—and where they eathelps define the city.

The home-grown restaurants reflect who they are and lead the way in Nashville's future development. Nashville Originals member restaurants support one another. Together they support local initiatives and charities and help feed the community.

417 Union

417 Union Street Nashville, TN 37219 615-401-7241

Boundary

911 20th Ave. South Nashville, TN 37212 615-321-3043

Cabana

1910 Belcourt Avenue Nashville, TN 37212 615-577-2262

Copper Kettle

94 Peabody Street Nashville, TN 37210 615-742-5545

Cork and Cow

403 Main Street Franklin, TN 37064 615-538-6021

Jackson's

1800 21st Ave S Nashville, TN 37212 615-385-9968

RESIDUALS AND BIOSOLIDS CONFERENCE COMMITTEE



Robert O'Dette Tennessee Dept. of Environment & Conservation



Doug Yarosz

Brown and Caldwell

Conference Co-Chair

Conference Co-Chair

RESIDUALS AND BIOSOLIDS CONFERENCE COMMITTEE

Wale Adewunmi Middlesex County Utilities Authority

Kenneth Baker Gresham, Smith and Partners

Robert Bastian US EPA

Robert Bates Louisville Metropolitan Sewer District (KY)

Kari F. Brisolara Louisiana State University

C. Michael Bullard Hazen and Sawyer

J Scott. Carr CDM Smith

Kevin Colvett CH2M HILL

Roy Denney
Metro Water Services

(Nashville)

John F. Donovan *CDM Smith*

Sandra Dudley

TN Dept. of Enviro. and

Conservation

Doug Fredericks
Atkins Global

Robert A. Gillette Carollo Engineers

Liping Han URS

John Harward

Principle Environmental

Michelle Hatcher CDM Smith

Jon Hay Black & Veatch

Mark Lang URS

Jeff LeBlanc
We Care Organics

F Michael Lewis, Inc.

Lynne Moss CDM Smith

Christopher Muller Brown and Caldwell

David W. Oerke CH2M HILL

Tazio Qubeck

Brown and Caldwell

Hari Santha

Black and Veatch

Patricia A. Scanlan Black & Veatch

Tim Shea CH2M HILL

Roy Smith Guthrie Sales

Jim Smith Retired USEPA

Aaron Stephens Material Matters

Lori Stone Black & Veatch

Richard Tsang CDM Smith

Steve Wilson

Brown and Caldwell

Greg Woodward

Stantec

Bobby Worthington
Harpeth Valley Utilities

Dist.

ENERGY AND WATER CONFERENCE COMMITTEE



Cindy Wallis-Lage Black & Veatch Conference Chair

ENERGY AND WATER CONFERENCE COMMITTEE

Priscilla Bloomfield

CH2M Hill

Charles Bott
Hampton Roads
Sanitation District

Jeanette Brown Manhattan College

Joseph Cantwell

SAIC

Peter Cavagnaro Johnson Controls, Inc.

Alicia Chakrabarti East Bay Municipal Utility District

Shahid Chaudhry California Energy Commission

Nate Cullen

Clean Water Services

Cindy Dyballa

Alliance for Water

Efficiency

Bob Forbes CH2M Hill

Beven Griffiths-Sattenspiel River Network Liping Han URS Corporation

Jose Jimenez

Brown and Caldwell

Andy Kricun

Camden County MUA

Jordan Macknick
National Renewable

Energy Lab

Ed Myers

Lescure Engineers, Inc.

Leiv Rieger

McMaster Innovation

Park

Diego Rosso

University of California,

Irvine

Rusty Schroedel

AECOM

Steve Tarallo Black & Veatch

Jason Turgeon US EPA

Louann Unger US EPA

James Wheeler

US EPA

John Willis

Brown and Caldwell

REGISTRATION

All events are held in the Nashville Convention Center.

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

Hours:

 Sunday, May 5
 7:30am - 5:00pm

 Monday, May 6
 7:30am - 5:00pm

 Tuesday, May 7
 7:30am - 5:00pm

 Wednesday, May 8
 8:00am - 5:00pm

 Thursday, May 9
 8:00am - 12:00pm

PRESENTER AND MODERATOR INFORMATION

Speaker, Moderator and Assistant Moderator Briefing

All presenters included in either conference technical program should sign-in at Conference Registration before presenting and must attend their assigned briefing. If you are unable to attend your assigned briefing, please notify staff and your session moderator(s).

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

7:00am – 8:00am

*RB Sessions 1 through 18

Note: This includes all technical session presenters in the Residuals and Biosolids Conference

Tuesday, May 7 – Room: Center/East Exhibit Hall

7:15am – 8:00am

*EW Sessions 1 through 7

Wednesday, May 8 – Room: 102 *EW Sessions 8 through 14 7:15am - 8:00am

RECEPTION AND MEAL FUNCTIONS

<u>Networking Reception</u> – Monday, May 6

5:00pm - 6:30pm

The Networking Reception will be held in Center/East Exhibit Hall. It is your opportunity to view the exhibits, renew acquaintances, and make new contacts. Light hors d'oeuvres and refreshments will be served.

Sponsored by HelioPower and Kruger

Luncheon

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

Monday, May 6 – West Exhibit Hall 12:00pm - 1:30pm

Tuesday, May 7 – Center/East Exhibit Hall 12:00pm - 1:30pm Sponsored by **BDP Industries** and **seepex**

Wednesday, May 8 - Center/East Exhibit Hall 12:00pm - 1:30pm Sponsored by seepex

Networking Breaks

The Networking Breaks will be held:

Sunday, May 5
Meeting Foyer Area Outside Rooms 204 – 206
10:00am – 10:30am and 3:00pm – 3:30pm

Monday, May 6 Center/East Exhibit Hall 10:00am – 10:45am and 3:00pm – 3:45pm

Tuesday, May 7
Center/East Exhibit Hall
10:00am – 10:45am and 3:00pm – 3:45pm
Sponsored by Kruger

Wednesday, May 8 Center/East Exhibit Hall 10:00am – 10:45am and 3:00pm – 3:45pm

Thursday, May 9
Meeting Foyer Area Outside Rooms 103 - 105
10:00am - 10:15am

CONTINUING EDUCATION

EDUCATION CREDITS

Participants who attend these conferences 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:

- Request a continuing education credit form from the Registration desk upon check in.
- Note each time you enter/exit a session room on the CEU/PDH form.
- Have CEU/PDH form signed by Federation staff beside each session attended.
- > Return CEU/PDH form to the registration desk at the conclusion of the conference. You will be required to present your photo ID upon submittal.

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

PROCEEDINGS

Conference proceedings for both conferences, consisting of manuscripts for each presentation, have been produced on a single USB drives. Full conference and daily registrants will receive the proceedings at the registration desk at the time of badge pickup or onsite registration.

Copies of 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 conclusion of the conference. You may call 1-800-666-0206. Ask for Stock Number CPRB1305 for the Residuals and Biosolids Conference and Energy and Water Conference Proceedings.

SPONSORSHIP INFORMATION

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



Tuesday Conference Luncheon
Wednesday Morning Refreshment Break
Printing of the Conference Program
www.BDPIndustries.com
Booth 600



Printing of the Conference Program www.cdm.com



Opening General Session
www.danfossdrives.com
Booth 620



www.HDRinc.om



Networking Reception www.heliopower.com



Conference Lanyards
www.degremont-technologies.com
Booth 311



Opening General Session www.insinkerator.com



Networking Reception
Tuesday Refreshment Breaks
www.krugerusa.com
Booth 210



Printing of the Conference Program

www.nefcobiosolids.com

Booth 519

seepex.com

all things flow

Conference Luncheons
Printing of the Conference Program

www.seepex.com

Booth 511

COMMITTEE MEETINGS

Sunday, May 5

RBC NBP Certified Agencies 10:30am – 12:00pm Room 105/106 RBC NBP Steering Committee 4:00pm – 5:30pm Room 105/106

Monday, May 6

RBC Agriculture & Industrial Byproducts Subcommittee 7:00am – 8:30am Room 105/106 RBC ABBA Biosolids Luncheon 11:30am – 1:30pm Room 105/106

RBC Outreach & Education Subcommittee 4:30pm – 5:30pm Room 105/106

Tuesday, May 7

RBC Bioenergy Technology Subcommittee 7:00am – 8:30am Room 110/111

RBC Specialty Conference Subcommittee 12:30pm – 2:00pm Room 110/111

RBC Carbon Resource Subcommittee 4:30pm – 5:30pm Room 110/111

Wednesday, May 8

Energy Task Force of Sustainability Community of Practice 7:00am – 8:30am Room 105/106 Residuals and Biosolids Committee Meeting 7:00am – 8:30am Room 206

Residuals and Biosolids & Energy and Water Program Grid

	204/205	RB OGS			204	RB 01	
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Wednesday, May 8, 2013	103/104	EW 05	EW 07	RB Adjourns; EW Luncheon	103/104	EW 08	EW 10
	108/109	EW 06	LM 00	uncheon	108/109	EW 09	EW 11
Thursday,	103/104	EW 12	EW 14	EW A			
Thursday, May 9, 2013	108/109	EW 13		EW Adjourns			



Residuals and Biosolids 2013 Conference

May 5 – 8, 2013 Nashville, Tennessee Nashville Convention Center







This conference is held by the Water Environment Federation in cooperation with the Kentucky-Tennessee Water Environment Association, Air & Waste Management Association (A&WMA) and US Composting Council

RESIDUALS AND BIOSOILDS CONFERENCE TOUR

Nashville's Biosolids Facilities Tour

Tuesday, May 7, 2013 1:30pm – 5:00pm

3.5 Contact Hours

Please note: The bus will begin to load at 1:15pm. 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 1:30pm.

The first stop will be the Harpeth Valley Utilities District wastewater treatment plant which began operating in January 2001. The plant is located on 400 acres along the Cumberland River. The biosolids are land applied on the property. Native grasses, Bermuda grass, wheat and soy beans are grown in the application fields. Some crop is harvested while the remaining crop provides food and shelter for the abundant wildlife that calls this working farm home.

The second stop will take attendees to the Central Wastewater Treatment Plant which has had Nashville's Biosolids Facility in operation since 2009. Attendees will see how the over the past 50 years, the Central Wastewater Treatment Plant has changed processes from incineration, to composting, to land filling, to beneficially reusing biosolids as a Class A EQ product.



WORKSHOP A

Workshop A: Biosolids 101 - Fundamentals of Practice

 Sunday, May 5, 2013
 Room: 204

 8:30am - 5:00pm
 0.6 CEUs

8:30am Introduction and Welcome

Natalie Sierra, RMC Water and Environment

9:00am Historical Overview of Biosolids Land Application Regulations

Tom Crawford, MMSD

9:30am The Science Behind Biosolids Rule Making

Greg Kester, California Association of Sanitation Agencies

10:00am Regulatory Requirements and Management Practices

Mike McFarland, Utah State University

10:30am Break

11:00am Breakout Exercises on Estimating Biosolids Land Application Rates or

Class-A or B Monitoring Criteria

Natalie Sierra, RMC Water and Environment; Mike McFarland, Utah State

University

12:00am Successful Biosolids Land Application Programs – Case Studies

Greg Evanylo, Virginia Tech

12:30pm Lunch

2:00pm Biosolids Beneficial Use and Public Outreach

Peggy Leonard, King County

3:00pm Breakout Exercises on Responses to Various Audiences

Peggy Leonard, King County; Natalie Sierra, RMC Water and Environment

3:30pm Break

4:00pm Managing Your Biosolids Program Beyond Regulatory Compliance

Ned Beecher, Northeast Biosolids and Residuals Association

4:30pm Q & A, Closing Remarks

Natalie Sierra, RMC Water and Environment

5:00pm Adjourn

WORKSHOP B

Room: 205

Workshop B: Using Appropriate Economic Methodologies for Evaluation of Cost-Saving Projects

Sunday, May 5, 2013

1:30pm - 5:00pm 0.3 CEUs 1:30pm Welcome, Introductions, Goals for Workshop and General **Summary of Barriers Project** John Willis, Brown and Caldwell 1:40pm Testing Sensitivities and Expanded Financial Methodologies (TBL, Monte Carlo) Mike Elenbaas, Black & Veatch 2:20pm Overview of 5 Financial Methodologies in the Context of OWASA's Case Study John Willis. Brown and Caldwell 2:50pm Other Considerations for Economic Evaluations John Willis, Brown and Caldwell 3:00pm **Networking Break** 3:15pm Breakout: Hands-On Financial Analysis of Real-World CHP **Projects All in Breakout Groups** 4:25pm **Report Outs from Breakout Sessions** 4:45pm Wrap-up

Lauren Fillmore, WERF

Adjourn

5:00pm

WORKSHOP C

Workshop C: 503 Biosolids Jeopardy

Sunday, May 5, 2013 Room: 206 1:30pm – 5:00pm 0.3 CEUs

1:30pm Introductions and Team Formation

2:00pm Power Point Presentation on 503 Rule Overview

2:30pm Jeopardy Round

3:00pm Networking Break

3:30pm Double Jeopardy Round

3:30pm Final Jeopardy Round

4:00pm Prize Presentation

4:30pm Roundtable discussion on the Benefits of Biosolids Recycling and

Beneficial Use

5:00pm Adjourn

Presenters:

Todd Shearin, Terra Renewal

Steve Hall, Terra Renewal

Bob O'Dette, Tennessee Department of Environment and Conservation

OPENING GENERAL SESSION

Monday, May 6, 2013 Room: 304/305 8:30am – 12:00pm 2.25 PDHs

Moderators: Robert O'Dette, Department of Environment & Conservation, TN

Doug Yarosz, Brown and Caldwell, TN

8:30am Conference Overview

Robert O'Dette, Department of Environment & Conservation, TN

Doug Yarosz, Brown and Caldwell, TN

8:40am WEF Overview

Rick Warner, Washoe County, NV

8:50am KY/TN WEA Highlights

Wes Sydnor, Louisville MSD, KY

9:00am Welcome

Governor Bill Haslam, State of Tennessee (Invited)

Mayor Karl Dean, Metropolitan Government of Nashville and Davidson County,

TN (Invited)

Commissioner Robert Martineau, Department of Environment & Conservation,

TN (Invited)

9:15am The History: 20th Anniversary of Part 503 Rule

Alan B. Rubin, PhD

10:00am Networking Break

10:30am Part 2: Founding Biosolids Management on Sound Scholarship

Moderator: Bill Toffey, Mid-Atlantic Biosolids Association

Panelists: John T. Novak, Virginia Tech

Paige J. Novak, University of Minnesota

Sudhir Murthy, DCWATER

Matthew Higgins, Bucknell University

11:35am Looking Forward to Austin in 2014!

Lynne Moss, CDM Smith

11:45am Recognition of Conference Co-Chairs and Past Chairs

12:00pm Adjourn

Session RB 1: Advances in Stabilization Technologies

Monday, May 6, 2013 Room: 204 1:30pm – 4:45pm 2.5 PDHs

Moderators: Greg Woodward, Stantec

Roy Smith, Guthrie Sales & Service, Inc.

RB1A 1:30pm San Francisco Seguencing Batch Reactor Temperature Phased

Anaerobic Digestion: Efficient Adaptation to Class A Biosolids

Drury D. Whitlock, David W. Green, CH2M HILL; Bonnie M.

Jones, Alexandre Miot, San Francisco Public Utilities Commission; Tim L.

Bauer, Douglas Barber, CH2M HILL

RB1B 2:00pm Achieving Biogas Generation and Minimized Sludge Production

Using a High-Rate Anaerobic Sidestream Reactor (ASSR) Process -

Pilot Study

Aaron Brennan, Heonseop Eom, Chris Watt, Dong-Hyun Chon,

Chul Park, UMass Amherst

RB1C 2:30pm Assessment of Methane Production during Marine Transportation

of Wastewater Solids

Christopher A. Wilson, Greeley and Hansen

3:00pm Networking Break

RB1D 3:45pm Upgraded Digester Mixing: Achieving Sludge Minimization while

Renewing a Key Asset

Rebecca Schaefer, Christopher A. Wilson, Joe M. Gorgan, Greeley and

Hansen

RB1E 4:15pm Fate of Nonylphenol Compounds during Aerobic and Anaerobic

Digestion of Sludge

Seçil Ömeroğlu, Hande Bozkurt, F. Dilek Sanin, Middle East Technical

University

4:45pm Adjourn

Alternate 1 Accelerated Composting Methods and Equipment

Fred P. Mussari, BCR Environmental Corporation; James E. Smith, Jr, U.S. EPA,

retired; Darren Midlane, Harvest Quest International; Robert Finch, Michael

Norris, BCR Environmental Corporation

Networking Reception – Center/East Exhibit Hall

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

Session RB 2: Facilities Operation, Management, and Planning

Monday, May 6, 2013 Room: 205 1:30pm – 4:45pm 2.5 PDHs

Moderators: Bob Forbes, CH2M HILL

Michael Bullard, Hazen and Sawyer

RB2A 1:30pm Economic Methods Matter - Appropriate Analysis Can Overcome the

Biggest Barrier to Biogas Use

<u>John L. Willis</u>, Karen Durden, Brown & Caldwell; Mike Ellenbaas, Black and Veatch; Lauren Fillmore, WERF; Lori Stone, Marc Walch, Brown and

Caldwell

RB2B 2:00pm Making the Case for Sustainable Biosolids Management Solutions:

A Roadmap for Fourteen Facilities

Matthew Berg, CH2M HILL; Bruce Cole, Ken Wession, Jeff Ray, Tiffany Currie, North Texas Municipal Utility District; Jenna Covington, Brigit Buff,

Dru Whitlock, Todd Williams, CH2M HILL

RB2C 2:30pm To Haul or Not to Haul? Capacity and Class A Biosolids Processing

Expansion at the Haifa, Israel Wastewater Treatment PlantMatthew P. Van Horne, Michael Bullard, Hazen and Sawyer

3:00pm Networking Break

RB2D 3:45pm Biosolids Processing and Distribution: Challenges Continue

Robert Bates, Louisville Metropolitan Sewer District

RB2E 4:15pm Benefits and Costs of Co-Digestion for a Large Utility

John F. Donovan, David Parry, CDM Smith; Daniel K. O'Brien, David

Duest, Massachusetts Water Resources Authority

4:45pm Adjourn

Networking Reception – Center/East Exhibit Hall

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

Session RB 3: Beneficial Use

Monday, May 6, 2013 Room:206 1:30pm – 3:00pm 1.25 PDHs

Moderators: Tazio Qubeck, Brown and Caldwell

Trudy Johnson, Material Matters

RB3A 1:30pm Sustainable Solution to the Disposal Epidemic: Beneficial Use of

Water Treatment Residual in Manufactured Topsoil Jennifer Callahan, Trudy Johnston, Material Matters, Inc.

RB3B 2:00pm Why the Fertilizer Industry Could Use a Little Biosolids

John F. Donovan, CDM Smith Inc.; Jeffrey C. Burnham, VitAg

Corporation

RB3C 2:30pm Over 20 Years of Successful Beneficial Use: Adapting the

Management System Approach: Los Angeles Experience

Diane Gilbert-Jones, City of Los Angeles

3:00pm Adjourn

Session RB 4: Conditioning and Dewatering Technologies

Monday, May 6, 2013 Room: 209/210 1:30pm – 3:00pm 1.25 PDHs

Moderators: Bob Gillette, Carollo Engineers

Jim Smith Jr., Independent Environmental Consultant

RB4A 1:30pm Evaluation of Electrodewatering for Enhanced Biosolids Dewatering

Kelly Brenner, Aaron Stephens, Material Matters, Dean Minnich,

Nazareth Borough Municipal Authority

RB4B 2:00pm High Solids Loading for a DAFT Retrofit for Co-Thickening Operation

Richard T. Kelly, Dave Newman, John Bratby, Brown and Caldwell; Mike

Patrick, City of Tacoma

RB4C 2:30pm Decision Factors on Solids Dewatering Technologies for DC Water's

Biosolids Program

<u>Perry L. Schafer</u>, Brown and Caldwell; Salil Kharkar, Sudhir Murthy, Christopher Peot, Diala Dandach, DC Water and Sewer Authority; Sam

Roberts, Philip Braswell, Brown and Caldwell

3:00pm Adjourn

Session RB 5: Public Support

Monday, May 6, 2013 Room: 205 3:45pm – 4:45pm 1 PDH

Moderator: Steve Wilson, Brown and Caldwell

RB5A 3:45pm Improving Public Communication and Outreach at the METROGRO

Farm

Alicia Gilley, Kelley Merritt, Bryan Mitchell, Metro Wastewater

Reclamation District

RB5B 4:15pm New Biosolids Technologies and Processes for Developing

Countries

<u>Richard D. Kuchenrither</u>, University of Colorado Boulder; Lori Stone, Black & Veatch; Roger T. Haug, Loyola Marymount University; Lauren

Fillmore, Amit Pramanik, WERF

4:45pm Adjourn

Networking Reception - Center/East Exhibit Hall

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

Session RB 6: Odor and Pathogen Control

Monday, May 6, 2013 Room: 206 3:45pm – 4:45pm 1 PDH

Moderators: Todd O. Williams, CH2M HILL

Yinan Qi, Black & Veatch

RB6A 3:45pm Novel BioElectro[™] Process for Biosolids Sterilization

Eham Takhtehfouladi, <u>Maria Elektorowicz</u>, Concordia University; Robert S. Reimers, Tulane University; Jan A. Oleszkiewicz,

University of Manitoba

RB6B 4:15pm Treatment of Odor by a Seashell Biofilter at Lake Wildwood WWTP

Samantha M. Abraham, UCLA; Scott Joslyn, Nevada County Sanitation

District; Irwin Suffet, UCLA

4:45pm Adjourn

Alternate 1 Sanitary Assurance at Biosolids Composting Facilities: Development of a

Temperature Contact Time Test Protocol

Pulat Isobaev, <u>Daryl McCartney</u>, Kristine Wichuk, Norman Neumann, University

of Alberta

Networking Reception – Center/East Exhibit Hall

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

Session RB 7: Thermal Processes

Tuesday, May 7, 2013 Room: 204 8:30am – 10:00am 1.25 PDHs

Moderators: Robert Bates, Louisville Metropolitan Sewer District (KY)

Scott Carr, CDM Smith

RB7A 8:30am Thermal Drying to Achieve Class A Biosolids Can be a Viable

Option for Medium Sized Generators - A Case Study in Bowling

Green, Kentucky

Kristi Schnell, Ronald Abraham, Kenneth Baker, Gresham Smith and

Partners; Scott Neighbors, Bowling Green Municipal Utilities

RB7B 9:00am The Duffin Creek Biosolids to Energy Experience - Lessons in

Energy Recovery

<u>Peter Burrowes</u>, CH2M HILL; Brad Dobson, Regional Municipality of Durham; Euan Ferguson, York Region; Robert Christopher, Serge

Larocque, CH2M HILL

RB7C 9:30am A Comparison of Conventional Heating and Microwave Irradiation

for Enhanced Biogas Production from Municipal Biosolids Seyedeh Neda Mehdizadeh, Cigdem Eskicioglu, Hanna Hamid,

University of British Columbia-Okanagan

10:00am Adjourn

Alternate 1 Meeting the New SSI MACT Regulations - A Case Study

Jay R. Surti, Peter Burrowes, CH2M HILL

Session RB 8: Success Stories and Lessons Learned

Tuesday, May 7, 2013 Room: 205 8:30am – 11:45am 2.5 PDHs

Moderators: Kevin Colvette, CH2M Hill

David Oerke, CH2M Hill

RB8A 8:30am PCBs in Biosolids: Monitoring In a Large Urban WWTP

Using a Newly Developed Practical Extraction Procedure

Devrim Kaya, Middle East Technical University/ Kocaeli University; Filiz Karakaş, <u>F.Dilek Sanin</u>, Ipek Imamoglu, Middle East Technical University

RB8B 9:00am Composting Success at Spotsylvania County

Todd O. Williams, CH2M HILL; Doug Crooks, Spotsylvania County

RB8C 9:30am Speedway, Indiana, WWTP Biosolids Upgrade: Storage

Nitrification/Denitrification Reactor Results in Ammonia Loading

Reduction

Cynthia L. Fort, American Structurepoint Inc; Norman Berry, Town of

Speedway

10:00am Networking Break

RB8D 10:45am Sustainable Biosolids Management in South Florida: Lessons

Learned from the Design, Construction, and Operation a Regional

Biosolids Pelletization Facility Fueled by Landfill Gas

Amber M. Barritt, CDM Smith; Raymond H. Schauer, Solid Waste

Authority of Palm Beach County

RB8E 11:15am How to Make Improvements When The Cupboard is Bare: Energy

Service Contracting

Patricia A. Scanlan, Bob Wimmer, Pete Thomson, Justin Dickstein, Black

& Veatch; Tom Appleman, UOSA; Jesse Moffat, FWSA;

Dennis Clough, ESG

11:45am Adjourn

Alternate 1 The Shafdan Digestion and Cogeneration Project

David L. Parry, Scott Vandenburgh, CDM Smith

Session RB 9: Research and Development Activities

Tuesday, May 7, 2013 Room: 206 8:30am – 11:45am 2.5 PDHs

Moderators: John Willis. Brown and Caldwell

David Parry, CDM Smith

RB9A 8:30am Investigation of the Impacts of Thermal Activated Sludge

Pretreatment and Development of a Pretreatment Model Gillian R. Burger, Wayne J. Parker, University of Waterloo

RB9B 9:00am Second Law Analysis of Resource Recovery from Wastewater

David L. Parry, CDM Smith

RB9C 9:30am Simultaneous Sludge Disintegration and Carbon Source Generation

for Enhanced Biological Phosphorous Removal Using Ozonation <u>Devendra P. Saroj</u>, University of Surrey; Adriana Inchauste-Daza, Carlos Lopez-Vazquez, UNESCO-IHE Institute for Water Education

10:00am Networking Break

RB9D 10:45am "Second Generation" ATAD Success Stories - "Show Me The Data"-

Several Years of Performance Data from Two Case Studies of Conversion from "First Generation" to "Second Generation" ATAD

Systems

<u>David W. Oerke</u>, CH2M HILL; Chad Olsen, McMahon Associates; Jim Kirk, Grand Chute Menasha West Sewerage Commission; Parker Newbanks, Candi Burbridge, Eagle River Water and Sanitation District;

Heidi Bauer, CH2M HILL

RB9E 11:15am An Approach to Dewatering Optimization using UV/Visible

Spectrometry by Monitoring Residual Polymer in Centrate

Banu Ormeci, Fares Almomani, Carleton University;

Peter Gallant, ENDETEC/Veolia Water Solutions and Technologies;

Richard DiMassimo, Jeffery Privott, Kruger Inc.

11:45am Adjourn

Session RB 10: Bioenergy from Residuals I

Tuesday, May 7, 2013 Room: 209/210 8:30am – 11:45am 2.5 PDHs

Moderators: Aaron Stephens, Material Matters, Inc.

Dustin Craig, CDM Smith

RB10A 8:30am Pilot Study of Siloxanes Removal from Digester Biogas through

Various Adsorbents

<u>Yuanming Tsai</u>, Sunil Mehta, Infilco Degremont, Inc; Jordi Raich-Montiu, CETaqua; Charles B. Bott, William J. Balzer, Hampton Roads Sanitation

District; Peter A. Burrowes, CH2M HILL

RB10B 9:00am Sometimes Average isn't Good Enough: Understanding the Impact

of Variability on Energy Recovery from Digester Gas

James H. Long, Charles M. Bullard, Hazen and Sawyer; Chris Shamel,

Frank Crump, City of Winston-Salem

RB10C 9:30am Restaurant Trap Waste Characterization and Full Scale FOG Co-

Digestion at the San Francisco Oceanside Plant

<u>Alexandre Miot</u>, Bonnie Jones, Karri Ving, San Francisco Public Utilities Commission; Morayo Noibi, Carollo Engineers; Irina Likicheva, Domenec

Jolis, San Francisco Public Utilities Commission

10:00am Networking Break

RB10D 10:45am Clean Combustion of Sludge Derived Fuel Part 1 of 2 - Concept to

Pilot

Roger T. Haug, Loyola Marymount University; F. Michael Lewis, F.

Michael Lewis Inc.

RB10E 11:15am Clean Combustion of Sludge Derived Fuels: Part 2 of 2 Pilot to

Practice

F. Michael Lewis, F Michael Lewis Inc.; Roger T. Haug, Loyola

Marymount University; Lee Lundberg, Veolia Water

11:45am Adjourn

Alternate 1 What Can Solids Do for You? - Shifting Towards Solids as an Energy

Resource

<u>Eric Auerbach</u>, Malcolm Pirnie Inc; Thomas E. Kunetz, Metropolitan Water Reclamation District of Greater Chicago; Rob Van Evra, City of Columbus Division of Sewerage and Drainage; James Keller, Buffalo Sewer Authority

Session RB 11: Legislative, Regulatory, and Legal Issues

Tuesday, May 7, 2013 Room: 204 10:45am – 11:45am 1 PDH

Moderators: Charlie Alix, Stantec

Greg Kester, California Association of Sanitation Agencies

RB11A 10:45am Biosolids 2013: Odors, Nuisance and Current Legal Challenges to

Beneficial Use

James B. Slaughter, Beveridge & Diamond PC

RB11B 11:15am Historical Review of United States (US) Guidance and Regulations

for Sludge Disinfection and Stabilization Including a Future

Projection

Jim Smith Jr., Independent Environmental Consultant

11:45am Adjourn

Session RB 12: Collaboration to Advance Energy Sustainability Initiatives

Tuesday, May 7, 2013 Room: 204 1:30pm – 3:00pm 1.5 PDHs

Moderators: Doug Yarosz, Brown and Caldwell

Patricia Scanlan, Black & Veatch

RB12A 1:30pm A National Survey of Biogas use at Wastewater Treatment Plants in

the United States: The Results

<u>Yinan Qi</u>, Black & Veatch; Ned Beecher, North East Biosolids and Residuals Association (NEBRA); Lori Stone, Black & Veatch

RB12B 2:00pm Road to Energy Neutrality – WERF is Paving the Way with a Focus

on Biosolids Energy

Ralph Eschborn, AECOM; Paul Kohl, Philadelphia Water Department; Steve Tarallo, Black and Veatch; Lauren Fillmore, Water Environment

Research Foundation

RB12C 2:30pm Nineteen Agencies Team to Convert Biosolids to Energy for

Regional Solution

Robert A. Gillette, Todd C. Jordan, Carollo Engineers; <u>Caroline Quinn</u>, Delta Diablo Sanitation District; EJ Shalaby, West County Wastewater

District

3:00pm Adjourn

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

Tuesday, May 7, 2013 Room: 205 1:30pm – 4:45pm 2.5 PDHs

Moderators: Jeffrey J. LeBlanc, WeCare Organics, LLC

Michelle Hatcher, CDM Smith

RB13A 1:30pm Fate and Removal of Steroidal Hormones during Advanced

Advanced Municipal Biosolids Treatment Process

Hanna Hamid, Cigdem Eskicioglu, University of British Columbia

RB13B 2:00pm Long Term Monitoring Results for the METROGRO Farm Near Deer

Trail, Colorado

James E. Johnson, Arlisa Michael, Alicia Gilley, Metro Wastewater

Reclamation District

RB13C 2:30pm Case Study: Nutrient Trading Options for Satisfying NPDES Cap

Load in the Chesapeake Bay Watershed

Aaron B. Stephens, Jennifer Callahan, Material Matters, Inc.

3:00pm Networking Break

RB13D 3:45pm Mine Land Reclamation and Biosolids: A Perfect Match

Trudy Johnston, Material Matters, Inc.; Jennifer Callahan, Material

Matters, Inc.; MIchael Deily, Harrisburg Advanced Wastewater Treatment

Facility

RB13E 4:15pm Too Much Nitrogen?

<u>Dale D. Gabel</u>, CH2M HILL; Dave Meyer, Tim Woodard, Kent Brugler, City of Westminster; Jim Jordahl, Heidi Bauer, Kerry Meyer, CH2M HILL;

Thomas Borch, Colorado State University

4:45pm Adjourn

Session RB 14: What's the Future For Biosolids? Findings of a New WEF/WERF Report

Tuesday, May 7, 2013 Room: 206 1:30pm – 3:00pm 1.5 PDHs

WEF and WERF have collaborated with CDM Smith, Black & Veatch, Hazen & Sawyer and CH2M Hill Inc. to examine the future of biosolids treatment with specific regard to resource recovery. This effort is summarized in a new publication, funded by the US EPA that addresses policy and planning, technical and communication/outreach needs to advance resource recovery. The document focuses on organics, nutrients, and energy recovery, but also examines emerging recovery areas such as bio-plastics. Perspectives on these issues will be reviewed and discussed by a select panel of contributors, along with a moderator, concluding with questions and answers from the audience as a means to formally roll out and promote the study.

1:30pm	Introduction John Donovan, CDM Smith
1:35pm	Policy and Planning: Building a Framework for Resource Recovery Lynne Moss, CDM Smith
1:45pm	Organics Recycling: A New Perspective Lynne Moss, CDM Smith
1:50pm	Energy Recovery Christine Polo, Black & Veatch
2:00pm	Changing Perspectives: From Nutrient Removal to Nutrient Recovery Ron Latimer, Wendall Khunjar, Hazen and Sawyer
2:10pm	Enabling the Future: Investing in People, Quality and Communications Ned Beecher, North East Biosolids & Residuals Association
2:20pm	Panel Discussion

John Donovan, CDM Smith

Adjourn

3:00pm

Session RB 15: Bioenergy from Residuals II

Tuesday, May 7, 2013 Room: 209/210 1:30pm – 4:45pm 2.5 PDHs

Moderators: Mohammad Abu-Orf, AECOM

Richard Tsang, CDM Smith

RB15A 1:30pm The Tale of Two Digesters: Hydraulic Versus Compressed Biogas

Mixing

<u>Richard W. von Langen</u>, RVL Associates, Inc.; Richard Althouse, Fairfield Suisun Sewer District; Glenn Dorsch, Vaughan Company; Brad Rockwell,

Rockwell Equipment and Engineering, Co.

RB15B 2:00pm An Update to the City and County of Honolulu Biosolids

Management Plan - A Focus on Energy and Solids Minimization Charles T. Goss, Mohammad Abu-Orf, Jeremy Koch, Jordan Fahmie,

AECOM

RB15C 2:30pm Maximizing Opportunities for Beneficial use of Biogas for Pima

County, Arizona

<u>Jing Luo</u>, Pima County; Gary Newman, Brown and Caldwell, Inc; Michael Gritzuk, Private Consultant; Eron Jacobson, Brown and Caldwell, Inc; Jerry Bish, Greeley and Hansen, LLC; Fernando Sarmiento, Greeley and

Hansen, LLC; Jackson Jenkins, Pima County

3:00pm Networking Break

RB15D 3:45pm Positive Business Case for Codigestion and Resource Recovery

Facilities in Australia without Pre-Existing Anaerobic Digesters

John Kabouris, Tim Shea, Kate Simmonds, CH2M HILL

RB15E 4:15pm Co-Thickening and Cogeneration in The Electric City

Vincent Apa, CDM Smith

4:45pm Adjourn

Alternate & Poster Development, Implementation and Demonstration of The Co-

digestion of Source Separated Food Waste by The City of

Tacoma

<u>Christopher Muller</u>, Brown & Caldwell; James Parvey, Lewis Griffith, City of Tacoma, WA; John Burke, David McBride, Donald

Stallman, Brown and Caldwell

Session RB 16: Biosolids Management Approach: A Panel Discussion on Technology Selection Specific to End Use

Tuesday, May 7, 2013 Room: 204 3:45pm – 4:45pm 1 PDH

Moderators: Chris Peot, DC Water

Tazio Qubeck, Brown and Caldwell

In this panel discussion, representatives from three utilities will discuss the approaches behind recent updates to their biosolids management programs. Inherently, every utility has a unique combination of evaluation criteria (economic, political, environmental, social, geographical, etc.) that are used to select the chosen technology and ultimate end use of its biosolids. Experience and lessons learned from these utilities and the ensuing discussion are intended to provide insight to those who are contemplating an update to their biosolids management approach.

- Biosolids Management System at the Moccasin Bend WWTP in Chattanooga, TN Matthew L. Snyder, Alice Cannella, City of Chattanooga, TN
- Indirect Heat Drying at Bowling Green Municipal Utilities in Bowling Green, KY
 Michael Gardner, Bowling Green Municipal Utilities
- Biosolids Processing at the Morris Forman Water Quality Treatment Center in Louisville, KY

Robert Bates, Louisville Metropolitan Sewer District

Session RB 17: Why Must We Manage Biosolids as a Nutrient Resource

Tuesday, May 7, 2013 Room: 205 3:45pm – 4:45pm 1 PDH

The U.S. Department of Agriculture and The U.S. Environmental Protection Agency in cooperation with State Departments of Agriculture, Environment, and Conservation and Land Grant Universities have initiated a long term project to reduce the load of nutrients entering streams and rivers throughout the nation. A comprehensive nutrient management strategy involves application of a science, technology and management -based framework to assess and reduce nutrient losses to waters of the U.S while optimizing crop yield and quality. A nutrient management plan is designed to optimize nutrient use for crop production and reduce nutrient introduction to surface water from both point and nonpoint sources in a scientifically sound and cost effective manner.

Farmers involved in nutrient management programs have demonstrated that voluntary management practices are reducing the loss of fertilizer from fields. Their goal is to better manage nutrients to make them available for plant growth rather than drain into shallow groundwater and surface waters. The application of comprehensive nutrient management planning processes to biosolids management has started in many jurisdictions and discussion with state personnel indicate these plans will be an essential part of future land based biosolids management efforts. This session presents a general assessment of nutrient content of biosolid material and biosolid derived products, examples of research results documenting consequences of land treatment efforts, and implementation efforts for nutrient management planning at the state level.

Presenters:

Robert Rubin, North Carolina State University Forbes Walker, University of Tennessee Patricia Turman, USDA-NRCS

Session RB 18: Featured Session: Local Metro Water Services Panel

Wednesday, May 8, 2013 Room: 205 8:30am – 11:45am 2.5 PDHs

Moderators: Heather Crabtree. Metro Water Services

Doug Yarosz, Brown and Caldwell

In this special panel discussion, representatives from Nashville's Metro Water Services (MWS) will present the history and evolution of biosolids management at MWS facilities, focusing on the challenges and opportunities encountered during and after implementation of a system-wide Biosolids Management Upgrade.

The planning discussion will feature project drivers, design considerations and the evaluation process that led to the selection and design-build delivery of the \$125M Central Biosolids Facility. Highlights of this facility include circular dissolved air flotation co-thickening, anaerobic digestion and thermal drying.

Now 5 years since the facility was completed, MWS will share lessons learned throughout the project. Operations staff will discuss their experience during the commissioning period as well as the current operation of the facility. The panel will conclude with discussion related to the facility damage resulting from the Nashville flood of May 2010 and emergency operating protocols that are implemented when solids handling facilities are flood damaged.

8:30am	Welcome Scott Potter, Metro Water Services
8:35am	The History and Evolution of Biosolids Management David Tucker, Metro Water Services
9:05am	Biosolids Facility Planning and Implementation Ron Taylor, Metro Water Services Shannon Lambert, Barge Waggoner Sumner and Cannon, Inc.
10:00am	Networking Break
10:15am	Biosolids Facility Commissioning and Lessons Learned Roy Denney, Metro Water Services
10:50am	Flood Recovery by the Book, While Writing the Book Bob Wimmer, Black & Veatch
11:25am	Question & Answer
11:45am	Adjourn

RESIDUALS AND BIOSOLIDS SESSIONS AT-A-GLANCE

Session #	Title	Credits	Room
	SUNDAY		
Workshop A	Biosolids 101 – Fundamentals of Practice	0.6 CEUs	204
Workshop B	Using Appropriate Economic Methodologies for Evaluation of Cost- Saving Projects	0.3 CEUs	205
Workshop C	503 Biosolids Jeopardy	0.3 CEUs	206
	MONDAY		
	Opening General Session	2.25 PDHs	204/205
1	Advances in Stabilization Technologies	2.5 PDHs	204
2	Facilities Operation, Management, and Planning	2.5 PDHs	205
3	Beneficial Use	1.25 PDHs	206
4	Conditioning and Dewatering Technologies	1.25 PDHs	209/210
5	Public Support	1 PDH	205
6	Odor and Pathogen Control	1 PDH	206
	TUESDAY		
7	Thermal Processes	1.5 PDHs	204
8	Success Stories and Lessons Learned	2.5 PDHs	205
9	Research and Development Activities	2.5 PDHs	206
10	Bioenergy from Residuals I	2.5 PDHs	209/210
11	Legislative, Regulatory, and Legal Issues	1 PDH	204
Tour	Nashville's Biosolids Facilities	3.5 Contact Hours	Offsite
12	Collaboration to Advance Energy Sustainability Initiatives	1.5 PDHs	204
13	Biosolids Land Application, Land Reclamation, and Nutrient Management	2.5 PDHs	205
14	What's the Future For Biosolids? Findings of a New WEF/WERF Report	1.5 PDHs	206
15	Bioenergy from Residuals II	2.5 PDHs	209/210
16	Biosolids Management Approach: A Panel Discussion on Technology Selection Specific to End Use	1 PDH	204
17	Why Must We Manage Biosolids as a Nutrient Resource	1 PDH	205
	WEDNESDAY		
18	Featured: Local Metro Water Services Panel	2.5 PDHs	205



Energy and Water 2013: Integrated Solutions for Advancing Technology and Management













This conference is organized by the Water Environment Federation in cooperation with the Kentucky-Tennessee Water Environment Association, Water Environment Research Foundation, Alliance to Save Energy, American Council for an Energy-Efficient Economy, Imagine H2O, and the Alliance for Water Efficiency.

WORKSHOP A

Room: 103/104

Workshop A: Energy Services Performance Contracting: Innovative Delivery that GUARANTEES Energy and Cost Savings!

Monday, May 6, 2013

8:30am – 12:	00pm	0.3CEUs
8:30am	Opening Remarks Peter Thomson, Black & Veatch	
8:40am	Introduction to Performance Contracting Peter Thomson, Black & Veatch	
9:00am	First Breakout Session – Identify Challenges to Implem Contracting	nenting Performance
9:20am	Report out from Breakout	
9:40am	Helping a Colorado Town Save 35% on Well Pumping O Justin Rundle, Honeywell Building Solutions	Costs
10:00am	Break	
10:30am	How a Texas Community Leveraged Guaranteed Utility Water and Wastewater Infrastructure Improvements	Savings to Pay for
10:50am	Challenging "Business As Usual" – FWSA Looks to En Performance Contracting Dennis Clough, Energy Systems Group	ergy Savings
11:10am	Second Breakout Session – Identify Solutions to Chall Session 1 Jordan Lerner, Energy Solutions, Schneider Electric	enges from Breakout
11:30am	Report out from Breakout	
11:50am	Closing Remarks Peter Thomson, Black & Veatch	
12:00pm	Adjourn	

WORKSHOP B

Workshop B: "Drivers Ed" for the Energy Roadmap

Monday, May 6, 2013 Room: 108/109 8:30am – 12:00pm 0.3 CEUs

8:30am Welcome, Workshop Format, Background Roadmap

Alicia Chakrabarti, EBMUD

8:50am Strategic Management / Organizational Culture

Ed McCormick, EBMUD

9:10am Innovating for the Future

Bill Toffey, Effluential Synergies

9:25am Demand Side Reduction / Energy Generation

Dave Reardon, HDR

10:00am Break

10:25am Communications and Outreach

Jason Turgeon, USEPA

10:40am Instructions for Teaching Case and Break Out

Barry Liner, Water Environment Federation

10:45am Group Address Case Study Questions

All Speakers and Facilitators

11:40am Report Out on Findings

All Speakers

12:00pm Adjourn

OPENING GENERAL SESSION

Monday, May 6, 2013 Room: 108/109 1:30pm – 5:00pm 3.0 PDHs

1:30 pm Welcome and Opening Remarks

Cindy Wallis-Lage, Black & Veatch, Conference Chair

1:35pm WEF and KY/TN WEA Introductions

Rick Warner, Washoe County, NV Wes Sydnor, Louisville MSD, KY

1:45 pm Robert Balzar

Vice President, Demand Side Management, Tennessee Valley Authority

2:00 pm Holmes Hummel

Senior Advisor, Office of the Undersecretary for Energy

2:30 pm Cynthia Truelove

Director and Visiting Scholar, Stanford University

3:00 pm Networking Break

3:45 pm Panel Discussion: Energy Management Challenges and Opportunities for

Wastewater Utilities

Steve Rogowski, Metro Water Reclamation District, CO Rob Taylor, Washington Suburban Sanitary Commission George Martin, Greenwood Metropolitan District, SC Moderator: Charles Bott, Hampton Roads Sanitation District

5:00 pm Adjourn

Networking Reception – Center/East Exhibit Hall

Immediately following the conclusion of the Opening General Session, please join us for the Networking Reception held in Center/East Exhibit Hall from 5:00pm – 6:30pm

Session EW 1: Treatment

Tuesday, May 7 Room: 103/104

8:30am – 11:45am 2.5 PDHs

Moderator: Jeanette Brown, Manhattan College

Peter Cavagnaro, Johnson Controls

EW1A 8:30am Energy Evaluation of Combination Processes for Secondary

Effluent Treatment

Hong Y. Wang, Dongbum Im, Aki Ito, Naoya Wada, Norihide

Nakada, Research Center for Environmental Quality

Management, Kyoto University; Michiko Aoki, Yasuhiro Kato, Metawater Co., Ltd.; Hiroaki Tanaka, Research Center for Environmental Quality Management, Kyoto University

EW1B 9:00am Nexus of Energy and Virus Reduction of UF Membrane

Filtration Process with Coagulation/UV Irradiation for

Wastewater Reclamation

<u>Suntae Lee</u>, Naoyuki Yamashita, Masaru Ihara, Hiroaki Tanaka, Kyoto University; Kentaro Kobayashi, Hiroaki Tanaka, Hiroo

Takabatake, Yuji Tanaka, Toray Industries

EW1C 9:30am Overview and Challenges of Anaerobic Wastewater

Treatment: Is there a Place for It in Our Future?

Jose A. Jimenez, Brown And Caldwell; Charles Bott, HRSD

10:00am Networking Break

EW1D 10:45am Achieving Positive Net Energy While Maximizing Use of

Existing Assets: The Ejby Molle WWTP Story

<u>Julian Sandino</u>, CH2M HILL; Per H. Nielsen, VandCenter Syd (VCS) Denmark; Dru Whitlock, Tom Johnson, CH2M HILL; Mads Leth, VandCenter Syd (VCS) Denmark; Thomas Jensen, Michael

Nielsen, Ramboll Denmark

EW1E 11:15am NEW (Nutrient, Energy, Water) Sustainability Principles Drive

Technology Selection in Advanced Water Reclamation

Application

Randall Boe, Srinivas Jalla, Chuck Crandall, Julian Sandino, Jeremy Kraemer, CH2M HILL; Todd Cleaver, Tyler Richards, Holly Elmendorf, Gwinnett County, GA Department of Water

Resources

11:45am Adjourn

Session EW 2: Alternative Energy

Tuesday, May 7 Room: 108/109

8:30am – 11:45am 2.5 PDHs

Moderators: Priscilla Bloomfield, CH2M HILL

Robert Lonergan, Tetra Tech

EW2A 8:30am High Efficiency Bio-Diesel Production from a Municipal FOG

Facility

Michael D. Curtis, RPM Sustainable Technologies; J. Lanzoni,

Siemens; R. Parnas, RPM Sustainable Technologies

EW2B 9:00am Sustainable Energy Management Systems for Wastewater

Treatment Facilities

James C. McCaughey, Narragansett Bay Commission

EW2C 9:30am eVortex: A Novel Energy Harvesting Mechanism for Waste

and Storm Water Conveyance Systems

Mungtra Chuslip, Arun Prakash Jaganathan, Erez Allouche,

Louisiana Tech University

10:00am Networking Break

EW2D 10:45am Use of Alternative Water Sources for a Trigeneration System:

A Case Study

Priska Grace, Dwayne Myers, Enrique Lopez Calva, Shirley

Zhang, Priyanka Mehta, CDM Smith

EW2E 11:15am Demonstrating the Business Case for Biogas-fueled

Stationary Fuel Cell Power Systems at Wastewater Treatment

Facilities

Gregory D. Moreland, SRA International; Peter Devlin, U.S.

Department of Energy

11:45am Adjourn

Session EW 3: Greenhouse Gases

Tuesday, May 7 Room: 103/104 1:30pm – 4:45pm 2.5 PDHs

Moderator: Robert Lonergan, Tetra Tech

Priscilla Bloomfield, CH2M HILL

EW3A 1:30pm Carbon Free Water - A Successful Case Study in Sonoma

County, California

Cordel Stillman, Amy Bolten, Sonoma County Water Agency

EW3B 2:00pm Estimating Carbon Emissions in Water Supply Portfolio

Evaluations Including Recycled Water and Greywater

Enrique J. Lopez Calva, Shirley Zhang, Dwayne R. Myers, Priska

Grace, P. Mehta, CDM Smith

EW3C 2:30pm Climate Ready Water Utilities: Helping the Water Sector

Prepare for and Adapt to a Climate Change

Laura Dubin, U.S. Environmental Protection Agency

3:00pm Networking Break

EW3D 3:45pm Quantifying Fugitive CH₄ Emissions from Facultative Sludge

Lagoons

Anup Shah, Brown and Caldwell; Lauren Fillmore, Water Environment Research Foundation; A. Detweiler, NASA-AMES Research Center; John Willis, Brown and Caldwell; Brad Bebout, Adrianne Frisbee, NASA-AMES Research Center; Cheryl Kelley, University of Missouri; Jeff Chanton, Florida State University;

Leslie Bebout, NASA-AMES Research Center

EW3E 4:15pm Peak Amplification of Energy Demand, Energy Cost, and

Carbon Emission in Water Reclamation and Purification

Processes During Diurnal Cycles

Reza Sobhani, University of California, Irvine; Lory Larson,

Southern California Edison; Diego Rosso, University of California,

Irvine

4:45pm Adjourn

Session EW 4: Lessons Learned

Tuesday, May 7 Room: 108/109 1:30pm – 4:45pm 2.5 PDHs

Moderator: John Willis, Brown and Caldwell

Peter Cavagnaro, Johnson Controls

EW4A 1:30pm Energy Consumption Trends in BNR Mixing Technologies

<u>Lamya Badr</u>, Joe Rohrbacher, Patricia Stiegel, Hazen and Sawyer; Don Howard, Lori Cooper, City of Greensboro

EW4B 2:00pm Making Energy Efficiency Happen - Experience and Lessons

Learned in the EPA Region 4 - TN Department of Environment

Conservation Energy Management Initiative

Robert J. Freeman, US EPA Region 4 Atlanta; <u>Jennifer Dodd</u>, Tennessee Department of Environment & Conservation

EW4C 2:30pm Energy Efficient, Sustainable Improvements and

Technologies Implemented at Wastewater Treatment Plants

Brian Sibiga, Wendel; Frank Nerone, Niagara County Sewer

District No. 1

3:00pm Networking Break

EW4D 3:45pm Minimizing Energy Consumption in Decentralized Wastewater

Collection and Treatment Systems

Kartiki S. Naik, Michael K. Stenstrom, University of California, Los

Angeles

EW4E 4:15pm Ten Years and Counting in the Wastewater Process Energy

Efficiency Industry: Northern California's CalPOP Program

Edward C. Myers, Lescure Engineers; John Bidwell, Quantum

Energy Services and Technologies (QuEST) Inc.

4:45pm Adjourn

Session EW 5: Water Quantity

Wednesday, May 8 Room: 103/104

8:30am - 10:00am 1.5 PDHs

Moderator: Jeanette Brown, Manhattan College

EW5A 8:30am The Water Implications of Generating Electricity: Water

Consumption Across the United States Based on Different

Electricity Pathways through 2050

Jordan Macknick, National Renewable Energy Laboratory; Sandra Sattler, Union of Concerned Scientists; Kristen Averyt, Cooperative Institute for Research in Environmental Sciences; Steve Clemmer, John Rogers, Union of Concerned Scientsts

EW5B 9:00am Water and Energy Utilities: Improving Collaboration

Cindy Dyballa, Dyballa Consulting

EW5C 9:30am The Importance of Water for Power Generation

Michael C. Preston, Black & Veatch

10:00am Adjourn

Power Day

Note: This session is part of the Power Day Track geared specifically toward electric and gas utilities and their staff.

Session EW 6: Control Strategies

Wednesday, May 8 Room: 108/109

8:30am - 11:45am 2.5 PDHs

Moderator: Louann Unger, USEPA

EW6A 8:30am Watergy in the U.S.: Energy Management, Policy

Mechanisms and Technologies to Optimize Energy Use in

Pumping and Aeration Systems

Bruce Lung, Alliance to Save Energy; Lisa Tryson, John Masters,

Danfoss; Ryan Graf, Policy Navigation Group;

EW6B 9:00am Energy Savings from Advanced Process Control: Two Case

Studies

Steven M. Kestel, Matthew Gray, Weixin Shi, BioChem

Technology; Junquan Yan, Jieyuan Draining Co.

EW6C 9:30am Dynamic Energy Footprint Monitoring and Reduction in

Energy Demand from Wastewater Aeration Systems via Full-

Scale Deployment of Real-Time Off-Gas Analyzers

Matthew K. Jeung, University of California, Irvine; Lory E. Larson,

Southern California Edison; Michael K. Stenstrom, UCLA;

Diego Rosso, University of California, Irvine

10:00am Networking Break

EW6D 10:45am Advanced Controls Maximizes Energy Efficiency of a Large

Effluent Pump Station
Curt Wendt, CDM Smith Inc

EW6E 11:15am Advanced Water Reclamation Minimizes the Energy

Footprint: The Riverfront Water Reclamation Facility Brooks W. Newbry, Water Technology Group; Kenneth

Knickerbocker, Wood, Patel and Assoc. Consulting Engineers;

Dan Lueder, City of Cottonwood, Arizona

11:45am Adjourn

Session EW 7: Water Quality

Wednesday, May 8 Room: 103/104

10:45am - 11:45am 1 PDH

Moderator: Cindy Wallis-Lage, Black & Veatch

EW7A 10:45am Reclaimed Water Quality Requirements for Electric Utilities

Don Vandertulip, CDM Smith

EW7B 11:15am Maintaining NPDES Permit Compliance at Power Plants While

Using Municipal Treatment Plant Effluent with Variable

Ammonia and Nitrate Levels.

Christopher Varnon, Randi Kim, Jospeh Viciere, Nathan

Schmaus, Tina Petersen, CDM Smith; Jaron Bergin, Calpine Corp

11:45am Adjourn

Power Day

Note: This session is part of the Power Day Track geared specifically toward electric and gas utilities and their staff.

Session EW 8: Energy Savings

Wednesday, May 8 Room: 103/104

1:30pm - 3:00pm 1.5 PDHs

Moderators: Tom Schwartz, Woodard and Curran

Priscilla Bloomfield, CH2M HILL

EW8A 1:30pm Get It Done! - Using Performance Contracting to Implement

Energy-Related Improvements

Richard Atoulikian, HDR; Clark Wiedetz, Siemens; Thomas Kochaba, Kim Kennedy, Robert Huffmyer, HDR

EW8B 2:00pm Demand Management Strategies Resulting in Zero

and Low Cost Energy Saving Opportunities for Water and

Wastewater Treatment Facilities
<a href="https://example.com/breatment/background-com/breatment/background-com/breatment/background-com/breatment/background-com/breatment/background-com/breatment/background-com/breatment/background-com/breatment/

EW8C 2:30pm Aeration Efficiency in Oxidation Ditches

John Lindam, Xylem Water Solutions AB

3:00am Adjourn

Power Day

Note: This session is part of the Power Day Track geared specifically toward electric and gas utilities and their staff.

Session EW 9: Biogas

Wednesday, May 8 Room: 108/109 1:30pm - 3:00pm 1.5 PDHs

Moderators: Jeanette Brown, Manhattan College

Louann Unger, USEPA

EW9A 1:30pm Guide to Bioaugmentation for Systems Experiencing

Chemical Inhibition using an Operating Envelope

Robin Schroeder, Martin Maxwell, and Dong Hyun, Environmental

Business Specialists, LLC

EW9B 2:00pm CHP System Implementation and Operations Optimization at

F. Wayne Hill Water Resources Center

<u>Richard Schoeck</u>, Gwinnett County Department of Water Resources; Srinivas Jalla, CH2M HILL; Richard Porter, Gwinnett County Department of Water Resources

EW9C 2:30pm Energy-Recovery from Solids in St. Petersburg, FL: Biogas to

Vehicle Fuel and CHP

<u>John Willis</u>, Brown and Caldwell; Steve Leavitt, Steven Marshall, St. Petersburg; Todd Bosso, Brown and Caldwell

3:00pm Adjourn

Session EW 10: Global Perspectives

Wednesday, May 8 Room: 103/104 3:45pm - 5:15pm 1.5 PDHs

Moderator: Bob Forbes, CH2M HILL

EW10A 3:45pm Life Cycle Water use for Electricity Generation: Implications

of the Distribution of Collected Estimates

James Meldrum, University of Colorado; <u>Jordan Macknick</u>, Garvin Heath, Syndi Nettles-Anderson, National Renewable

Energy Laboratory

EW10B 4:15pm Water and Energy Efficiency through Steam Systems

Angela Ganley, Lesley Smith, Audra Liubinas, Sophea Eng, City

West Water

EW10C 4:45pm Creating New Revenue with Existing Processes: Evaluating

Grid Balance with Demand-Side Loads at Wastewater

Treatment Plants Using Dynamic Modeling

<u>Daryl Letto</u>, ENBALA Power Networks; Spencer Snowling, Hydromantis Environmental Software Solutions; Raoul George, Christopher Morrissey, ENBALA Power Networks; Hank Andres, Hydromantis Environmental Software Solutions; Conrad Fox,

ENBALA Power Networks

5:15pm Adjourn

Power Day

Note: This session is part of the Power Day Track geared specifically toward electric and gas utilities and their staff.

Session EW 11: Exemplary Programs That Save Both Energy and Water

Wednesday, May 8 Room: 108/109 3:45pm – 5:15pm 1.5 PDHs

Moderator: Sara Hayes, American Council for an Energy-Efficient Economy

Adjourn

5:15pm

This session addresses a topic at the heart of the conference: how to design programs that achieve both water and energy savings. The case studies to be presented and the speakers to be featured will provide information on best practices in designing and implementing these programs as well as lessons learned through their experiences.

3:45pm	Exemplary Programs that Save Both Energy and Water Mary Ann Dickinson, Alliance for Water Efficiency
4:00pm	Massachusetts Water Resource Authority (MWRA) Long Term Sustainability Program Stephen Estes-Smargiassi, Massachusetts Water Resources Authority (MWRA)
4:10pm	Southern California Electric Leak Pilot Detection Program Gene Rodrigues, Southern California Electric
4:20pm	City of Boulder Energy Performance Contracting Program Joe Castro, City of Boulder, Colorado
4:30pm	United Technologies Corporation (UTC) 2015 Sustainability Goals Program Sean West, United Technologies Corporation (UTC)
4:40pm	Questions and Discussion

Session EW 12: Research

Thursday, May 9 Room: 103/104 8:30am - 10:00am 1.5 PDHs

Moderator: Stephen Tarallo, Black & Veatch

EW12A 8:30am Looking at the Future: How Metropolitan Sewer District of

Greater Cincinnati (MSDGC) is Turning Waste into Resources

and Energy

<u>Ting Lu</u>, Biju George, MSD of Greater Cincinnati; Joo-Youp Lee,

Mingming Lu, University of Cincinnati

EW12B 9:00am Energy Consumption of MBR for Municipal Wastewater

Treatment Current Situation and Potential

Pierre Cote, COTE Membrane Separation Ltd; Thor Young, Sebastian Smoot, GHD; Jeff Peeters, GE Water & Process

Technologies

EW12C 9:30am Environment Enhancing Energy Innovative Adsorptive-

Biological Process to Recovery/Recycle Carbon and Nitrogen

from Aqueous Product of Hydrothermal Liquefaction to

Maximize Bioenergy Production from Wastewater

Yan Zhou, Lance Schideman, Yuanhui Zhang, X. Zhao, University

of Illinois

10:00am Adjourn

Session EW 13: Water MSW & Integrated Planning

Thursday, May 9 Room: 108/109 8:30am - 11:45am 3.0 PDHs

Moderator:	Jason Turge	on, USEPA
EW13A	8:30am	Sustainable Solutions for the 21 st Century - Integration of Water Treatment Systems with Energy Derived from Municipal Wastes Paul Hauck, Diane Kemp, Valerie Going, CDM Smith
EW13B	9:00am	Integrating Major Components of a New Landfill Gas System - Coordination of Multiple Contracts for Gas Treatment, Pipeline Transmission and Turbine Energy Generation Ralph Schroedel, Brown & Caldwell; Michael Martin, Cary Solberg, William Krill, Milwaukee Metropolitan Sewerage District
EW13C	9:30am	Integrated Net Zero for Energy, Water and Waste at Army Installations: Establishing Priorities in a Fiscally Constrained Context Elizabeth Keysar, Concurrent Technologies Corporation (CTC)
	10:00am	Networking Break
EW13D	10:15am	Santa Rosa Case Study - Water, Electric, and Gas Utility Collaboration Adam Ross, Brown and Caldwell; David Guhin, M. Prinz, City of Santa Rosa;
EW13E	10:45am	Integrating Liquid and Solid Waste Planning to Make Green Infrastructure Pay Stephen J. Salter, Farallon Consultants Limited
EW13F	11:15am	Embodied Energy of Lost Water: Evaluating the Energy Efficiency of Infrastructure Investments Craig P. Aubuchon, Analysis Group, Inc.; Alan Roberson, AWWA
	11:45am	Adjourn

Session EW 14: Net Zero

Thursday, May 9 Room: 103/104 10:15am - 11:45am 1.5 PDHs

Moderator: Alicia Chakrabarti, East Bay Municipal Utility District

Peter Cavagnaro, Johnson Controls

EW14A 10:15am The Most Energy Efficient Pump is the One That's Not

Running: A Case Study of Energy Savings Resulting from an

I/I Reduction Program

Kevin Colvett, CH2M Hill; Brent Freeman, Metro Water Services;

Todd Spangler, City of Brentwood, TN

EW14B 10:45am Small Wastwater Treatment Facilities can be Energy

Producers

Joseph C. Cantwell, Science Applications Intl Corp

EW14C 11:15am The Treatment Plant of the Future Integrated CO₂ Capture for

Enhanced Plant Growth

James W. Schettler, Nancy E. Andrews, Brown and Caldwell

11:45am Adjourn

ADVANCED VIRTUAL CONFERENCE

The Advanced Virtual Conferences were held on January 23rd and March 20th as two recoreded webcasts that were used as an example of the content that will be presented onsite at the Energy and Water 2013 Conference.

Panelists from the Virtual Conferences included:

Low Energy Process Control - January 23, 2013

- Leiv Rieger, inCTRL Solutions Inc.
- Jose Jimenez, Brown and Caldwell
- Andy Shaw, Black & Veatch (Moderator)

Energy-Water Nexus Highlights - March 20, 2013

- Radenka Maric, University of Connecticut
- Alex West, BioteQ Environmental Technologies
- Jeanette Brown, University of Connecticut (Moderator)

To hear these live recored presentations, please visit www1.gotomeeting.com/register/547792017 and www1.gotomeeting.com/register/452252785. To listen to other live recored webcasts, please visit www.wef.org/webcasts/.

ENERGY AND WATER SESSIONS AT-A-GLANCE

Session #	Title	Credits	Room
	MONDAY		
Workshop A	Energy Services Performance Contracting: Innovative Delivery that Guarantees Energy and Cost Savings!	0.3 CEUs	103/104
Workshop B	"Drivers Ed" for the Energy Roadmap	0.3 CEUs	108/109
	Opening General Session	3.0 PDHs	108/109
	TUESDAY		
1	Treatment	2.5 PDHs	103/104
2	Alternative Energy	2.5 PDHs	108/109
3	Greenhouse Gases	2.5 PDHs	103/104
4	Lessons Learned	2.5 PDHs	108/109
	WEDNESDAY		
5	Water Quantity *	1.5 PDHs	103/104
6	Control Strategies	2.5 PDHs	108/109
7	Water Quality*	1 PDH	103/104
8	Energy Savings*	1.5 PDHs	103/104
9	Biogas	1.5 PDHs	108/109
10	Global Perspectives*	1.5 PDHs	103/104
11	Exemplary Programs That Save Both Energy and Water	1.5 PDHs	108/109
	THURSDAY		
12	Research	1.5 PDHs	103/104
13	Water MSW & Integrated Planning	3.0 PDHs	108/109
14	Net Zero	1.5 PDHs	103/104

^{*} Power Day Track

EXHIBITION GENERAL INFORMATION

Located in the East and Central Hall of the Nashville Convention Center, the Exhibition hall hosts morning and afternoon refreshment breaks, luncheons, and a networking reception.

The exhibition offers networking opportunities with companies displaying the latest product and service solutions directly related to the conference's technical program.

Exhibit Hall Schedule

Monday, May 6 5:00 pm - 6:30 pm

5:00 pm - 6:30 pm...Networking Reception

Tuesday, May 7 10:00 am - 4:45 pm

Wednesday, May 8 10:00 am - 3:45 pm

Children under 18 entering the Exhibition must be accompanied by a parent or guardian at all times. The parent or guardian assumes all risk and responsibility for the child's safety.

Photographing or video recording in the Exhibition is only allowed with exhibitor's permission.

EXHIBITOR DIRECTORY

As of April 18, 2013

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Crowder Construction Company	123
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Phone: (414) 529-0240
6901 Industrial Loop
Greendale, WI 53129
Uzelac Industries is a design/build company providing Drying solutions, expertise and equipment to the Biosolids Industry.
Vaughan Company, Inc Booth 211
www.chopperpumps.com
Phone: (360) 249-4042
364 Monte Elma Road
Montesano, WA 98563 Since 1960. Vaughan has been issued over 35 patents and has sold more than 25.000
pumps worldwide including the Rotamix Process Mixing System.
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Velocity Dynamics, Inc Booth 621 www.polymersolution.com
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VITAG CorporationBooth 605
www.vitagcorp.com
Phone: (239) 398-6127
117 Allwin Lane
Beech Island, SC 29842
VitAg employs beneficial-use technology that economically converts biosolids into a
Class A controlled-release high-nitrogen granular fertilizer that it sells into the specialty
and commodity fertilizer marketplace.
N I
Vogelsang Booth 105
Phone: (330) 296-3820 x232
P.O. Box 751
Ravenna, OH 44266
Vogelsang positive displacement, rotary lobe pumps and in-line grinders provide quality,
technologically advanced, economical solutions to all your wastewater pumping needs.
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WeCare Organics, LLC Booth 719
www.wecarecorganics.com
Phone: (315) 689-1937
9293 Bonta Bridge Road
Jordan, NY 13080
Specializes in the beneficial reuse of recyclable organic residuals, project development,
processing operations and final product marketing of biosolids-based soil amendments
for commercial use.
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WesTech Engineering provides Digester Covers, both beam and truss type,
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EXHIBITOR DIRECTORY

World Water Works Inchttp://www.worldwaterworks.com		Booth 518
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P.O. Box 892050		
Oklahoma City, OK		
3 *	sign and manufacturing of innovati	ve water and wastewater
	ncluding: DEMON®, MBBR/IFAS, I	
Polypropylene Tanks.		
		Booth 503
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1470 Bergen Boulevard		
Fort Lee, NJ 07024		and at the second
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Charlie Alix, Stantec, RB Session 11 Moderator

Vincent Apa, CDM Smith, RB 15E

Richard Atoulikian, HDR Engineering, EW 8A

Craig Aubuchon, Analysis Group, Inc., EW 13F

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Lamya Badr, Hazen and Sawyer, EW 4A

Amber Barritt, CDM Smith, RB 8D

Robert Bates, Louisville Metropolitan Sewer District, RB 2D, RB Session 16, RB Session 7 Moderator

Ned Beecher, North East Biosolids & Residuals Association, RB Workshop A, RB Session 14

Matthew Berg, CH2M HILL, RB 2B Priscilla Bloomfield, CH2M HILL, EW Session 2, 3, 8 Moderator

Randall Boe, CH2M HILL, EW 1E

Amy Bolten, Sonoma County Water Agency, EW 3A

Kelly Brenner, Material Matters, Inc, RB 4A

Jeanette Brown, Manhattan College, EW Session 1, 5, 9 Moderator

Michael Bullard, Hazen and Sawyer, RB Session 2 Moderator

Gillian Burger, University of Waterloo, RB 9A

Peter Burrowes, CH2M HILL Canada Ltd, RB 7B

Jennifer Callahan, Material Matters, Inc., RB 3A

Alice Cannella, City of Chattanooga, TN, EW Session 16

Joseph Cantwell, Science Applications Intl Corp, EW 14B

Scott Carr, CDM Smith, RB Session 7 Moderator

Joe Castro, City of Boulder, Colorado, EW Session 11 Pete Cavagnaro, Johnson Controls, EW Session 1, 4, 14 Moderator

Alicia Chakrabarti, East Bay Municipal Utility District, EW Workshop B, EW Session 14 Moderator

Dennis Clough, Energy Systems Group, EW Workshop A

Kevin Colvett, CH2M Hill, RB Session 8 Moderator, EW 14A

Heather Crabtree, Metro Water Services, RB Session 18 Moderator

Dustin Craig, CDM Smith, RB Session 10 Moderator

Thomas Crawford, Retired, RB Workshop A

Michael Curtis, Simplified Energy Solutions, EW 2A

Roy Denney, Metro Water Services, RB Session 18

Mary Ann Dickinson, Alliance for Water Efficiency, EW Session 11

Richard Dimassimo, Kruger, Inc., RB 9E

Jennifer Dodd, Tennessee Department of Environment & Conservation, EW 4B

John Donovan, CDM Smith, RB 2E, RB 3B, RB 14,

Laura Dubin, USEPA, EW 3C

David Duest.

Massachusetts Water Resources Authority, RB 2E

Cindy Dyballa, Dyballa Consulting, EW 5B

Maria Elektorowicz, Concordia University, RB 6A

Mike Elenbaas, Black and Veatch, RB Workshop B

Ralph Eschborn, AECOM, RB 12B

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Stephen Estes-Smargiassi,

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Greg Evanylo, *Virginia Tech*, **RB Workshop A**

Lauren Fillmore, WERF, RB Workshop B

Bob Forbes, CH2M HILL, RB Session 2 Moderator, EW Session 10 Moderator Cynthia Fort, American Structurepoint Inc, RB 8C

Robert Freeman, US EPA Region 4 Atlanta, EW 4B

Dale Gabel, CH2M HILL, RB 13E

Michael Gardner, Bowling Green Municipal Utilities, RB Session 16

Diane Gilbert-Jones, City of Los Angeles, **RB 3C**

Robert Gillette, Carollo Engineers, RB Session 4 Moderator

Charles Goss, AECOM, RB 15B

Priska Grace, CDM Smith, EW 2D

Steve Hall, Terra Renewal, RB Workshop B

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Jose Jimenez, Brown and Caldwell, EW 1C

James Johnson, Metro Wastewater Reclamation District, RB 13B

Trudy Johnson, Material Matters, RB Session 3 Moderator, RB 13D

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Richard Kelly, Brown & Caldwell, RB 4B

Steven Kestel, BioChem Technology, EW 6B

Greg Kester, California
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Elizabeth Keysar, Concurrent Technologies Corporation, EW 13C

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Jeffrey J. LeBlanc, WeCare Organics, LLC, RB Session 13 Moderator

Suntae Lee, Kyoto University, EW 1B

Peggy Leonard, King County Washington, RB Workshop A

Jordan Lerner, Schneider Electric, EW Workshop A

Daryl Letto, ENBALA Power Networks, EW 10C

F Michael Lewis, F Michael Lewis Inc, RB 10E

John Lindam, *Xylem*Water Solutions AB, EW
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Barry Liner, WEF, EW Workshop B

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Robert Lonergan, Tetra Tech, EW Session 2, 3 Moderator

James Long, Hazen and Sawyer, RB 10B

Enrique Lopez Calva, CDM Smith, EW 3B

Ting Lu, MSD of Greater Cincinnati, EW 12A Bruce Lung, Alliance to Save Energy, EW 6A

Jing Luo, Pima County, RB 15C

Jordan Macknick, National Renewable Energy Laboratory, EW 5A, EW 10A

Daryl McCartney, University of Alberta, RB Session 6 Alternate

James McCaughey, Narragansett Bay Commission, EW 2B

Ed McCormick, EBMUD, EW Workshop B

Michael McFarland, Utah State University, RB Workshop A

Kelley Merritt, *Metro Wastewater Reclamation District*, **RB 5A**

Alexandre Miot, San Francisco Public Utilities Commission, RB 10C

Bryan Mitchell, Metro Wastewater Reclamation District, RB 5A

Gregory Moreland, SRA International, **EW 2E**

Lynne Moss, CDM Smith, RB Session 14

Christopher Muller, Brown & Caldwell, RB Session 15 Alternate Fred Mussari, BCR Environmental, RB Session 1 Alternate

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Kartiki Naik, University of California, Los Angeles, EW 4D

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Jeff Peeters, GE Water & Process Technologies, EW 12B

Chris Peot, DC Water, RB Session 16 Moderator

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Gene Rodrigues, Southern California Electric, EW Session 11

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Stephen Salter, Farallon Consultants Limited, **EW 13E**

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Kristi Schnell, Gresham Smith and Partners, RB 7A

Richard Schoeck, Gwinnett County Department of Water Resources. EW 9B

Ralph Schroedel, Jr., Brown & Caldwell, EW 13B

Robin Schroeder, Environmental Business Specialists, LLC, EW 9A

Tom Schwartz, Woodard & Curran, EW Session 8 Moderator

Anup Shah, Brown And Caldwell, EW 3D

EJ Shalaby, West County Wastewater Dist., RB 12C

Todd Shearin, Terra Renewal, RB Workshop B Brian Sibiga, Niagara
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1, EW 4C

Natalie Sierra, RMC Water and Environment, RB Workshop A

James Slaughter, Beveridge & Diamond PC, RB 11A

Roy Smith, Guthrie Sales & Service, Inc, RB Session 1 Moderator

Lesley Smith, City West Water, EW 10B

Jim Smith Jr., Independent Environmental Consultant, RB 11B, RB Session 4 Moderator

Matthew L. Snyder, City of Chattanooga, TN, RB Session 16

Reza Sobhani, University of California, Irvine, EW 3E

Michael K. Stenstrom, Univeristy of California, Los Angeles, EW 6C

Aaron Stephens, Material Matters, Inc, RB Session 10 Moderator, RB 13C

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Ron Taylor, Metro Water Services, RB Session 18

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Yuanming Tsai, Infilco Degremont, Inc., RB 10A

Richard Tsang, CDM Smith, RB Session 15 Moderator

Patricia Turman, USDA-NRCS, RB Session 17

David Tucker, Metro Water Services, RB Session 18

Jason Turgeon, US *EPA*, EW Workshop B, EW Session 13 Moderator

Louann Unger, US EPA, EW Session 6, 9 Moderator Matthew Van Horne, Hazen and Sawyer, RB 2C

Don Vandertulip, *CDM Smith*, **EW 7A**

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Richard von Langen, RVL Associates, Inc., RB 15A

Forbes Walker, University of Tennessee, RB Session 17

Cindy Wallis-Lage, Black and Veatch, EW Session 7 Moderator

Hong Y. Wang, Research Center for Environmental Quality Management, EW

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Sean West, United Technologies Corporation, EW Session 11

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Francesco Zurzolo, University of Manitoba, RB Session 13 Alternate

UPCOMING CONFERENCES

2013 WEF Forum Activated Sludge on its 100th Birthday: Challenges and Opportunities

June 9 - 11, 2013 Stonehill College Easton, Massachusetts www.wef.org/ActivatedSludge

Collection Systems 2013

June 9 – 12, 2013
Sacramento Convention Center
Sacramento, California
www.wef.org/CollectionSystems

WEF/IWA Nutrient Removal and Recovery 2013

July 28 – 31, 2013 Sheraton Vancouver Wall Centre Hotel Vancouver, British Columbia, Canada www.wef.org/nutrients

WEFTEC 2013

October 5 – 9, 2013
McCormeck Place Convention Center
Chicago, Illinois
www.weftec.org

WEF/AWWA Utility Management Conference 2014

February 25 – 28, 2014 Hyatt Regency Savannah Savannah, Georgia www.wef.org/UtilityManagement2014

Residuals and Biosolids 2014

May 18 - 21, 2014
Austin Convention Center
Austin Texas
www.wef.org/ResidualsBiosolids

Odors and Air Pollutants 2014

May 31 – June 3, 2014 Hyatt Regency Miami Miami, Florida www.wef.org/OdorsAir

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