

IWPC '17 Conference Course Schedule *(current as of 2-10-17)*

Conference Track Key:

(ASST) = Asset Management

(ENGY) = Energy Management Systems

(NRR) = Nutrient Removal and Reuse

(SHED) = Watershed

(BIOS) = Biosolids Management

(LAB) = Laboratory Operations

(OPS) = Plant Operations

(TRND) = Trending Topics

(COLL) = Collection Systems

(LIQD) = Liquid Treatment Processes

(PRET) = Pretreatment

Monday, April 24, 2017

1:00 p.m. – 5:00 p.m.

(BIOS)

Denver's Biosolids Program

Alicia Gilley, Denver MWRD

(NRR)

Alternative Sidestream Phosphorus Recovery – Beyond Struvite

Kam Law, Greeley & Hanson LLC

(BIOS)

Hydrothermal Liquefaction

Lance Schideman, Illinois Sustainable Technology Center

(NRR)

CARBON AND PHOSPHORUS MASS FLUXES AT THE CALUMET WATER RECLAMATION PLANT

Paramasivam T. Srinivasan, Sr. Environmental Research Scientist, MWRD of Greater Chicago

The District studied the carbon and phosphorus fluxes at its Calumet Water Reclamation Plant (Calumet WRP) in 2014. The reason for the study was to fully understand the carbon needs for enhanced biological phosphorus removal as well as identify areas where carbon may be harvested for other purposes such as anaerobic digestion. The full paper will provide the detailed flow and mass flux calculations for each of the liquid, solids, and recycle streams and demonstrate how carbon and nutrient movements are occurring through the plant.

(BIOS)

Developing Bio-Waste Based Circular Economy in Illinois

Kuldip Kumar, MWRD of Greater Chicago

(NRR)

Start Up and Optimization of the ANITATM Mox Side Stream Deammonification Process at the Egan WRP in Schaumburg, Illinois

Katarzyna (Kathy) Lai, Principal Engineer, MWRD of Greater Chicago

The ANITATM Mox moving bed biofilm reactor process was incorporated as a centrate side-stream treatment at the Egan WRP. The presentation will discuss the process, start-up and optimization of the ANITATM Mox side stream deammonification process.

(BIOS)

Proposed Rule Changes for Biosolids and Sludges Containing Radium

Gary Forsee, Health Physicist, Illinois Emergency Management Agency

A large number of Illinois water treatment facilities concentrate radium in their biosolids as a result of treating drinking water. 32 Ill. Adm. Code 330.40(d) added radium to the list of contaminants that must be analyzed prior to disposal or reuse. The current rule provided regulatory relief to facilities from the licensing and low-level radioactive waste requirements, while ensuring disposal of radioactive waste did not adversely impact farmland and disposal facilities. IEMA has proposed changes and is seeking stakeholder input. The proposed changes seek to eliminate some requirements, improve data reporting, and expand disposal options, while strengthening prohibitions on environmental pollution and noncompliance.

Monday, April 24 Conference Courses (cont.)

(NRR)

Mainstream Deammonification

Dr. George Wells, Northwestern University

(BIOS)

Developing a Marketing Program for Composted Material

Al Rosenbloom, Dominican University,

(NRR)

A Four Phase Pilot Study in Support of the Preparation of a Phosphorus Removal Feasibility Study for Fox Metro Water Reclamation District

Andrew R. Deitchman, Project Manager, Walter E. Deuchler Associates, Inc.

As part of a Phosphorus Removal Feasibility Study, the Fox Metro Water Reclamation District in Oswego, with the assistance of Walter E. Deuchler Associates, Inc., conducted a pilot program consisting of four distinct phases to evaluate methods to meet reduced phosphorus effluent limits. This data was used to create a model to predict effluent quality.

A – Mixer Pilot evaluating three mixers in the anaerobic and anoxic zones of the aeration tanks

B – AO Process Pilot comparing single stage nitrification with the AO process on two parallel treatment trains

C – Chemical Phosphorus Removal – Jar Testing to determine the optimal Fe:P ratio

D – Tertiary Filter “Blue Cloth” Pilot reviewing media and chemical addition for removal efficiency

(BIOS)

Calumet Composting Project Design

Kelly Lockerbie, Greeley and Hansen

(NRR)

Algae-Based Nutrient Removal Pilot Study Supplements Ongoing Nutrient Removal Evaluations at the City of Fond du Lac WPCP

Nick Bartolerio, Project Engineer, Strand Associates, Inc.

The City of Fond du Lac, Wisconsin is optimizing P-removal and evaluating feasible alternatives for meeting an effluent P-limit as low as 0.04 mg/L. The City has completed pilot studies of several treatment technologies, including BPR, CPR using SorbX-100, ballasted settling, membrane filtration, phosphorus harvesting, and algae-based nutrient removal. In addition, the City is currently under design for a sidestream deammonification project. A brief update will be provided on status of previous P-removal evaluations and deammonification design, followed by a review of results from the most recent pilot study of the Clearas Advanced Biological Nutrient Recovery technology that utilizes algae for phosphorus and nitrogen removal.

(BIOS)

Co-Digestion at the West Lafayette WWTP

Dave Henderson, West Lafayette

Tuesday, April 25, 2017

8:30 a.m. – 4:30 p.m.

(SHED)

IEPA Water Quality Standards Update

Scott Twait, IEPA

Tuesday, April 25 Conference Courses (cont.)

(OPS)

Using your Senses and Sensors

James Winslade, Adjunct Instructor, Environmental Resources Training Center, SIUE

In these days of SCADA, on-line analyzers, and sensors, operations staff often forget the use of their eyes, nose, and ears. The use of our senses to determine the operating condition of a wastewater treatment facility is a practice that has been used for years, but is now often overshadowed. This presentation will discuss the use of our senses to evaluate a plant's operating condition including both normal and upset conditions. In addition, the presentation will discuss the use of analyzers and sensors in situations that require their use such as anoxic and anaerobic conditions in nutrient removal.

(LIQD)

WWTP Hydraulic Stress Testing

Christopher DeSilva, Professional Engineer, Greeley and Hansen

The city of Tulsa Southside Wastewater Treatment Plant (WWTP) is rated for an average capacity of 42 mgd and a peak flow capacity of 84 mgd. The City of Lafayette, Indiana WWTP is rated for an average capacity of 26 mgd and a peak flow capacity of 52 mgd. Greeley and Hansen conducted hydraulic stress testing at both plants to determine true peak capacity at the plant, specifically the primary clarifiers, aeration basins, final clarifiers, and gravity thickeners. The goal of the Southside WWTP plant stress test was to develop a wet weather flow optimization strategy to eliminate combined sewer overflows. The goal of the Lafayette WWTP stress test was to evaluate the possibility of a plant re-rate and determine if a re-rate should be pursued.

(LAB)

Theory of Dissolved Oxygen

Eric Link, CEO, LabtronX

There are many principles of our physical world that affect Dissolved Oxygen and DO readings. We will explore how temperature and pressure affect contraction, expansion, saturation, and diffusion. At the conclusion of the lecture, you should understand how a DO probe generally works and how to calibrate your meter correctly.

(OPS)

Operators and Maintenance Personnel Have Opinions --- So Listen

Kenneth Schnaars, Senior O&M Consultant, Brown and Caldwell

A complicated water or wastewater treatment plant can be challenging. Even more challenging is operating water or wastewater treatment plants that are poorly designed. This presentation will provide practical steps on what operators and maintenance staff should be looking for on contract documents. This presentation will show water and wastewater treatment plants where operation and maintenance personnel input was incorporated into the design and this collaboration allowed plant personnel to operate, maintain and/or remove equipment in a comfortable and safe manner. The presentation will then show treatment plants where plant personnel were not involved during design and how it lead to difficult maintenance and unsafe working conditions.

(LIQD)

Options for Meeting Stricter, New Ammonia Limits

Dan Small, Project Manager, Strand Associates, Inc.

An ammonia removal background and regulatory update will be provided. Options are reviewed for meeting future lower ammonia limits. Nitrification impacts to biological phosphorus removal and nutrient removal are considered. Newer sidestream treatment processes are summarized.

(SHED)

Water Quality Standards Discussion

(LAB)

pH Care & Maintenance

Kenny Smart, Water Analysis & Purification Specialist, Thermo Scientific

Measuring pH is vital for maintaining an efficient water or wastewater treatment process. This pH discussion will detail; pH theory, electrode characteristics, temperature compensation, calibration, best practices, troubleshooting, and optimal care & maintenance of a pH electrode.

Tuesday, April 25 Conference Courses (cont.)

(OPS)

Using Combat Martial Art Strategies in Identifying Optimal Corrosion Mitigation Solutions

Warren Brand, Principal, Chicago Corrosion Group

I have been in the corrosion, paint and coatings industry for nearly 30 years. I have advance certifications from both NACE and SSPC. I have been studying martial arts for a little over 20 years, with an emphasis on combat martial arts. There is a direct relationship between identifying optimal, effective self defense techniques and identifying optimal corrosion mitigation solutions. I will use combat martial arts as an analog to explain to owners and operators how to better procure corrosion mitigation, painting and coating services. These techniques, of course, will also be relevant for other decision-making process as well.

(LIQD)

Development, Calibration and Delivery of a Third Party Full-Plant Hydraulic Model

Amanda Burns, Infrastructure Planning Engineer, Black & Veatch

As part of their Long Term Capital Planning work, the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) has identified a number of items that could help support planning efforts, including the development of a whole plant hydraulic model of the 430 mgd Calumet WRP. MWRDGC intends to utilize the hydraulic model for capital planning, feasibility studies, and engineering evaluations. A third-party software was selected for development of the whole-plant model. The project also includes model calibration and training of District personnel in the use and maintenance of the model. This presentation will be of interest to utilities and engineers interested in development of third-party, transparent full-plant hydraulic models.

(SHED)

IEPA TMDL and Nonpoint Source Program Update

Amy Walkenbach, IEPA

(LAB)

2017 Regulatory Update

Scott Siders, Director of Quality Assurance, PDC Laboratories, Inc.

The speaker will provide an update on the CWA Method Update Rule (e.g., new MDL procedure, revised methods 608, 624 and 625), other analytical method developments, DMR QA, new requirements for Laboratory Accreditation and other recent topics of interest to laboratories and their clients.

(ENGY)

Energy Optimization: Audits and Resources

Brian Katamay, Research Engineer, Energy Resources Center

This presentation will walk through the process of an energy audit in order to teach operators how to conduct their own internal audit, what to do with the information gained, and what resources are available to help take action.

(LIQD)

Optimizing Plant Capacity for Higher Flows and Rising Lake Levels

Carl R. Johnson, Senior Vice President, CDM Smith Inc.

The Milwaukee Metropolitan Sewerage District (MMSD) South Shore Water Reclamation Facility (SSWRF) has an existing peak capacity of 300 MGD. MMSD embarked on a preliminary engineering project in 2013 to analyze each liquid stream process to determine if the hydraulic capacity could be increased to 320 MGD with only minor improvements. Major areas of field investigation included: secondary clarifier and effluent pump capacity, compatibility of higher flows with proposed biological phosphorus removal, and flow measurement. The project also developed and calibrated a plant hydraulic model. The testing and modeling results confirmed that the target plant peak flow capacity of 320 MGD is possible with the proposed modifications.

(LIQD)

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Tuesday, April 25 Conference Courses (cont.)

(SHED)

IEPA Ambient Water Quality Monitoring Program Update

Gregg Good, IEPA

(LAB)

The Assessment and Regulatory-Compliant Management of Testing Waste

Cam Walker, Site Remediation Specialist, MWRD – Greater Chicago

The session will examine the wastes from various common wastewater treatment plant tests with a focus on the RCRA-compliant identification and management of those wastes. Examples of audit-trail documentation will be provided.

(OPS)

Can Anybody Hear Me Out There?

Matt Sokolowski, Staff Professional, Carollo Engineers

When we design water and wastewater facilities there are countless issues and considerations that go into our projects. In addition to providing a treatment process that meets EPA standards, is efficient, and easy to operate and maintain, there are other requirements we should not forget to take into consideration. Did your last plant improvement project consider the impact of noise from your facility on the neighbors (and regulations)? This presentation takes a look at some of the things you may not have considered in making the project a success for both the water utility and the neighboring community.

(LIQD)

Embracing the Future: MWRDGC's Approach to Energy Neutrality through Whole Plant Modeling

Trung Le, Project Engineer, Greeley and Hansen

The Metropolitan Water Reclamation District of Greater Chicago (District) is a forward-thinking organization, embracing a vision of "Recovering Resources [and] Transforming Water". The District has embarked on a whole plant process and hydraulic modeling initiative to improve their understanding of their plants. The development of process and hydraulic models for Stickney, the largest District plant, will have lasting benefits as the District seeks to integrate new treatment technologies to recover resources without jeopardizing the hydraulic capacity, or vice versa. Specifically, the District has set a goal to be energy neutral by 2023. Modeling will be a key component in optimizing and intensifying treatment processes towards this goal. This presentation will focus on the various ways the process and hydraulic modeling can supplement each other to facilitate water reclamation plants to be avant-garde in their effort to optimize energy use and nutrient removal and recovery while meeting all permit regulations.

(SHED)

Open Forum Discussion

(LAB)

Waste Characterization Study for Phosphorous Removal

Eva Kiss, Sue Glavan, Christina Smith, Fox Metro WRD

(ENGY)

Converting Biogas into Energy and Vehicle Fuel

Jan Scott, President, Unison Solutions, Inc.

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 technologies available. We'll review the variations between biogas conditioning systems for engines vs. turbines or just for boiler systems. This will also include the various types of hydrogen sulfide and siloxane removal technologies available. The final technology discussed will be the additional equipment needed for the biogas to vehicle fuel systems. We will also present case studies of different sites that have been operational for many years.

(NRR)

Keynote Presentation

Dr. Henryk Melcer, Brown and Caldwell

Tuesday, April 25 Conference Courses (cont.)

(ENGY)

Power or Fuel: Renewable Natural Gas a Feasible Alternative

Joe Marino, Mechanical Engineer/Project Manager, Greeley and Hansen

Municipalities continually move towards a foundation based on sustainable principles. Gas utilization has become a high priority and major component of energy recovery in wastewater treatment facilities. The general direction of wastewater digester gas energy recovery has often gone towards combined heat and power also known as co-generation. However, an alternative to electricity generation is renewable natural gas (RNG) production through gas cleaning technologies. This method was implemented in the City of South Bend, Indiana's Wastewater Treatment Plant due to the existing natural gas infrastructure and RNG's greater flexibility of uses.

(SHED)

Panel Discussion – Watershed Group Formation

(ENGY)

Upgrading Digester Biogas to Natural Gas Quality

Robert Kulchawik, Senior Process Engineer, AECOM

This presentation will review the technologies available to upgrade digester biogas to natural gas quality. The technologies will be evaluated based on reliably removing the common biogas contaminants including water vapor, carbon dioxide, siloxanes and hydrogen sulfide. Examples from operating facilities in Canada and the US will be presented.

(SHED)

Panel Discussion – Watershed Monitoring Program Implementation

(NRR)

The Phosphorous Removal Journey - NPDES Permit Nutrient Reduction Plan to Design to Start-up and Finally Optimization

Matt Larson, Associate Vice President, Carollo Engineers

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(SHED)

Panel Discussion - Watershed Program Funding

(NRR)

Fermenters and Sidestream Phosphorus Treatment at Fox River Water Reclamation District

Steve Arant, Process Engineer, Black & Veatch

The Fox River Water Reclamation District (FRWRD) owns and operates three water reclamation facilities (WRFs), the Albin D. Pagorski (ADP) WRF, the North WRF and the West WRF. FRWRD received NPDES permits that require compliance with 1.0 mg/L total phosphorus as an annual average. Specific design elements for upgrades to the WRFs will be presented, including primary sludge fermentation; flexibility in biological phosphorus removal basin configuration including side stream enhanced biological phosphorus removal (S2EBPR) and side stream phosphorus recovery.

(ENGY)

The Hidden Life of Aeration Diffusers

Kendra Sveum, Process Engineer, Donohue & Associates

The City of Wyoming hired Donohue & Associates to evaluate the activated sludge system to determine the cause of the additional air usage. Based on Donohue's initial evaluation, the City then hired Redmon Engineering to perform in situ off-gas testing and laboratory testing of diffuser fouling. These results were used to evaluate cleaning the existing diffusers, partial diffuser replacement, and full diffuser replacement. The City of Wyoming elected for full replacement and then had a second round of off-gas testing performed to verify the final diffuser performance. Full data from the study to final results will be presented showing how fine pore diffusers can be a hidden cause of loss of energy efficiency.

Tuesday, April 25 Conference Courses (cont.)

(SHED)

Panel Discussion - MS4 Program Development and Implementation

(NRR)

Customizing a Phosphorus Discharge Optimization Plan for Your Facility

Andrew Dow, Process Engineer, Donohue & Associates, Inc.

The submission of Phosphorus Discharge Optimization Plans is now required as part of the special conditions in Illinois NPDES permits featuring new total phosphorus limits. As this requirement is new to Illinois permit holders, wastewater treatment facility staff may benefit from additional guidance on how to approach this effort. This presentation will cover a framework for generating a robust list of potential optimization measures and selecting those that are a strong fit for a given facility. A well-thought-out, site-specific optimization plan can be a valuable tool for cost-effective compliance with phosphorus limit.

(ENGY)

WWTP Process & Energy Upgrades - A Case Study at Colona, IL

Howard B. Johnson III, Senior Environmental Engineer, Shive-Hattery, Inc.

Colona, Illinois contracted with Shive-Hattery in 2013 to design facility improvements to increase plant operating capacity and extend its service lifetime but port project found they also captured major energy savings. The design solution included: new blowers and raw sewage pumps with VFDs, New aerobic digesters were added with existing digesters being converted to additional aeration basins, New controls & generator unit were added. Cost and schedule details – \$1.8 MM. Construction Project (Apr. 2014 to May 2015). WWTP moved from an energy consumption of 22.9 to 12.4 kBTU/gpd (46.3% reduction) saving over \$37,000 on energy costs in 1st year while reducing NH3 discharge levels by 93%.

(NRR)

A Nine-Year History of Biological Phosphorus Removal at the City of Plano, Illinois Water Reclamation Facility

Mark J. Halm, Vice President, Walter E. Deuchler Associates, Inc.

The \$13.6 million Water Reclamation Facility Improvements Project for the City of Plano, Illinois was completed in 2006. Existing equalization tanks were converted into fermenters to further improve biological phosphorus removal. A portion of the effluent from the WRF is used to irrigate the Cedar Dell Golf Course with the remainder being discharged to Big Rock Creek which is a tributary of the Fox River. The presentation will address key design elements, and will present nine years of operational results with a focus on how the operations were enhanced by subtle process changes to enhance biological phosphorus removal.

Wednesday, April 26, 2017

9:00 a.m. – 4:30 p.m.

(PRET)

Challenges with Pretreatment and Discharge of Landfill Leachate to Wastewater Treatment Plants

Sara Arabi, Senior Process Engineer, Environmental Operating Solutions, Inc.

Treatment of landfill leachate is a major challenge due to high and variable contaminant concentrations such as Chemical Oxygen Demand (COD), ammonia, and Total Dissolved Solids (TDS). Traditionally landfill leachate has been hauled or pumped to Publicly Owned Treatment Works (POTWs) for disposal. More stringent discharge criteria, especially for nutrients, required many landfills to employ pretreatment for indirect discharge to the sewers or secondary treatment (or more) for direct discharge. Off-site (POTW) discharge of landfill leachate has created issues and challenges for the POTWs. The presentation includes a general overview of the regulatory programs to address indirect discharges from landfills to POTWs through pretreatment programs and presents some of the key challenges with discharge of landfill leachate to POTWs.

(TRND)

Understanding Foaming and Nitrification in Wastewater Plants

Kevin Ripp, President, Aquafix, Inc.

Wastewater foam generally happens in the winter or spring, and in this presentation we will talk about what causes the foam. Winter and Spring is also a common time for wastewater plants to lose nitrification and we will discuss the organisms responsible for removing ammonia, their growth rates and conditions they favor, as well as the ways common foam remedies impact nitrifying bacteria.

Wednesday, April 26 Conference Courses (cont.)

(ASST)

Performing a Desktop Analysis to Justify Funding a Sustainable Sewer Asset Management Program

Timothy F. Sumner, Project Manager, Crawford, Murphy & Tilly, Inc.

Sewer systems across the country are in need of repair, but don't have adequate funding for robust programs. A desktop analysis can be performed to identify how much funding may be needed to sustain the sewer system prior to developing an asset management (AM) program. The desktop analysis provides an order of magnitude estimate to identify system needs beyond the typical five year plans. It provides a basis to make recommendations to develop a funding strategy that will build and support a sustainable sewer AM program. The desktop analysis uses information currently available to the owner, such as pipe length, pipe sizes and number of manholes. Learn about performing this desktop analysis and how it benefitted Springfield, IL.

(PRET)

Permitting your Local Industry Without Losing Business – Industrial Pretreatment Permits and Common High Strength Wastewater Solutions

Gerald Phipps, Project Manager, HR Green, Inc.

Industries are critical to providing local jobs and community growth. Many industries discharge untreated wastewater or pre-treated wastewater to the City collection system for final treatment at the Publically Owned Treatment Works (POTW). Industrial wastewater is often much more concentrated than domestic wastewater, and can significantly increase flow and loading to the POTW. Permitting and local limits will be discussed. Common pre-treatment strategies will also be discussed, including pre-treatment technologies, permit limits, and extra strength surcharges.

(TRND)

Fitting a Square Peg into a Round Hole: Effective and Efficient UV Retrofits

Lindsey Busch, Associate, Carollo Engineers

As Ultraviolet (UV) disinfection systems evolve and energy efficiency becomes more of a priority, municipalities are looking towards replacing their dated systems with more efficient ones that are adaptable to future needs such as reuse and expansion. This paper provides case studies on UV disinfection system upgrades at four municipalities: Manhattan, KS, Hillsboro, OR, Chambers Creek, WA, and Aurora, CO. It will also review the planning and design process, construction issues and phasing, post-construction performance, and lessons learned for each of the aforementioned case studies.

(ASST)

Leveraging “Big Data” Using a Utility Management Dashboard

Cari Ishida, Senior Engineer, Carollo Engineers

The future of utility management is being shaped by 'big data'. The goal of utility management is to increase the power to leverage data to make informed decisions in all dimensions of performance: capital and CIP planning; asset management and 'just in time' repair/replacement; financial management; and optimization of operations. To meet this goal, a Utility Management Dashboard (UMD) was developed to visualize and track trends, and allow active engagement by the utility managers through a dynamic and integrated CIP and financial and rate planning "smart dashboards". This presentation will summarize the key design assumptions and features of the UMD, and will provide a demonstration of the UMD and its value as a management tool.

(TRND)

Use of Mixing Zone Models to Estimate Initial Dilution in Receiving Waters

Rishab Mahajan, Geosyntec Consultants

The use of mixing zone in receiving waters is permitted by Federal and State regulations to allow initial mixing of discharges from point source discharges. State regulatory agencies have started to scrutinize the mixing zone more stringently and have asked for site specific studies to allow mixing zones. Site specific mixing zone study include estimating the initial dilution in receiving waters. This can be accomplished using through near field models like CORMIX and PLUMES. The presentation would discuss the various inputs required for conducting mixing zone models. Two example case studies where mixing zone model have been used would also be discussed.

Wednesday, April 26 Conference Courses (cont.)

(TRND)

Does this SCADA Witness Test Make My Bottom Line Look FAT?

Mike Gryn, Project Manager, IDCS, LLC

SCADA Factory Tests are a highly effective way of verifying the appropriate hardware, software, control logic, and I/O are being used in a project, but they are often subject to downsizing and/or elimination because of budgetary pressures that may exist in the construction stages of a project. This paper will provide insight to a real-life SCADA expansion for the largest UV Disinfection System in the world. This system had additional complexity by integrating the stand-alone UV Disinfection control system of over 2,000 I/O points with a significant expansion of a 20 year old SCADA system. It will outline the methods used during design to specify an effective and successful FAT.

(ASST)

CMOM Plus – How CMOM Can Be Used as a Platform for Asset Management and Utility Management

Cari Ishida, Senior Engineer, Carollo Engineers

A new requirement in a many Illinois National Pollutant Discharge Elimination System (NPDES) permits is submittal of a Capacity, Management, Operations, and Maintenance (CMOM) plan. The purpose of a CMOM Plan is to document efforts towards the goals of systematically managing a collection system to achieve zero sanitary sewer overflows (SSOs). This paper will present case studies of how components of CMOM Plans can be expanded upon to benefit sewer agencies. CMOM can be more than just another regulatory requirement, and can be used by agencies to systematically address their management structures and plan for more comprehensive capital and operational expenditures.

(TRND)

What Should You Do The Next Time Your NPDES Permit Comes Up For Renewal?

Archana Kuchimanchi, Senior Water Resources Engineer, Crawford, Murphy and Tilly

NPDES permits are legal documents issued by the Illinois Environmental Protection Agency that allow the owner to discharge certain volumes and concentrations of pollutants into the receiving waters of Illinois. This regulatory mechanism often dictates changes to the permit holder's collection and treatment practices. Understanding the process in which permits are publicized, renewed and issued, the contents of NPDES permits, and how to comment on a draft permit are essential to understanding the responsibilities of the permittee. What are the effluent standards for your facility? What happens if you violate them? Can you appeal with IEPA? What are the Special Conditions? Where do workgroups come in place?

(TRND)

NFPA 820 Considerations for Wastewater Treatment and Collection Facilities

Jay Bielanski, Associate, Greeley and Hansen

NFPA 820 is the standard that governs fire prevention strategies applied in wastewater operations. This standard deals primarily with the mitigation of risks associated with accidental ignition of flammable gases produced in various stages of wastewater collection and treatment activities. This paper will look at the many different areas of wastewater facilities including pumping stations, primary and secondary treatment, and solids processing and the NFPA 820 requirements which accompany them. Fire prevention in wastewater collection and treatment applications can be challenging, but careful planning employing a multi-disciplinary team is the best path to development of a safe wastewater facility.

(ASST)

CMOM – Benchmarking System Performance in Illinois

Dan Bounds, Senior Water Resources Engineer, Baxter & Woodman

As part of NPDES permit special conditions requirements, communities throughout Illinois are in the process of developing Capacity Management Operations and Maintenance (CMOM) plans for their wastewater collection systems. This presentation will present analysis results and system metrics from the development of several CMOM programs in Illinois, comparing and providing benchmarks for several system maintenance and performance metrics. Attendees will be able to compare their system metrics with those of other communities that have developed CMOM plans.

(TRND)

The Power of BIM: A Management Tool

Kelly Lockerbie, Civil Engineer, Greeley and Hansen

Though the progression of project document development from hand drafting to 2D CADD was a linear step forward, the evolution from 2D CADD drafting to 3D modeling is a leap to a new way of structuring the document development process. Traditional project documentation involved the compilation of 2D drawings, specifications, and information that required manual coordination and multiple software applications and documents. BIM allows a user to input intelligent information to create a coordinated output of project deliverables. This presentation will delve further into the features of BIM, the tools needed to create an intelligent model, the benefits of BIM and information management, and how to best utilize BIM as a management tool.

Wednesday, April 26 Conference Courses (cont.)

(TRND)

ARC Flash Awareness

Larry Stanley, Senior Business Development Engineer, ABB

ARC Flash events can be disastrous. Although the expectation of this class is not to provide complete ARC Flash training, by discussing some of the basics of ARC Flash, such as boundaries, standards, labeling and clothing, we hope to provide the participants some awareness of the dangers and possibly even save a life. Yes, it's that important!

(ASST)

A Tailored CMOM Strategy to Justify Your Money and Manpower Needs

Tony Smurlo, Project Manager, Stanley Consultants

The City of Rock Falls is challenged by high groundwater elevations; rainfall derived infiltration, inflow and elevated groundwater levels; a limited capital improvement budget; and limited manpower. Groundwater is approximately half of dry weather flow and wastewater staff often assist other City departments year round. This paper discusses the methodology used to develop a CMOM Plan that identifies grant programs, prioritizes improvements, establishes a reasonable collection system O&M program, addresses the ability to investigate private property I/I issues, and integrates a new computerized maintenance management system. The plan can be used to justify rate increases to support the required plan activities.

(ENGY)

Converting Biogas into Energy and Vehicle Fuel

Jan Scott, President, Unison Solutions, Inc.

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 technologies available. We'll review the variations between biogas conditioning systems for engines vs. turbines or just for boiler systems. This will also include the various types of hydrogen sulfide and siloxane removal technologies available. The final technology discussed will be the additional equipment needed for the biogas to vehicle fuel systems. We will also present case studies of different sites that have been operational for many years.

(COLL)

Innovative Wet Weather Technology Proven in Illinois Also Moving Forward In USEPA Region 6

Jim Fitzpatrick, Senior Process Engineer, Black & Veatch

To minimize combined sewer overflows during its most significant wet weather events, the Fox Metro Water Reclamation District dual-uses its tertiary pile cloth media filtration system to also treat primary clarified effluent. Little Rock Wastewater is moving forward with peak flow capacity improvements at their Adams Field Treatment Facility to minimize sanitary sewer overflows. After a thorough assessment of currently available treatment technologies (including onsite piloting and site visits), the project team chose pile cloth media filtration to polish up to 58 mgd of primary clarified effluent during peak wet weather flows. This new system will also be used for tertiary filtration during normal flow conditions.

(COLL)

Operation Rolling Thunder: Solving a Force Main Mystery in Charleston, IL

Joseph V. Pisula, Vice President, Donohue & Associates, Inc.

The City of Charleston operates the Reynolds Drive lift station that pumps up to 8.6 MGD of sewage from the south end of town to the City's sewage treatment plant. This station is fitted with submersible pumps and it was constructed in 1972. The station discharged into a ¾ mile long 18" diameter cast iron force main with no air release/vacuum valves on it. In 2011 the City received reports from residents along the force main who heard "roaring thunder" coming out of the ground in the parkway in front of their houses. Shortly after that the City experienced several breaks in the force main. This presentation reviews how the City and Donohue diagnosed the issue and resolved the problem.

(COLL)

UCSD Second Street Pump Station and Force Main

Scott Pickard, Project Coordinator, Fehr Graham Engineering & Environmental

Champaign has seen dramatic increases in population density near the University of Illinois campus from new high-rise student apartment development. The higher sanitary flows are taxing the capacity of UCSD's existing interceptor sewers. Fehr Graham designed a new 5 MGD pump station installed to redirect downtown Champaign flow to an existing pump station in south Champaign. The new pump station would be installed between three major interceptors, only a city block apart. Diversion controls at the pump station allow UCSD to selectively adjust the flow level in interceptors providing great flexibility. A diesel pump was also used at an existing station to provide expanded backup pumping capacity. Other unusual aspects will be reviewed.

Wednesday, April 26 Conference Courses (cont.)

(COLL)

UCSD Second Street Pump Station and Force Main

Scott Pickard, Project Coordinator, Fehr Graham Engineering & Environmental

Champaign has seen dramatic increases in population density near the University of Illinois campus from new high-rise student apartment development. The higher sanitary flows are taxing the capacity of UCSD's existing interceptor sewers.

Fehr Graham designed a new 5 MGD pump station installed to redirect downtown Champaign flow to an existing pump station in south Champaign. The new pump station would be installed between three major interceptors, only a city block apart. Diversion controls at the pump station allow UCSD to selectively adjust the flow level in interceptors providing great flexibility. A diesel pump was also used at an existing station to provide expanded backup pumping capacity. Other unusual aspects will be reviewed.

(COLL)

Do You Need to Update Your Sewer Lining Program?

Zachary J. Matyja, Client Manager, RJN Group, Inc.

Since its origination in the 1970s, cured-in-place pipe has become the most commonly used method of pipe rehabilitation for sewer collection systems. Due to its popularity, ease of installation, and inclusion as an annual program in many communities, updating the design to include "best practices" is often overlooked. This presentation will look at the three phases of the CIPP process: televising and recommendations, CIPP design, and resident engineering for lining projects, sharing latest best practices for each. Upon the conclusion of this presentation, attendees will have a better understanding for what processes to include in future CIPP projects and how to get the most value and highest quality product from their lining programs.

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(COLL)

Reduce Sanitary Sewer Overflows (SSO) Through Sanitary Sewer Lining, and a Lesson in Community "Buy-In"

Thomas E. Nagle, Vice President/Senior Project Manager, Robinson Engineering, Ltd.

The Village of Olympia Fields was experiencing sanitary sewer overflows and basement backups because of I&I entering through defects on the lateral lines. The Village improved all the publicly owned infrastructure but the SSO's were still occurring. Therefore, the Village elected to improve the laterals by installing cured in place pipeliner. The Village partnered with the United States Army Corps of Engineers (USACE). The lateral lining was constructed by utilizing trenchless technologies. In the sewer basin there were 141 single family homes and the Village lined over 134 individual laterals. That is over a 95% PARTICIPATION RATE from the homeowners.

(COLL)

Ice Pigging

Paul Trealar, Ice Pigging Project Manager, SUEZ

Sediment fats, oils, greases (FOG) and debris accumulation in wastewater collection systems clog force mains and siphons causing pipeline restrictions. Restricted flows can cause increased energy use, increased sanitary sewer overflows and can lead to capital improvements including increased pumping capacity and force main replacement. Current approaches to clean force mains such as cleaning with hard pigs and soft swabs present a risk because hard pigs can get stuck in the force main causing a need for emergency excavation. Excavating to retrieve a hard pig is costly, time consuming and in some cases with highways, river crossings and developed areas, is not an option. Where redundant systems do not exist, the cost to install a temporary by-pass system may be enormous. This paper describes a new technique for cleaning potable water, sewer force mains and siphons using an ice slurry called, Ice Pigging.

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