

FEBRUARY 8–10, 2016 • NYC MARRIOTT MARQUIS



# 88<sup>TH</sup> ANNUAL MEETING

## The Year of the Operator

11-16-15



### 26 TECHNICAL SESSIONS COVERING TOPICS:

- Disinfection • Ethics • Flood Prevention • Energy • Resiliency
- Green Infrastructure • and more!





**Technical Program Table of Contents**  
**2016 Annual Meeting, New York City, New York**  
**February 8–10, 2016, Marriott Marquis**

Opening General Session .....	3
Session 1      High Strength Waste .....	3
Session 2      Disinfection .....	4
Session 3      Research in Water Reclamation Technologies .....	4
Session 4      Year of the Operator .....	5
Session 5      Wet Weather Issues and Solutions .....	5
Session 6      Best Practices in Water Reclamation .....	6
Session 7      Manufacturers Forum – 1 .....	7
Session 8      The Onondaga Lake Watershed: A Collaborative Clean Up .....	8
(Developed by the Public Education Committee)	
Session 9      Microturbines and Biogas .....	8
Session 10     Plant Operations: Repairs and Safety Considerations .....	9
Session 11     Building a Resilient Future .....	10
Session 12     Water Reclamation from Conception to Operation: Siting, Piloting, Repairing and Managing Assets .....	11
(Developed by the Young Professionals Committee)	
Session 13     Manufacturers Forum – 2 .....	11
Session 14     Waste Reclamation Process Operations .....	12
Session 15     Biosolids – 1 .....	13
Session 16     Plant Operations: Process and Equipment Design .....	14
Session 17     Managing Water in the Watershed .....	14
Session 18     University Forum .....	15
University Forum Poster Session .....	15
Session 19     Ethics/Environmental Compliance .....	15
Session 20     Biosolids – 2 .....	16
Session 21     Plant Operations: Evaluating Systems and Equipment .....	17
Session 22     Asset Management .....	17
Session 23     Stormwater Management Using Green Infrastructure .....	18
Session 24     Optimizing Our Wet Weather Resources .....	19
Session 25     Sustainability .....	20
Session 26     Flood Prevention .....	21
Hotel Information .....	22
Life Style Program .....	22
Advertising and Exhibiting Information .....	23–24
Registration Form .....	25
Exhibitors .....	26



**NYWEA**  
**Executive Office**  
525 Plum Street,  
Suite 102  
Syracuse, NY 13204  
315/422-7811  
www.nywea.org

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T Wellott Photography,  
<http://twphoto.us>

The Guidebook App will go live in December.

**Monday, February 8, 2016**  
**Opening General Session**

8:30 am  
 8:45 am  
 9:00 am  
 9:30 am  
 9:45 am  
 10:00 am  
 10:30 am

Welcome – Michael J. Garland,  
 NYWEA President

Jennifer Hartfelder  
 WEF President–Elect

Keynote Address – Congressman Paul Tonko

Sabrina Ty – President, NYS Environmental  
 Facilities Corporation

Basil Seggos, Acting Commissioner, NYS Department  
 of Environmental Conservation

Coffee Break

Operator of the Future Panel Discussion



Michael J. Garland



Jennifer Hartfelder



Paul Tonko



Sabrina Ty



Basil Seggos

**Session 1 High Strength Waste**

Moderators  
 1:30 pm  
 2:00 pm  
 2:30 pm  
 3:30 pm  
 4:00 pm

**Peter Radosta, Koester Associates; Mark Greene, O’Brien & Gere**

**The Use of BMP Testing to Evaluate Co-Digestion Substrates for Revenue Generation**  
**Shawn Veltman, H&V Consulting LLC**  
 The co-digestion of high strength organic wastes (HSW) in biosolids digesters is becoming increasingly popular as wastewater treatment facility owners seek creative ways to leverage existing or build new digestion capacity to increase operating revenues. This presentation will highlight the fundamentals of the Biochemical Methane Potential Test, or BMP, and how it may be applied to assess the potential benefits and pitfalls that may be associated with the introduction of high strength waste to biosolids digesters.

**Feasibility of Integrated Dairy and College Waste Management and Energy Production: Anaerobic Digestion at a College**  
**Venessa Brabant, Silvia Marpicati, Robert Ostapczuk, ARCADIS**  
 College campuses can integrate dairy farm waste and food waste to utilize anaerobic digestion as an effective waste management and energy production strategy. Co-digesting high strength food waste and dairy manure can promote unique partnerships between universities, farms, and food production facilities. The design of a stand-alone high strength waste anaerobic digester presents unique challenges. This presentation documents the feasibility and preliminary design of a high strength waste anaerobic digester facility at two universities.

**Coffee Break in Exhibit Hall**

**The Path to Energy Neutrality – Ithaca Area WWTP**  
**Tim Carpenter, GHD Consulting Services, Inc.; Dan Ramer, Ithaca Area WWTP**  
 The Ithaca Area Wastewater Treatment Plant (WWTP) has a goal of energy neutrality and has completed a series of projects in the last five years aimed at maximizing biogas production and utilization. Biogas production has exceeded 5.0 million cubic feet in several months, and electrical generation is consistently above 150,000 kWh per month. In one recent month the WWTP produced more electrical energy than it consumed, which is the long term goal of the plant.

**Energy Management – A Necessary Ingredient to Become a Water and Resource Recovery Facility**  
**Jay Surti, Julian Sandino, John Rickermann, CH2M**  
 A holistic approach is a pre-requisite to manage the energy footprint of wastewater treatment, and realize the vision of becoming an energy efficient resource recovery facilities. The approach also needs to align with the key objectives of providing cost-effective wastewater treatment, meeting regulations, protecting the public health, and the built and natural environment. Using case studies the presentation will demonstrate how utilities are implementing comprehensive and scalable energy management strategies to achieve cost savings, price stability and renew aging infrastructure.

## Monday, February 8, 2016

### Session 2

#### Disinfection

Moderators

David Railsback, ARCADIS; Joe Brilling Washington County Sewer District #2

1:30 pm

**Testing, Design and Operation of PAA Disinfection for Municipal WWTPs**  
**Brian Hilts, CDM Smith**

PAA is a wastewater disinfection alternative gaining interest due to its ability to provide bacterial inactivation at costs competitive to other mature technologies and being an effective disinfectant over a wide range of effluent qualities. This presentation provides an overview of the chemistry and current North American applications of PAA, a discussion on the testing methods utilized to establish full-scale design criteria, as well as case study examples to discuss scalability of bench-scale and pilot plant studies to full-scale design.

2:00 pm

**Shining the Light on Chemistry – Ultra-low Total Residual Chlorine (TRC) Limit Leads to PAA Piloting and Design in Oneida**  
**William Meinert, O'Brien & Gere**

Oneida's WWTP includes chlorination-dechlorination effluent disinfection. A portion of the effluent is reused for irrigation. The new permit included an ultra-low TRC limit. The study defined key issues, evaluated four alternatives: chlorination-dechlorination, UV, ozone, and Peracetic Acid. PAA was recommended. For NYSDEC regulatory review and sizing confirmation, full-scale piloting is being done. Along with design details, bench testing and full-scale piloting results will be reviewed, along with regulatory aspects of the project.

2:30 pm

**Coffee Break in Exhibit Hall**

3:30 pm

**Measuring Ambient TRC at the Edge of the Mixing Zone in NYC**  
**Thomas Newman, Kathy Drury, HDR; Keith Mahoney, Laura Grieco, NYCDEP, Bureau of Wastewater Treatment**

The New York State Department of Environmental Conservation is reviewing the water-quality based effluent limits for total residual chlorine (TRC) at New York City Department of Environmental Protection (NYCDEP) wastewater treatment plants. To support the development of TRC effluent limits, DEP is monitoring TRC at the edge of the acute mixing zone at eight WWTPs over the course of two years. This presentation will provide an overview of the sampling program methodology, schedule and available results.

4:00 pm

**Nitrosamines in Treated Wastewater: Disinfection Byproducts versus Wastewater Contaminants**  
**Ning Dai, University at Buffalo; Teng Zeng, Syracuse University; William A. Mitch, Stanford University**

In the past decade, N-nitrosodimethylamine (NDMA) has been identified as a chloramination byproduct and a contaminant of concern for wastewater recycling. However, we showed that NDMA only accounted for 3% to 30% of all nitrosamines in disinfected wastewater. NDMA increased by 25% to 1000% after disinfection. In contrast, N-nitrosodiethanolamine, although featured similar concentrations as NDMA, did not show much dependence on disinfection. For all wastewater samples, more than 50% of the nitrosamines remained unidentified.

## Monday, February 8, 2016

### Session 3

#### Research in Water Reclamation Technologies

Moderators

Nancy Struzenski, Alpha Analytical; Richard Pope, Hazen and Sawyer

1:30 pm

**The Big Double Dip: Harnessing Mainstream Deammonification to Reduce Energy Dependence while Increasing Capacity**

**Tim Constantine, Dwight Houweling, Paula Sanjines, Julian Sandino, CH2M HILL**

This presentation will provide a detailed review of the challenges and opportunities associated with the implementation of mainstream deammonification. It will also provide an overview of data from two recent applications of coupled sidestream/mainstream deammonification with specific focus on the overall energy and capacity benefits to each facility. The two facilities that will be highlighted are AlexRenew WRF, located in Alexandria, VA; and Ejby Mølle WWTP, in Odense, Denmark.



**2:00 pm** | **An Approach to Select an Appropriate Sidestream Deammonification Technology**  
**Sarah Galst, Hazen and Sawyer, PC; Brian Sparks, Thomas Spokas, Ya-Chi Tsao, Philadelphia Water Department**  
The Philadelphia Water Department (PWD) is evaluating the implementation of a deammonification process for sidestream treatment. PWD has developed a novel approach to technology selection, incorporating not only Net Present Lifecycle Cost, but also operational complexity, flexibility, adaptability, and sensitivity. By taking into account both cost and non-cost criteria, the project team is ensuring that the selected process will meet projected treatment and operational requirements and will fully integrate with the culture of their utility.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Full Scale Performance of Biological Aerated Filtration at the New Rochelle WWTP Exceeds Expectations**  
**Timothy Cheatham, Frederick Kincheloe, Savin Engineers, P.C.; Thomas Lauro, Westchester County Department of Environmental Facilities**  
The New Rochelle Wastewater Treatment Plant, New Rochelle, NY, completed a \$250 million upgrade that includes improvements to every process from the head of the plant to the discharge as well as its solids handling facilities. The backbone of the comprehensive upgrade is a two-stage biological aerated filtration system. This presentation will provide an overview of the plant upgrade, key operating issues, and nitrogen removal performance results.

**4:00 pm** | **Ellicottville, NY's Lagoons and Ammonia Limits: Teaching an Old Dog a Cutting Edge Trick**  
**Todd Latchaw, Nelson Environmental Inc.**  
Lagoons are an ancient technology whose "kryptonite" is ammonia in winter. This presentation presents the case study of Ellicottville, NY's lagoon-based wastewater treatment facility, whose cold-weather issues were magnified by winter loading from ski vacationers. In both Ellicottville and the case of Glencoe, Ontario, Canada, they implemented new technology known as Submerged Attached-Growth Reactors (SAGRs). The presentation shows how they produce effluent with <1 mg/L of total ammonia, even with water temperatures below 34°F (1°C).

## **Monday, February 8, 2016**

### **Session 4** | **Year of the Operator**

**Moderators** | **Claire Baldwin, CDM Smith; Angela Licata Misiakiewicz, NYCDEP**  
**Program forthcoming**

## **Monday, February 8, 2016**

### **Session 5** | **Wet Weather Issues and Solutions**

**Moderators** | **Rob Ganley, O'Brien & Gere; Elliot F. Sachs, Boswell Engineering**

**1:30 pm** | **A Pilot Study of CSO Treatment Using Cloth Media Filtration Technology**  
**Mark Hughes, Jack Ma, Aqua-Aerobic Systems, Inc.**

To verify whether cloth media filtration (CMF) is suitable in combined sewer overflows treatment, a pilot study was conducted at Rock River Water Reclamation District. CMF removed more than 80% TSS ranging from 120 mg/L to 450 mg/L, attaining a solids loading rate greater than 10 lbs./ft.<sup>2</sup>-day at a hydraulic loading rate of 3.25 gpm/ft.<sup>2</sup>. CMF is able to take less than 10% footprint of conventional primary settling basin while still providing better quality effluent.

**2:00 pm** | **Field Demonstration of a CSO High Rate Filtration Treatment Process**  
**Masa Takamatsu, Chengyue Shen, Karl Scheible, HDR; Hiroshi Nakamura, Metawater USA**  
A pilot scale demonstration has been conducted for Metawater's CSO High Rate Filtration System (HRFS) at the Gloversville-Johnstown Joint Wastewater Treatment Facility (GJJWTF) in NY. The HRFS uses patented filter media, without chemical addition, to treat CSO in wet-weather conditions and to replace conventional primary clarification. Sampling addresses both dry and wet weather conditions, focusing on TSS, BOD and pathogen removals. This presentation covers the pilot testing and operations and analysis of the results.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Squeezing More Capacity From Existing Infrastructure: Implementing IFAS at the City of Olean WWTP**  
**Michael Manning, O'Brien & Gere, Inc.; Thomas H Windus, City of Olean**  
Faced with a limited budget and substantial increase in flows and loading at the city's WWTP, the city of Olean implemented a unique solution to expanding hydraulic and biological capacity by implementing the IFAS process in existing tanks. The presentation describes the engineering evaluations and process selections to effectively utilize existing infrastructure and reduce capital cost to meet increasing process requirements.

**4:00 pm** | **Minimizing Operator Attention and Maximizing Sustainability at Lower Harbor Brook CSO Storage Facility**  
**Kate Fiorello, Robert C. Ganley, O'Brien & Gere Engineers; Eric Schultheis, Nick Capozza, Onondaga County Dept. of Water Environment Protection**  
The Lower Harbor Brook 4.9 MG CSO Storage Facility was designed under a NYSDEC consent order to mitigate CSO events. The project design was progressed with the goal of providing operator-friendly monitoring, cleaning and features, as well as marrying ecologic and economic sustainability. Instrumentation and post-event cleaning mechanisms were designed to allow automatic operation and to promote overall ease of operation and maintenance.

## **Monday, February 8, 2016**

### **Session 6 Best Practices in Water Reclamation**

**Moderators** | **Toby Siegman, NYC Dept of Environmental Protection; Lisa Derrigan, GHD**

**1:30 pm** | **Are Your Digesters Burping, Frothing, or Otherwise Not Behaving? A New Understanding of What's Actually Going on Inside Could Help**  
**John Willis, Thomas Chapman, Gary Newman, Perry Schafer, Brown and Caldwell**  
Anaerobic digesters are completely inaccessible to gain first-hand information about the processes going on inside. This means that all of our data is derived from samples extracted from the digesters and we have made inferences from those data. In this presentation, we will explore one such "convention" that if revamped, solves many of the more persistent problems in digesters: The false convention is that the contents of digesters have the specific gravity (SG) of water.

**2:00 pm** | **Sustainable Aeration Design: Right-Sizing Blowers and Aeration Systems to Facilitate Energy Efficient Operation of WWTFs**  
**Joseph Rohrbacher, Jim Cramer, Paul Pitt, Hazen and Sawyer; Diego Rosso, UCal-Irvine**  
Aeration systems are often sized based on maximum flow and load conditions whereas actual facility operational conditions are typically far below design conditions. This can result in aeration systems that are unable to efficiently meet process air demands under the majority of conditions over the service life of the equipment. This presentation will focus on the key elements of aeration system design to enable a sustainable system that operates efficiently throughout its operating life.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Challenges & Opportunities: Variable Speed Wastewater Pumping**  
**Kristel Zaman, Xylem, Inc.**  
Pumping with variable speed pumps can result in better process control, energy savings, smoother operation and reduced maintenance costs for the pump station, when applied correctly. It's important to consider all pump system and pump station aspects in order to achieve a well-operating pump station. This presentation discusses many of these aspects, focusing on system curve, pumped media, pump hydraulic characteristics, control methods, and the process requirements, to achieve reliable pumping with high overall efficiency.

**4:00 pm** | **Phased Approach to BNR Upgrades Results in Cost Effective Compliance with Long Island Sound Nitrogen Goals**

**Frederick Kincheloe, Savin Engineers, PC; Thomas Lauro, Westchester County Department of Environmental Facilities**

Westchester County, NY, developed a comprehensive nitrogen management program for its four wastewater treatment plants (Blind Brook, Mamaroneck, New Rochelle and Port Chester) that discharge to the Long Island Sound (LIS). Through a detailed evaluation, it was determined that construction at the two largest plants could potentially meet the limits along with implementing other low cost improvements. To ensure the limits were met, a phased performance-based decision approach was implemented. The presentation will review the county's facilities, the technologies considered, a detailed assessment of the technologies implemented with site specific challenges, and data showing the performance compared to the discharge goals.

**Tuesday, February 9, 2016**

**Session 7** | **Manufacturers Forum – 1**

**Moderators** | **Peter Pastore, GA Fleet; Stephen Rozewski, Bendlin**

**9:00 am** | **Urban Resilience Planning: How Ready Are You?**  
**Kristel Zaman, Xylem, Inc.**

Building resilience is a large and complex challenge that will require collaboration to share experiences, expertise, and knowledge about how to reduce vulnerability and accelerate recovery. This presentation discusses Xylem's experience and expertise partnering with coastal communities, assist with designing resilient permanent pump stations powered by submersible technology, early warning system to execute flood response plan, rapid response capability 24/7, and executing the recovery plan.

**9:30 am** | **Introducing Hybrid Depth Filtration**  
**David Chew, Omar Gadalla, Parkson Corporation**

This presentation will review the development and performance of the recently patented hybrid depth filter. The EcoWash hybrid filter utilizes a continuous filter but operates it based upon solids loading like a traditional gravity filter. Development, case studies and performance results will be presented.

**10:00 am** | **Coffee Break in Exhibit Hall**

**11:00 am** | **Distributed Odor Control: A Cost-Effective Odor Control Solution**  
**Christopher Muller, Don Apking, Purafil, Inc.**

Dry chemical scrubbers are uniquely suited for use in collection system pump stations and in wastewater treatment plants for the control of odors. They are inherently simple in their operation and function continuously without operator attention for extended periods of time. This presentation will discuss the application of dry-scrubbing technology as a solution for odor control in pump station installations and wastewater treatment plants and explain the principles of distributed odor control.

**11:30 am** | **Energy-saving Valves**  
**Fred Haines, Harper Haines Fluid Control, Inc.**

Energy Saving Valve Strategies: The cost to pump is directly tied to the cost of energy. This presentation reveals valve strategies intended to minimize power consumption at the pump house. An intelligent "decision matrix" is outlined to help in identifying the correct valve for the application.

## Tuesday, February 9, 2016

### Session 8

## The Onondaga Lake Watershed: A Collaborative Clean Up

(Developed by the Public Education Committee)

#### Moderators

**Tia Trate, Black & Veatch; Steven Mach, Woodard and Curran**

9:00 am

### Implementing a Collaborative Plan for the Onondaga Lake Watershed

**Aimee Clinkhammer, NEIWPCC**

Onondaga Lake has recently seen significant progress due to the combined efforts of key stakeholders in addition to the unique partnerships between federal, state and local entities as well as private corporations, residents and lake users. This presentation will highlight how governments, at all levels; non-profits; interest and user groups; and environmental organizations can work together to accelerate change.

9:30 am

### Whole-lake Nitrate Addition for Control of Methylmercury in Mercury-Contaminated Onondaga Lake, NY

**David Matthews, Anthony R. Prestigiacomo, Upstate Freshwater Institute; David B. Babcock, John G. Nolan, Parsons**

A whole-lake nitrate addition pilot test was conducted in mercury-contaminated Onondaga Lake, NY, during 2011–2013 with the objective of limiting release of methylmercury (MeHg) from the profundal sediments through maintenance of nitrate concentrations > 1 mgN/L. A liquid calcium-nitrate solution was added to the hypolimnion as a neutrally buoyant plume approximately three times per week during the summer stratification interval. Maximum hypolimnetic concentrations of MeHg decreased 94% from 2009 levels.

10:00 am

**Coffee Break in Exhibit Hall**

11:00 am

### Progress and Public Participation with the Cleanup of Onondaga Lake

**John McAuliffe, William Hague, Victoria Streitfeld, Honeywell; Craig Milburn, Brown & Sanford Consulting LLC**

More than 100 years of industrial development and a growing urban population, which led to increases in sewage and industrial discharges, took their toll on Onondaga Lake's water quality. Following decades of investigation, evaluations, and engineering design, Honeywell, a successor to Allied Signal, began the cleanup of Onondaga Lake in 2012.

11:30 am

**TBA**

## Tuesday, February 9, 2016

### Session 9

## Microturbines and Biogas

#### Moderators

**Jennifer Franco, AKRF; Wendi Richards, Siewert Equipment**

9:00 am

### Why Microturbines Are Emerging as CHP Solutions

**Lauren Ray, GEM Energy**

Commercially-viable microturbines entered the market over 15 years ago with early installations at wastewater treatment plants in NY and across the world. The confirmed benefits of microturbines over alternate CHP technologies, such as traditional reciprocating internal combustion engines, include resilience to hydrogen sulfide, streamlined utility interconnection, low air emissions/noise/vibration by design, and a lower lifecycle cost. All the important characteristics of a digester gas-fueled CHP system are presented, including a 7-MGD plant lifecycle cost analysis.

9:30 am

### Converting Biogas into Energy and Vehicle Fuel

**Eric Wilgenbusch, Unison Solutions**

Utilizing biogas as a source of fuel for producing electricity, heat and vehicle fuel is not a new concept, but it can be confusing. This presentation will discuss all facets of a biogas-to-energy project, from the suitability factors needed to start a project to the equipment and technologies available. We will also present case studies of ten different sites that have been operational for many years.

10:00 am

**Coffee Break in Exhibit Hall**



**11:00 am** | **Got Gas? Use It for Vehicle Fuel under EPA’s Updated Renewable Fuel Standard**  
**John Willis , Brown and Caldwell; David Babson, Union of Concerned Scientists; Cynthia Finley, National Associations of Clean Water Agencies; Steven Marshall, City of St. Petersburg, FL**  
USEPA recently determined that renewable CNG derived from WWTP digester gas and used for vehicular fuel qualifies for *both* cellulosic *and* advanced RINS increasing the value of the environmental attribute from approximately \$1.00/GDE to \$1.60/GDE; this value being in addition to the value of the fuel itself. This presentation will summarize the rule change, recent pricing trends, and provide an example of the extremely high value proposition in the form of a case study on the city of St. Petersburg, FL.

**11:30 am** | **WWTP Microturbine Cogeneration Facility: Improving Plant Energy Efficiency**  
**Stephen Hadjiyane, Amily Zhang, Gannett Fleming Engineers; Christopher Murphy, Great Neck Water Pollution Control District**  
The Microturbine Cogeneration Facility (MCF) consists of two 65-kW microturbines. The MCF increases the plant’s energy efficiency and reduces plant-wide purchased power by \$110,000 or 0.6 million KWh annually. The MCF waste heat is utilized to heat the digesters and building working space. The MCF aluminum canopy also includes 13-kW solar panels. VOC, siloxanes are removed by a biogas conditioning system to meet fuel specifications.

## **Tuesday, February 9, 2016**

### **Session 10 Plant Operations: Repairs and Safety Considerations**

**Moderators** | **Fotios Papamichael, Gannett Fleming; William Nylic, CDM Smith**

**9:00 am** | **Teamwork Spells Success for Critical Repair at North River**  
**Terence McCormick, ARCADIS; Ronald Lochan, Ajay Desai, NYCDEP; Sanjay Bhardwaj, Sheela, Inc.**  
The North River Water Pollution Control Plant is exhibiting signs of settling and resultant localized failure, which triggered a failure of the expansion joint assembly in one of the plant’s effluent channels. NYCDEP’s Job Order Contracting System was utilized to implement an interim repair, on an expedited basis. This presentation will discuss the design, testing and implementation of the repairs, focusing on the teamwork needed to succeed.

**9:30 am** | **Where There is a Leak There is a Way! The Story of Bowery Bay Emergency Pump Around System**  
**Vijesh Karatt Vellatt, Nicole Spieles, Greeley and Hansen; Steve Elie-Pierre, Vincent Kopicki, NYC Department of Environmental Protection**  
This presentation details the united, relentless effort by all stakeholders including NYCDEP, Engineer of Record, Construction Manager and Contractor working together to construct the emergency pump around system at Bowery Bay WWTP thereby maintaining the plant’s pumping capacity to within regulatory requirements. Various interim steps and details in design of this pump-around system to help concurrently manage the plant operation and construction are discussed. The presentation also outlines the design and modifications that were required to the original project due to this emergency work and how it was achieved.

**10:00 am** | **Coffee Break in Exhibit Hall**

**11:00 am** | **Lessons Learned on the Installation of a Site-wide Fire Alarm System on a Large Operating WWTP**  
**Robert Ivers, CB&I; Nat Federici, NYC DEP, Vincent Tomarch, Hazen and Sawyer**  
In this presentation, we take a look at the major efforts required in the construction life cycle (planning, design, construction, operations) of a complex campus, networked fire alarm system at a major wastewater treatment plant. We will share critical lessons learned for other facilities that require fire alarm systems in multiple buildings operating in high hazard environments, where the systems must meet strict agency (FDNY) requirements and pass inspection.

**11:30 am** | **Designing for Safety: Getting It Right for the Operator**  
**Wayne Heinemann, CH2M HILL**  
“Every person going home safely every night” is a pointed summary of the fact that all parties agree that safety is one of the highest priorities in facility management. To achieve this objective, modern safety theory specifies the concept of the “Safety Precedence Sequence” which establishes the importance of controls. Real life examples and case studies from both private and publically own facilities will be selected from Asia, the Middle East, Canada and the U.S. and presented from an operator’s viewpoint.

## Session 11

## Tuesday, February 9, 2016 Building a Resilient Future

**Moderators**

**Donna Hager, Macan Deve Engineers, DPC; Janine Witko, Arup**

**9:00 am**

### **Achieving Resiliency Goals through Comprehensive Vulnerability Assessment and Flexible Adaptation Planning**

**Anni Luck, Laura Bendernagel, Hazen and Sawyer; Thomas Lauro, Michael Coley, Westchester Department of Environmental Facilities**

Walk through a proven resiliency framework that enables an efficient and comprehensive vulnerability assessment while allowing for flexible adaptation planning that accommodates varying stakeholder, budgeting, and scheduling constraints. The analysis performed for the Port Chester WWTP will be used as a case study to demonstrate how the framework was used to develop three robust adaptation plans. Detail regarding the alternative plans, including advantages and challenges, will be discussed to highlight how each balances different stakeholder requirements while addressing plant vulnerabilities.

**9:30 am**

### **Paying for Superstorm Sandy: Nassau County FEMA and CDBG-DR Funding**

**Christopher Nolan, Rob Walker, Rich Millet, Nassau County; Daniel Gerrity, CG-3PL Engineering DPC**

Superstorm Sandy made landfall on October 29, 2012, which included a Category 3 Hurricane and caused severe damage to Nassau County. The county has worked to identify the damages and losses caused to public facilities, residents and businesses. The county's intent is to rebuild and repair our community, incorporating mitigation practices to reduce future risk to the population and infrastructure. For this, Nassau County has received more than \$1 billion in CDBG and FEMA funds.

**10:00 am**

### **Coffee Break in Exhibit Hall**

**11:00 am**

### **Post-Disaster Rebuilding for Resiliency**

**Cynthia Addonizio-Bianco, Tetra Tech Inc., William C. Harding, NY DOS**

As a result of recent severe storms and their impacts, the need for effective reconstruction planning focused on long-term resilience is apparent. One approach to recovery is based on strengthening community resilience utilizing a planning process in cooperation with community members. This presentation will include examples of resiliency recommendations from recently completed NY Community Resilience Plans including projects developed to fuel resilience in the wake of devastation from Hurricanes Irene, Sandy and Tropical Storm Lee.

**11:30 am**

### **A Resilient Facility for the Future: Hannah Street Pump Station**

**Michael Loehr, Patrick O'Connor, Roy Tysvaer, Vincent Sapienza, NYC DEP**

As part of the Hannah Street Pump Station Upgrade, the In-House Design (IHD) team integrates a number of hardening measures into the project that would make the pump station much more resilient in the future. These include the use of dry-pit submersible pumps, relocation of electrical equipment up above Critical Action Floodplain Map Elevation (500-year<sup>+</sup> wave action), raising dry well entrance, addition of an emergency generator, as well as the use of immersible grinders.

## Session 12

**Tuesday, February 9, 2016**

### **Water Reclamation from Conception to Operation: Siting, Piloting, Repairing and Managing Assets**

(Developed by the Young Professionals Committee)

**Moderators**

**Tucker Cox, CDM Smith; Lindsay Ostrander, Delaware Engineering**

**9:00 am**

#### **Geotechnical Investigation for Green Infrastructure Goes to the Cloud Molly O'Connor, Black & Veatch**

The NYCDEP Office of Green Infrastructure (OGI) contracted Black & Veatch to perform a geotechnical investigation for over 350 Right-Of-Way Bioswale (ROWB) locations. This presentation will discuss how mobile and cloud technologies were used to maximize efficiencies, overcome challenges and provide a platform to access the information. The presentation will also discuss lessons learned and how the technology and processes that were used can be streamlined for future opportunities.

**9:30 am**

#### **How Low Can You Go? A Pilot Study Evaluating Total Chlorine Residual Needed to Achieve Fecal Coliform Standards and Anticipated Enterococcus Discharge Standards Sean Ferrarini, CDM Smith**

Limiting total residual chlorine (TRC) in wastewater effluent is advantageous from both environmental and economic perspectives. This presentation provides an update on a pilot study conducted by the New York City Department of Environmental Protection evaluating disinfection of low ammonia effluent. The pilot evaluated the chlorine doses required to reduce coliform and enterococcus levels in secondary effluent at the Hunts Point Wastewater Treatment Plant, before and after glycerol addition, using a variety of control strategies.

**10:00 am**

**Coffee Break in Exhibit Hall**

**11:00 am**

#### **Emergency Leak Assessment and Construction Management Support: The Bowery Bay WWTP Jon Pepe, Hazen and Sawyer**

February of 2015 DEP identified a leak to Header A of the Bowery Bay High Level Main Sewage Pump Discharge pipe. This header conveys 50 to 150 MGD of sewage a day. It is approximately 40 years old and is 25 feet below ground. This presentation will discuss the challenges of assessing and providing emergency repairs to critical conveyance in difficult to access locations.

**11:30 am**

#### **Asset Risk Scoring and Condition Assessment Timothy Taber, Barton and Loguidice**

In the context of Asset Management, Risk is defined as an asset's Likelihood of Failure (LoF) multiplied by its Consequence of Failure (CoF), with typical consequences being financial, health and human safety, regulatory non-compliance, and community perception. Onondaga County has established the criteria for assessing these values for its assets, and has been applying these to its large asset base. To help determine the likelihood of failure a comprehensive asset condition assessment program has also been created.

## Session 13

**Tuesday, February 9, 2016**

### **Manufacturers Forum – 2**

**Moderators**

**Randy Ott, GP Jager; Gregg Palmer, Koester Associates**

**1:30 pm**

#### **No Match for These Monsters: Game-Changing Technology for Eliminating the Wipes Nightmare Greg Guard, JWC Environmental**

This presentation will discuss the importance of the JWC Environmental new Wipes Ready units for maintaining the integrity of pumps and treatment equipment within pump stations and resource recovery facilities. Attendees will hear an in-depth overview of the products, the methodology behind the research and testing phases, and how these units have already begun to alleviate the clogging and breakdown of pumps due to tough, non-dispersible debris.

**2:00 pm** | **Screening and Grit Removal Equipment for CSO Tunnel Systems**  
**James Willson, Jim Ireland, Fairfield Service Company**  
CSO tunnel systems have become a best-practices means of collecting combined sewer overflows for large municipal systems which also have available capacity to treat the overflows at their wastewater treatment plant(s). The tunnel is used to store the overflows and pumps are used to meter the mixed wastewater to the plant during low-flow periods. Standard practice, as with most large pumping systems, is to provide a means of screening debris upstream of the pumps, in order to protect those pumps. Depending on the geography and topography of the combined sewer system, the tunnel system, usually 15 feet to 20 feet in diameter, can be miles long and up to about 350 feet deep at the downstream end of the system. Since the tunnel, in effect, is used as a wetwell upstream of the pumps and can have extended times with static storage, the removal of the debris presents unique problems for the removal equipment design.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Successful Application of VigorOx® WWT II Peracetic Acid for Wastewater Disinfection**  
**Philip Block, PeroxyChem**  
Factors will be discussed for the successful application of peracetic acid to wastewaters for disinfection. Case studies will be provided that demonstrate delivery and performance at WWTPs with varying wastewater quality. Economic assessment on the use of peracetic acid will be discussed in terms of using peracetic acid as an alternative wastewater disinfection technology.

**4:00 pm** | **Diaphragm Metering Pumps vs. Peristaltic Hose Pumps: “ How They Compare and Where They Fit**  
**Tony Karalis, ProMinent Fluid Controls, Inc.**  
There are many options available for chemical injection equipment. The decision as to the best option for the particular application is the ultimate objective. This presentation will compare and contrast the diaphragm metering pump with the peristaltic hose pump to bring clarity to the decision-making process. Discussion will center on mode of actuation of each, advantages and disadvantages, and where the best fit is for a given application.

## **Tuesday, February 9, 2016**

### **Session 14 Waste Reclamation Process Operations**

**Moderators** | **Camie Jarrell, GHD; Rob Sharp, Manhattan College**

**1:30 pm** | **University Conference Center’s Unique Membrane Filtration Plant**  
**Naomi Jones, Fraser Kent, H2O Innovation; Wendi Richards, Siewert Equipment;**  
**Karen Clark Clough, Harbour and Associates**  
A pre-engineered 5,000 GPD wastewater treatment system was selected to meet low BOD (5 mg/l) and TSS (6 mg/l) values and low nutrient limits at an intermittent use conference center at a major university. The treatment system consists of mechanical screening, flow equalization, anoxic zone, aerobic zone via integrated fixed film activated sludge (IFAS) aerator, solids separation zone via membrane filtration, disinfection and sludge digestion. The IFAS aerator is a unique energy saving feature used instead of aeration blowers.

**2:00 pm** | **Suffolk County Sludge Odor Control Program at Bergen Point Wastewater Treatment Plant**  
**George Deshinsky, Paris Neofotistos, Afsary Ahmed, USP Technologies;**  
**Doug Haussel, Suffolk County Bergen Point Wastewater Treatment Plant**  
A full-scale field demonstration was initiated in February 2014, by the Suffolk County Department of Public Works (SCDPW) to quantify the impacts of Peroxide Regenerated Iron-Technology (PRI-TECH®) as a more economic approach in maintaining odor control in the solids handling phase of the Bergen Point Wastewater Treatment Plant. Based on the first full year of operation, the annual savings realized were \$645,828 over the previous potassium permanganate (KMnO<sub>4</sub>) cost.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Keeping the Turbo Blower Gleam Glowing Brightly, How to Cash in on Energy Savings and Save Space While Avoiding Pitfalls**  
**Julie Gass, Black & Veatch**  
Turbo blowers took the aeration blower market by storm as they revolutionized the industry with promises of energy savings even for medium to smaller systems, non-contact bearings, lubricant-free machines and almost no moving mechanical parts. However, their gleam has begun to grow dim for some plants that have had significant problems keeping these machines running. Criticality to maintain operation, is selecting the proper blower technology for the application, prequalifying the vendor(s), and including the right enhancements.

**4:00 pm** | **Are You Up or Are You Down with Denitrification Filters: Case Studies on Upflow and Downflow Filters**  
**John Revette, GHD**  
This presentation will review and compare continuously backwashing upflow filters and intermittent backwash down flow denitrification filters for performance and as it relates to meeting requirements of enhanced nutrient removal (ENR) through denitrification and the removal of total phosphorus.

## **Tuesday, February 9, 2016**

### **Session 15 Biosolids – 1**

**Moderators** | **Beth Petrillo, NYCDEP; Greg Lavasseur, H2M**

**1:30 pm** | **Gravity Belt Thickening**  
**Dan Fronhofer, BDP Industries**  
Gravity Belt Thickener (GBT) technology is an established practice for thickening solids in wastewater treatment processes. What are the driving trends behind the current popularity? There are a number of discussion points regarding the design, application, performance, maintenance, and access of the GBT and the associated supporting system. From odor control to unattended operation, all aspects regarding GBTs will be covered, along with a comparison to other established thickening technologies.

**2:00 pm** | **Conversion from In-vessel Compost to Aerobic Digestion for Production of Class A Biosolids**  
**Eric Haslam, GHD; Robert Wooldridge, Thermal Process System; Gordon Eddington, City of Geneva**  
The City of Geneva experienced deficiencies in solids handling processes at the Marsh Creek Wastewater Treatment Plant (WWTP). A conversion of the existing anaerobic digestion and compost process was retrofitted with a new aerobic digestion process that produces Class A biosolids. The project was performed under Article 9-Energy Performance Contracts of New York State Energy Law, which allowed design and construction of the new systems as a design-build project.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Benefits of Class A (EQ) Biosolids Production and Nutrient Resource Recovery via Anaerobic Digestion**  
**Nate Carr, Quasar Energy Group**  
Quasar's presentation will discuss nutrient resource recovery and the successful management, processes and equipment utilized to achieve Class A (EQ) biosolids. We will define Class A (EQ), how it impacts nutrient resource recovery facilities, how we achieve Class A (EQ) status and what differentiates our process from other available methods. We will also go into detail concerning the benefits and the challenges we have faced, including public acceptance of Class A versus Class B biosolids.

**4:00 pm** | **Commissioning the First Thermal Hydrolysis Fed Digesters in North America**  
**Peter Loomis, Engin Guven, CDM Smith**  
Breaking ground, the startup of the first THP process in North America provides unique insight to utilities and consultants who are considering using this technology to produce Class A biosolids. This presentation provides a road map that can be used to understand the parameters to be monitored and acceptable ranges to prevent digester upset during the startup of thermally hydrolyzed sludge digesters.



## Tuesday, February 9, 2016

### Session 16

#### Plant Operations: Process and Equipment Design

Moderators

**Ron Delo, Dvirka & Bartilucci; Cliff Pomerantz, Greeley & Hansen**

1:30 pm

**Maximizing Total Nitrogen Removal Using the Dual Operating Mode Process**  
**Paul Dombrowski, Woodard & Curran**

Existing activated sludge facilities that are converted to achieve total nitrogen (TN) removal are often challenged by the conflicting conditions of operating at high mixed liquor concentrations and wet weather flow conditions. The presentation will provide a step-wise description of plants using a Dual Operating Mode Approach to maximize TN removal during dry weather conditions while maximizing wet weather treatment capacity. The presentation will also provide full scale plant data using these techniques.

2:00 pm

**Mattabassett District Water Pollution Upgrade Project is Completed**  
**John Braccio, Wright-Pierce**

The Mattabassett District WPCF Upgrade Project is one of the largest wastewater upgrade projects in Connecticut over the past several years. The design capacity was increased by 75% with enhanced nitrogen removal. This presentation will provide an overview of the challenges to complete this multi-year project, as well as the innovative nitrogen removal facilities to achieve a total nitrogen concentration less than 4.0 mg/l, other unique features, and a new fluidized bed incinerator to meet new SSI rules.

2:30 pm

**Coffee Break in Exhibit Hall**

3:30 pm

**Designing with Operations Top of Mind: Best Practices in Clarification Process Design**  
**Dimitri Katehis, Matt O'Connor, Greeley and Hansen; Krishnamurthy Ramalingam, Savvas Xanthos, City College of New York; Allen Deur, NYC DEP, Bureau of Wastewater Treatment**

Inclusion of a specific set of design features within primary and secondary clarifiers has been shown to increase operational resiliency and capacity. This presentation focuses on flow distribution, inlet structures, intermediate baffles and effluent weirs, using examples from recent evaluations and designs at New York City's wastewater treatment plants.

4:00 pm

**Modeling Mimics Reality: Hydraulic Model Leads to Pumping Operations Tool at the 26th Ward WWTP**

**Robert Frost, Kristen Barrett, Hazen and Sawyer; Robert D'Attille, Daniel Solimando, NYCDEP**

Performance evaluation of the main sewage pumps (MSPs) to confirm that the system was performing as designed. Three evaluations compared the operation to the design: (a) calculation of TDH from collected field data to compare new and existing pumps to predicted curves, (b) pressure at the common discharge header and friction loss from the pump discharge to the Venturi flow meter, and (c) comparison of collected data to the hydraulic model used in the design of the pumps.

## Tuesday, February 9, 2016

### Session 17

#### Managing Water in the Watershed

Moderators

**Jeff Butler, Dvirka & Bartilucci; Gregory Liberman, Environmental Design & Research**

1:30 pm

**Clean Water Planning and TMDL Vision**  
**Karen Stainbrook, NYS DEC**

The New York State Department of Environmental Conservation (DEC) is implementing EPA's New Vision for setting water quality-based priorities and using the best tools to implement Clean Water Planning. DEC's approach is adaptive, systematic and integrates local, state and federal information. DEC is focusing on nutrients, pathogens and dissolved oxygen in higher-class waters for Clean Water Planning.

2:00 pm

**The Benefits of an Integrated Watershed Approach to Nutrient Management**  
**Jeff Herr, Brown and Caldwell**

There are many sources of nutrients in a watershed potentially including point sources such as municipal and industrial wastewater discharges, non-point sources such as stormwater runoff, septic systems, groundwater, and internal recycling from surface water sediments. To improve surface water quality it is extremely important to identify and quantify all sources and magnitudes of nutrients. The primary sources of nutrients can then be identified and the most cost-effective and sustainable solution can be implemented.

**2:30 pm** | **Coffee Break in Exhibit Hall**

**3:30 pm** | **Alternative Porous Surfaces and Storage: Applications for Energy Infrastructure and Beyond**  
**Carolyn Bean, Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, DPC**

This presentation demonstrates how to use standard stormwater management techniques to create a non-standard system and reduces valuable project area sacrificed to stormwater management. To that end, EDR, a private consulting firm, collaborated with SUNY College of Environmental Science & Forestry students to fashion a demonstration project that incorporates stormwater management cross-section materials for National Grid, a major utility company, and the New York State Department of Environmental Conservation, a regulatory agency.

**4:00 pm** | **Using Existing Municipal Pond and Stream Retrofits to Improve Habitat, Water Quality, and Flood Control**

**Jeff Herr, Brown and Caldwell**

Growth in suburban metro Atlanta has resulted in the removal of riparian buffers, severe in-stream erosion from altered hydrology, and excess sedimentation in lakes. This project involved utilizing an existing county-owned pond to improve water quality, habitat, biology, and the overall condition and health of Pounds Lake, its two tributaries and downstream waterways. The project included a Priority 1 and 3 stream restoration and removal of over 30,000 cubic yards of sediment from the lake.

## **Tuesday, February 9, 2016**

### **Session 18**

**University Forum** – Papers and Posters to be Posted by 12/1/15

**Moderators**

**Stefan Grimberg, Clarkson University; Krish Ramalingam, CUNY**

**Program forthcoming**

### **University Forum Poster Session**

Poster presenters will be at their poster from 2:40 pm–3:20 pm. Posters will be set up by 1:00 pm and removed by 5:00 pm.

## **Wednesday, February 10, 2016**

### **Session 19**

**Ethics/Environmental Compliance**

**Moderators**

**Kara Pho, CH2M HILL; David Stahl, HDR**

**9:00 am**

**Strategic, Efficient and Meaningful Environmental Reviews:**

**A Primer for Designers and Project Managers**

**Margaret Hopkins, George Penesis, AKRF, Inc.**

This presentation will explore several case studies as a way of illustrating best practices for environmental planning, review and permitting – under the New York City Environmental Quality Review Act (CEQRA), the New York State Environmental Quality Review Act (SEQRA), the National Environmental Policy Act (NEPA), and a range of resource-specific regulations – as well as the creative interplay between the environmental review and design teams that leads to rewarding and successful outcomes.

**9:30 am**

**EPA Compliance Audits of Municipal Separate Storm Sewer Systems (MS4s)**

**Kimberly McEathron, United States Environmental Protection Agency**

Through a coordinated effort with the NYSDEC, EPA has conducted over 30 MS4 audits across NYS in the past six years. As a result of these audits, lessons have been learned regarding what challenges municipalities face and overcome to comply with the permit. This presentation will outline EPA Region 2's MS4 audit program as well as discuss common deficiencies observed and key elements of successful MS4 programs, including examples of green infrastructure.

**10:00 am**

**Coffee Break**

**10:30 am** | **Ethics for Wastewater Operators: The Rules You *Need* to Know!**  
(1 Hour) | **John Mancini, New York State Conference of Mayors (NYCOM)**

Municipal officials now more than ever are under the proverbial microscope. The public is watching and they demand that local officials and employees hold themselves to a high standard. This session will address many of the most frequently asked questions related to municipal ethics. Topics will include Gifts; Use of Municipal Equipment; Nepotism; Appearance of Impropriety; Electronic Communications, as well as the recent change to the NYS Lobby Act.

## **Wednesday, February 10, 2016**

### **Session 20**

#### **Biosolids – 2**

**Moderators** | **Jeff LeBlanc, WeCare Organics; Roy Zimmerman, WASTE, Inc.**

**9:00 am** | **Thermal Hydrolysis Comes to Texas!**  
**Samir Mathur, CDM Smith**

This presentation will detail the multiple benefits offered by thermal hydrolysis prior to mesophilic digestion, and the path from planning to implementation of this new process at the CRWS WWTP. This project will be the second thermal hydrolysis installation in the United States. With several large utilities in the U.S. currently investigating thermal hydrolysis, owners will benefit from lessons learned in overcoming the challenges associated with retrofitting a large but site-limited facility such as the CRWS WWTP.

**9:30 am** | **Next Generation ATAD Philosophy and Startup Lessons**  
**Scott Crosswell, Howard Butler, GHD**

The presentation will be a description of the ATAD process and design considerations. In addition, an account of GHD Pennsylvania's experience with two different ATAD startups, including specific critical success factors will be provided.

**10:00 am** | **Coffee Break**

**10:30 am** | **Does Your Anaerobic Digester Have Capacity for Co-Digestion**  
**Mark Greene, O'Brien & Gere**

Anaerobic digesters in publicly-owned treatment works are a key tool in the quest for energy-neutral water resource recovery (aka, wastewater treatment). They are excellent candidates for co-digesting treatment residuals (sludge) with other degradable waste sources. The strengths of anaerobic digestion include: a green/sustainable process, small carbon footprint, potential for tipping fee collection, and proven technology. The weaknesses of anaerobic digestion include: use of a biological process, and the need for management of residual sludge/digestate for disposal.

**11:00 am** | **Retrofitting Existing Digesters at Middletown, NY, for High Strength Organic Waste Acceptance**  
**George Bevington, Gerhardt, LLC; Dennis Clough, Energy Systems Group;**  
**Jacob Tawil, Middletown DPW**

Across the United States, municipal utilities have invested millions into anaerobic digesters that are underutilized. Meanwhile, generators and haulers of organic wastes are looking for cost-effective and reliable disposal sites. Connecting the utility with existing digester capacity with businesses with organic wastes creates a mutually beneficial relationship opportunity. Learn about a 4 MGD treatment facility that will use its existing capacity to become net energy zero and increase annual revenues.

## Wednesday, February 10, 2016

### Session 21

## Plant Operations: Evaluating Systems and Equipment

Moderators

Alex Wright, ClearCove Systems; Thomas Raihl, HAKS

9:00 am

### Keys to Building a Successful and Sustainable Electronic Operations Management System That Operators Will Use

Allan Scott, Lance Salerno, Brown and Caldwell

In recent years, many utilities have implemented electronic operations management systems (eOMS) as a dynamic platform to capture undocumented institutional knowledge about their facility operations while providing the classical function of an operations manual. This discussion presents a simple method for implementing the eOMS and provides recommendations for keeping the information up to date. An overview of an eOMS is provided, including case studies that showcase how some utilities are addressing this issue.

9:30 am

### Process Monitoring of Nitrate, Nitrite, and COD with Optical Spectral Sensors

Robert Smith, YSI / Xylem

The purpose of this presentation is to demonstrate with customer data the benefits of online process monitoring of nitrate, nitrite, and COD. The presentation will describe the motives and experiences for utilities that have trialed or purchased spectral sensors. Common applications for optical spectral sensors are anoxic zone nitrate monitoring, influent organic load monitoring, short-cut nitrogen removal process nitrite monitoring, and external carbon dosing control for nitrogen and phosphorus removal.

10:00 am

Coffee Break

10:30 am

### Pilot Scale Testing of Chloramination as an Alternative Disinfection Method to Achieve Permit Requirements

Xin Xu, Krish Ramalingam, John Fillos, The City College of New York, Civil Engineering Department; Allen Deur, Mauro Orpianesi, Nicole Than, New York City, Department of Environmental Protection

New York City Department of Environmental Protection (NYCDEP) has set up a pilot scale disinfection facility at the Hunts Point Wastewater Treatment Plant. Chloramination as an alternative to chlorine was studied by CCNY at the pilot. Factors affecting chlorine dosage and demand, chemical species distribution, and mechanical mixing were examined along with the impact on disinfection efficiency using fecal coliforms and enterococcus as the indicator organisms.

11:00 am

### Wastewater Disinfection in the 21st Century: Challenges and Opportunities

Samuel Jeyanayagam, CH2M HILL

This presentation will review the various candidate-disinfectants, process fundamentals, design and operating challenges, and disadvantages/disadvantages. In addition, four representative case studies and published information will be used to demonstrate how disinfection efficacy can be enhanced by: (i) improving system design and operation; (ii) implementing a hybrid system involving multiple disinfectants; and (iii) using an emerging disinfectant. The presentation will also outline the regulatory framework and USEPA's thought process with respect to the emerging coliphage (virus) criterion.

## Wednesday, February 10, 2016

### Session 22

## Asset Management

Moderators

Robert Frost, Hazen and Sawyer; Eva Rippeteau, Fitch Ratings

9:00 am

### Operating Expenditures Analysis NYCDEP BWT- FY2012-2015

Taylor Evans, James G. Mueller, Nesive Bell, Joely Delarosa, NYC Department of Environmental Protection Bureau of Wastewater Treatment

Leveraging the large amount of data collected by NYC DEP BWT, a system for tracking Operating Expenditures was developed. These consist of Personnel, Chemical, Energy, Biosolids/Residuals, and Service/Maintenance Contracts for WWTPs, Collections, Marine, and Landfills. This presentation seeks to reveal key findings from the FY2012-2015 Operating Expenditures Analysis. These reports continually assist in identifying best practices that can be applied to facilities system-wide, as well as support capital planning efforts to direct future investments.

**9:30 am** | **Water and Wastewater District Consolidation: A Case Study of Hyde Park, NY**  
**Erin Moore, Tighe & Bond, Inc.**  
The town of Hyde Park has been striving to improve delivery of water and sewer services to their residents. Working toward this goal, the town joined with the Dutchess County Water and Wastewater Authority (DCWWA) to secure funding through a Local Government Efficiency Grant, to determine if transferring ownership and management of the town's existing water and sewer districts to the DCWWA can improve efficiency, reduce costs and ensure positive outcomes for the town's residents.

**10:00 am** | **Coffee Break**

**10:30 am** | **When a Better Utility is the Best Utility:  
Performance-Based Benchmarking and Routine Check-ups**  
**Carter Strickland, Bryon Wood, Elizabeth Lowell, Minelly DeCoo, HDR**  
This presentation provides utility executives with actionable tools to develop and execute a strategic vision, to identify and fix underperforming operational and organizational areas, and to become a high-performing utility that is ready for current and future challenges.

**11:00 am** | **Making Real Progress in Organizational Improvement: Moving from a Study to Results**  
**Seth Garrison, Woodard & Curran; Mark Lowenstine, Polk County Utility Operations**  
The Polk County Utilities Division (PCUD), under new management, implemented sweeping changes to increase performance. Several of the changes apply Effective Utility Management (EUM) principles and practices. This presentation will reveal the tools and techniques used by PCUD to improve performance from over the last 5 to 7 years. It will explain what worked and what didn't work and how these techniques could be applied to other utilities seeking to become more effectively managed and operated.

## **Wednesday, February 10, 2016**

### **Session 23 Stormwater Management Using Green Infrastructure**

**Moderators** | **Carol Tschudi Walczyk, Hatch Mott MacDonald; Domenica Stasiak, CH2M**

**9:00 am** | **Hurdling Green Infrastructure Barriers: Examples from Programs around the Region**  
**Ray Hyland, Brown and Caldwell**  
Green Infrastructure (GI) has come to the forefront of managing wet weather for cities across the country. Over the past decade, regulatory agencies have increased support for GI and it is now a requirement in stormwater permits and CSO consent decrees. In fact, these requirements are tied to strict deadlines and performance metrics that pose new challenges for future programs. This study presents barriers in planning, design, performance and maintenance of GI and provides examples of how some cities and municipalities are handling them.

**9:30 am** | **University Campuses Leading the Way in Green Infrastructure Practices  
for Storm Water Treatment**  
**Greg Liberman, Environmental Design & Research Landscape Architecture, Engineering &  
Environmental Services, D.P.C.; Karl Korfmacher, Enid Cardinal, Chris Furnare, Rochester Institute  
of Technology**  
This presentation will illustrate by example how to better implement and maintain green infrastructure practices for storm water management.

**10:00 am** | **Coffee Break**

**10:30 am** | **Stormwater Enhancements Using Green Infrastructure: Alewife Wetland Case Study,  
City of Cambridge DPW**  
**Matt Wilson, Emerson Olander, William C. Pisano, MWH; Owen Riordan, City of Cambridge  
Department of Public Works**  
Pursuant to EPA's Boston Harbor Cleanup goals, the city of Cambridge, MA, has implemented what's been deemed the 'gem' of its stormwater management program – the Alewife Stormwater Wetland, – which will significantly improve stormwater quality by (1) managing system hydraulics and thereby reducing CSO discharges via the provision of a 10.3 Ac-ft wetland storage and peak flow attenuation system, including strategic passive controls; and (2) facilitating treatment of raw stormwater via settling, physical filtration, and plant uptake.



**11:00 am** | **Marrying Green and Grey Infrastructure to Meet Stormwater Capacity Needs in Alexandria, VA**  
**Kate Mennemeyer, Cheri Salas, Laurens van der Tak, CH2M HILL;**  
**Brian Rahal, City of Alexandria, VA**

This presentation focuses on balancing the use of green and grey solutions to solve existing and projected future capacity limitations. The results of hydrologic and hydraulic modeling developed for this project were used to identify problem areas and develop solutions. Three types of potential solutions, green infrastructure, storage, and conveyance, were considered to reduce flooding and, secondarily, achieve pollutant load reduction and other ancillary benefits.

### **Wednesday, February 10, 2016**

## **Session 24** | **Optimizing Our Wet Weather Resources**

**Moderators** | **Robert Albright, Hatch Mott MacDonald; Vatche Minassian, ARCADIS**

**1:30 pm** | **Following Microplastics Pollution in New York State Water Bodies**  
**Joshua Kogan, United States Environmental Protection Agency**

This presentation will first utilize local scientific studies (Hudson River, NY/NJ Estuary) to establish the scope of microplastics pollution. Then it will analyze both effective and ineffective upstream and end-of-pipe MS4 and CSO floatables reduction and capture methodologies, with focus on local urban case studies. Green Infrastructure as a floatables reduction practice will also be presented.

**2:00 pm** | **New York City Municipal Separate Storm Sewer System (MS4) Program:  
Citywide Stormwater Management Plan Development**

**Pinar Balci, Floren Poliseo, Shree Collins, NYC DEP; Carrie Noteboom, City Law Department**

New York City recently received a new Citywide Municipal Separate Storm Sewer System (MS4) permit, as required under the Clean Water Act. Accordingly, New York City will be developing a citywide Stormwater Management Program Plan that addresses public education and participation, illicit discharges, construction and post-construction sites and pollution prevention for municipal facilities and operations. In addition, the permit requires an industrial user and industrial source control program, and a program to control floatable and settleable trash and debris. DEP and an interagency team are coordinating and implementing these tasks which will require a united annual reporting effort.

**2:30 pm** | **Coffee Break**

**3:00 pm** | **Optimization of In-System Storage and Conveyance in Buffalo, NY**  
**Timothy Ruggaber, EmNet, LLC; OJ McFoy, Buffalo Sewer Authority**

By utilizing the unused capacity of its current infrastructure, the Buffalo Sewer Authority will reduce its annual overflow volume by more than 423 MG, while saving tens of millions of dollars in capital infrastructure improvements. The design and implementation of its initial two inline storage locations is paving the way towards implementing a robust RTC system that is able to squeeze every ounce of potential out of its collection system.

**3:30 pm** | **Applying Gauge Adjusted Radar Rainfall to Evaluate CSO Facility Performance**  
**Thomas Newman, Michael McMahan, HDR; Keith Mahoney, King Wong, NYCDEP,  
Bureau of Wastewater Treatment**

Historically, performance analyses of New York City's sewer collection-system facilities have utilized precipitation measured at the "nearest rain gauge." However, the actual timing, amount, and geographic distribution of rainfall over a catchment can differ significantly from measurements at a particular gauge, and this can significantly impact the performance calculated for collection-system facilities. This presentation describes recently updated Dual-Pol Radar-based rainfall estimation methods and demonstrates its advantages when applied for performance analyses of collection-system facilities.

## Wednesday, February 10, 2016

### Session 25

### Sustainability

**Moderators** Vin Rubino, CH2M HILL; Leo Aparri, Aparri Engineering LLC

**1:30 pm** **Leveraging the Framework of the Envision Sustainable Infrastructure Rating System for Design of a Wastewater Project**

**Norman Bradley, Evan Bowles, Saya Qualls, Hazen and Sawyer**

This presentation will discuss two leading applications of the Envision framework – in Nashville, Tennessee and for the New York City Department of Environmental Protection – within the wastewater/water community. Through these case studies, attendees will understand the benefits of using Envision to quantify the environmental benefits and risks in parallel with a net present value analysis to inform utility decision making and budgeting.

**2:00 pm** **Sustainability Analysis for Solids Handling Alternatives at the Oneida County WWTP**  
**Ryan Fisher, John LaGorga, GHD**

The Oneida County WWTP serves Utica and the surrounding communities and relies on continuous operation of two incinerators for solids handling. In the planning process for major upgrades at the facility, alternatives were investigated for a more sustainable alternative to continued biosolids incineration. The carbon footprint associated with initial construction and long-term operation of solids handling processes was evaluated. The results will be presented along with a sensitivity analysis of the operating assumptions.

**2:30 pm** **Coffee Break**

**3:00 pm** **Reducing the Costs of Nutrient Management: Nitritation Induction at New York City's 26th Ward**  
**Dimitri Katehis, Isaiah Shapiro, Greeley and Hansen; Kartik Chandran, Columbia University;**  
**Allen Deur, William Sedutto, Salvatore Scapelito, NYC DEP, Bureau of Wastewater Treatment**

By converting the 26th Ward WWTP from conventional nitrification/denitrification to nitritation/denitrification, chemical costs were reduced by more than \$800,000 per year, while altogether eliminating the need for supplemental alkalinity (caustic). Risk based process optimization procedures that permit the deployment of innovative technologies at active, permitted facilities allowed the stepwise process changes to be implemented while not affecting the plant's permitted nitrogen removal performance requirements.

**3:30 pm** **Advanced Water Reuse at Palm Beach County Renewable Energy Facility No. 2**

**Justin Finnigan, Joseph Krupa, ARCADIS; Ray Schauer, Solid Waste Authority of Palm Beach County**

The Solid Waste Authority of Palm Beach County completed construction of the largest waste-to-energy facility built in North America in over 20 years. With the goal of reducing 3,000 tons of municipal solid waste per day while outputting 100 megawatts to the power grid. This facility employs multiple advanced water systems. Rainwater collection, recycle water, filtration and chemical treatment and on-site wastewater treatment are key factors in the pursuit of a LEED Platinum rating.

## Wednesday, February 10, 2016

### Session 26

### Flood Prevention

**Moderators** John Petito, NYCDEP; Gary Arman, GP Jager

**1:30 pm**

**Onondaga Creek Flood Study: Identifying Potential Creek Improvements to Reduce the Impact of Flood Waters**

**Brian Platt, O'Brien & Gere**

FEMA is in the process of issuing revised flood mapping for Onondaga County, NY. The mapping is anticipated to result in significant changes to the 100-year flood boundary within the City of Syracuse. A detailed review of FEMA's model has been performed and flood mitigation alternatives have been identified in an effort to reduce the 100-year flood extents. This presentation will deliver an overview of the work performed to date.

**2:00 pm**

**Upgrading Hartford's Reservoir No. 3 for Safe Operation**

**Dennis Hogan, Alex Bullers, Molly O'Connor, Black & Veatch; Jeremy Galeota, Hartford Metropolitan District Commission**

The Hartford MDC dam at Reservoir No. 3 is a 500-foot long, 41-foot high earth embankment, built in 1875. The dam is classified as a high hazard structure with a storage capacity of approximately 180 million gallons. MDC's capital planning includes initiatives to address deficiencies in their aging water supply system, and Black & Veatch is providing engineering and design support for this unique project.

**2:30 pm**

**Coffee Break**

**3:00 pm**

**The Why Behind the What: Successfully Implementing Flood Mitigation Controls**

**Michael Saxton, Michael Bomar, James Costello, Tetra Tech**

In the wake of Hurricanes Sandy and Irene, a variety of flood protection projects have been discussed and conceived across New York State. This presentation discusses case studies of constructed flood mitigation projects. Projects along the eastern seaboard from New York to Florida and the Gulf of Mexico coast from Florida to Louisiana with a focus on the rationale for selecting the flood protection measure and lessons learned during the construction of such projects.

**3:30 pm**

**Southeast Queens Stormwater Infrastructure Initiative**

**Angela DeLillo, James Roberts, Constance Vavilis, NYCDEP BWSO; Floren Poliseo, Jannine McColgan, Tasos Georgelis, NYC DEP Bureau of Environmental Planning and Analysis**

Historically, Southeast Queens storm sewer infrastructure has lagged behind the development of the area. Coupled with decreased permeable surfaces, managing this challenge has remained a focus for the agency. The Bureau of Water and Sewer Operations was challenged with developing the capital plan and approach to accelerate an estimated six billion dollars worth of sewer investments and has developed an approach to meet the challenges.

**Hotel Information** (Make your reservations early to get the Group Rate!)

**New York Marriott Marquis**

1535 Broadway, Reservations Dept.

8th Floor, New York City, NY 10036, (800) 266-9432

Hotel link to reserve room: <http://tinyurl.com/rooms16>

To make your hotel reservation, simply call the toll free number, and state that you are with the New York Water Environment Association. The meeting dates are February 8–February 10, 2016.

**Save with early bird reservations through November 20!**

**The following will apply:**

Reservations will not be held unless accompanied by a deposit (check) or an accepted credit card.

For Room Service Hospitality, please call (212) 704-8823.

Confirmation Number for your records: \_\_\_\_\_

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**Deadline for hotel reservations is January 23, 2016.**

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Check-in Time:  
3:00 pm

Check-out Time:  
12:00 noon



10:00 am

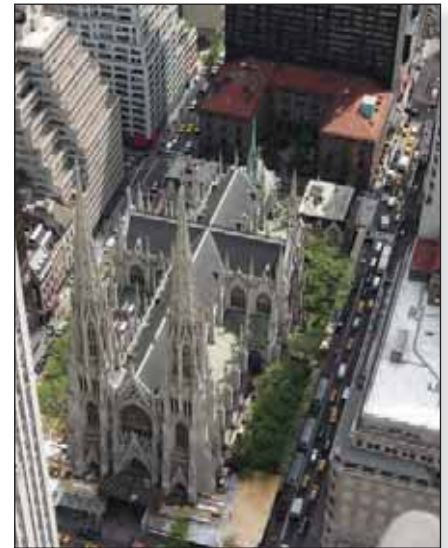
**Life Style Program**

**Tuesday February 9, 2016**

**Tour St. Patrick's Cathedral**

Located at 460 Madison Avenue, St. Patrick's Cathedral is the largest Gothic-style Catholic Cathedral in the country, as well as the seat of Timothy Cardinal Dolan, the archbishop of New York. Completed in 1878, St. Patrick's Cathedral welcomes more than five million visitors each year who come to take part in mass, light candles, attend choir and organ recitals, participate in public programs and view the art and design of the building. Before entering, take in the white marble exterior, pinnacles and 330-foot twin spires. Inside explore the many chapels, each one named after a different saint. Additionally, the Rose window is a masterpiece of 20th-century stained glass art, measuring 26 feet in diameter.

*Note: If you're interested in visiting the crypt where all the Archbishops of New York are buried you'll need to make an appointment.*



1:00 pm

**Guy's American Kitchen & Bar**

**220 West 44th Street (between 7th and 8th Avenues)**

Guy Fieri is one of the hottest celebrity chefs on the scene. In Guy's Food Network series, Diners, Drive-Ins, and Dives, he tastes his way across the back roads of America gathering eclectic and savory inspiration along the way. This first-hand knowledge of American comfort food gone wild fuels the menu at Guy's American Kitchen & Bar. The dynamic restaurant features Guy's signature style of cooking, big on flavor and short on boundaries – food done right and sometimes in a way you never thought possible. Simply put, Guy's American Kitchen & Bar allows hometown favorites and culinary expertise to satisfy the bold flavor cravings of visitors, fans and insatiable New Yorkers.

Guy says, "I've lived my life by the motto 'Go Big or Go Home' so when it came time to get cookin' in New York City, I couldn't think of any better place than right in the heart of it all, Times Square. Great food and good times, that's what this place is all about."

*To register for Lifestyle Program, please see registration form.*



# 88<sup>th</sup> Annual Meeting { FEBRUARY 8–10, 2016 NEW YORK CITY



# EXHIBITION AND ADVERTISING OPPORTUNITIES



**EXHIBIT DATES:** February 8 – 9, 2016

**PLACE:** New York City Marriott Marquis

**SET-UP:** Sunday, February 7, after 4:00 pm  
Monday, February 8, 7:00 am–10:00 am

**HOURS:** Monday, February 8, 10:30 am – 4:30 pm  
Monday, Reception in Exhibit Hall, 4:00 pm – 6:00 pm  
Tuesday, February 9, 8:30 am – 4:00 pm

BOOTH WIDTH	COST PER BOOTH	
	MEMBER	NON-MEMBER
8 Feet	\$1,400.00	\$1,650.00
8' Special Location	\$1,580.00	\$1,830.00
10 Feet	\$1,695.00	\$1,945.00
10' Special Location	\$1,745.00	\$1,995.00

Orders paid by credit card are \$50 higher to cover credit card fees.

Contact Darlene Ciuffetelli at [Darlene.ciuffetelli@arcadis-us.com](mailto:Darlene.ciuffetelli@arcadis-us.com)  
Or visit the NYWEA website at [nywea.org](http://nywea.org) or call (315) 422-7811.

**Sponsorship opportunities also available – for more information go to the NYWEA website, [nywea.org](http://nywea.org)**



# ADVERTISING OPPORTUNITIES

During the 88th Annual Meeting, take advantage of the opportunity to advertise and promote your company.

**NYC Marriott Marquis, February 8–10, 2016**

Programs will be distributed to all 88th Annual Meeting attendees. In 2015, over 1,200 programs were distributed!

## 88TH ANNUAL MEETING PROGRAM ADVERTISING ORDER FORM

(Advertisers received by January 14, 2016 will receive special recognition during meeting.)

### PROGRAM ADVERTISING RATES

#### BLACK & WHITE ADS

* Full Page (7.5" x 10") .....	\$500
* Half Page (7.5" x 4.875") .....	\$400
* Quarter Page (3.625" x 4.875") .....	\$200
* Business Card (3.5" x 2") .....	\$100

#### COLOR ADS

* Full Page .....	\$800
* Half Page .....	\$470
* Back Cover .....	\$1,500
* Inside Front Cover .....	\$950
* Inside Front, Right Page .....	\$910
* Inside Front, Left Page (opposite Table of Contents) .....	\$900
* Inside Back Cover .....	<del>SOLD</del> \$860
* Inside Back, Left Page .....	\$840

#### CENTER COLOR AD SECTION (4 pages):

*Center-1, Right Page .....	\$850
*Center-2, Left (in Center Spread) .....	<del>SOLD</del> \$850
*Center-3, Right (in Center Spread) .....	<del>SOLD</del> \$850
*Center-4, Left Page .....	\$850

**Please attach your advertisement and return by mail, email (mgk@nywea.org) or fax (315-422-3851) no later than 1/14/2016. Please submit both ad copy and electronic file.**

**Contact Maureen Kozol at 315-422-7811, x3 or mgk@nywea.org with any questions.**

**Media:** E-mail

**File Formats:** Mac preferred – Tiff (300 dpi resolution), PDF (saved at PDF/X-1a:2001 resolution setting), or InDesign file. All screen and printer fonts must be provided, images at 300 dpi at final size.

**Hard Copy:** Laser prints, business cards



### PLEASE FILL OUT THE INFORMATION THAT APPLIES:

The undersigned hereby agrees to take \_\_\_\_\_ (specify size) Page Ad and pay the sum of \$ \_\_\_\_\_ (payment due with advertising copy).

Payment Options  Check # \_\_\_\_\_ Credit Card  MC  VISA  AMEX

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Signature \_\_\_\_\_

Company \_\_\_\_\_

Contact Person \_\_\_\_\_

Address \_\_\_\_\_ E-Mail \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Telephone \_\_\_\_\_

Date \_\_\_\_\_ Authorized Signature \_\_\_\_\_

*Please make checks payable to: NYWEA, Inc., mail to NYWEA, Inc., 525 Plum Street, Suite 102, Syracuse, New York 13204*



# New York Water Environment Association, Inc.

88<sup>th</sup> ANNUAL WINTER MEETING

FEBRUARY 8-10, 2016

MARRIOTT MARQUIS, NEW YORK CITY



## FAST TRACK PRE-REGISTRATION FORM FOR NYWEA MEMBERS ONLY

Registration available on-line at <http://tinyurl.com/AMreg16>

### INSTRUCTIONS:

Please fill in your name, title, company, telephone number, email address and type of registration.

### REGISTRANT

Please type or print the following information **AS IT IS TO APPEAR ON YOUR NAME BADGE**

LAST NAME \_\_\_\_\_ FIRST NAME \_\_\_\_\_ M.I. \_\_\_\_\_

TELEPHONE \_\_\_\_\_ TITLE \_\_\_\_\_ COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE/ZIP \_\_\_\_\_ EMAIL \_\_\_\_\_

(Please Print Clearly)

### NYWEA MEMBER

Pre-registration  \*Full Week: \$475 **One Day: \$300** (please specify day)  Mon  Tues  \*Wed

### OPERATORS

Member One Day: **\$85** (please specify day(s))  Mon  Tue  Wed  
 To qualify for Operator Registration you must be a PWO member, and work on a day to day basis in the operation or maintenance of a wastewater collection or treatment facility.

### STUDENT (As defined by WEF/WEA, proof required-photo ID)

One Day: **\$35** (please specify day(s))  Mon  Tues  Wed

### YOUNG PROFESSIONAL (Includes Monday reception & Tuesday night YP reception and lunches) Must be 35 yrs or younger, copy of drivers license required.

Member One Day: **\$175** (please check day(s))  Mon  Tues  \*Wed -- Two Days: **\$340** (please check day(s))  Mon  Tues  \*Wed

### SPEAKERS (Day of Presentation Only, Please Specify Day)

**\$235**  Mon  Tues  Wed

### RETIRED (Retired from and not currently professionally involved with the water quality field)

\*Full Week: **\$275**

What's Included with Your Registration?	Monday Luncheon	Tuesday Luncheon	Wednesday Awards Luncheon
Full Week	Yes	Yes	Yes
One-day Monday	Yes	No	No
One-day Tuesday	No	Yes	No
One-day Wednesday	No	No	Yes
Student	No	Student Luncheon	No
Operator Monday	Yes	No	No
Operator Tuesday	No	Yes	No
Operator Wednesday	No	No	No
Young Professional	Yes	Yes	Yes
Retired	Yes	Yes	Yes
Speaker	Yes	Yes	No

LIFESTYLE ATTENDEE Name & Mailing Address (Home Address)	Registration (Total from above)		
	Ticketed Events No Refunds after 1/15/16	Quantity	Price
Name _____	A) Lifestyle Program**		\$125
Street Address _____	B) Additional Awards Luncheon Tickets, Wednesday		\$75
City/State/Zip _____	C) AAEE Breakfast (Tuesday 7:30 am)		\$25
Email _____	D) Contribution to Scholarship Program (Optional)		\$10
Cell Phone _____	<input type="checkbox"/> *Important: Please check if you will be attending Awards Luncheon on Wednesday.		<b>Total</b>

\*\*Includes President's Reception, Lifestyle Program on Monday, Reception Monday Evening, (Does not include Wednesday Awards Luncheon).

### PAYMENT

CASH  CHECK NO.# \_\_\_\_\_  VOUCHER

VISA  MASTER CARD  AMEX CARD NO. \_\_\_\_\_ EXP. \_\_\_\_\_ V-Code \_\_\_\_\_

DATE: \_\_\_\_\_ REC'D BY \_\_\_\_\_ PLEASE MAKE CHECKS PAYABLE TO THE NYWEA.

### REGISTRATION POLICIES

Only individuals registered and badged may attend convention events. Registrations received after January 15, 2016 will be charged the site-registration fee. CANCELLATIONS: Cancellations must be submitted in writing by January 15, 2016. A \$25 service fee will apply to all cancellations received before January 15; no refunds will be made on registration fees or special events after January 15<sup>th</sup>. (Due to NYWEA agreements and required guarantees, fees are forfeited if you are unable to attend the conference.) TAX DEDUCTION: U.S. Citizens-Treasury regulation 1.162-5 permits an income tax deduction for education expenses (registration fees, cost of travel, meals and lodging) undertaken to maintain or improve skills required in one's employment or business.

**This form is not valid for site registration. Pre-registration must be received by 1/15/16, otherwise site registration fees apply which are an additional \$35, except for operator and student registration which remains the same.**

Registrant please return this form to: NYWEA  
 525 Plum Street, Suite 102, Syracuse, NY 13204, or

fax it to: 315-422-3851 or [mah@nywea.org](mailto:mah@nywea.org) and retain a photocopy for your records



## Join Us at the 88th Annual Meeting!

(as of November 16, 2015)

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Valley Tech, Inc.  
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Verder, Inc.  
Victaulic Company  
WasteCorp Pumps LLC.  
WRP

Interested in exhibiting at 88th Annual Meeting? Contact Darlene Ciuffetelli at (914) 641-2478 or [darlene.ciuffetelli@arcadis.us.com](mailto:darlene.ciuffetelli@arcadis.us.com). Interested in advertising or sponsorship? Contact Maureen at [mgk@nywea.org](mailto:mgk@nywea.org) or 315-422-7811 for more information.

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