CELEBRATING 41 YEARS OF EDUCATION

ORWEF
Oregon Water Education Foundation

Water Environment School 2017

Laboratory Biosolids Management
Operations & Maintenance Wastewater Basics
Technology & Asset Management
Wastewater Pretreatment Collections

41st Annual

Vendor Display

March 28-30

Clackamas Community College | Oregon Water Education Foundation

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Session Descriptions

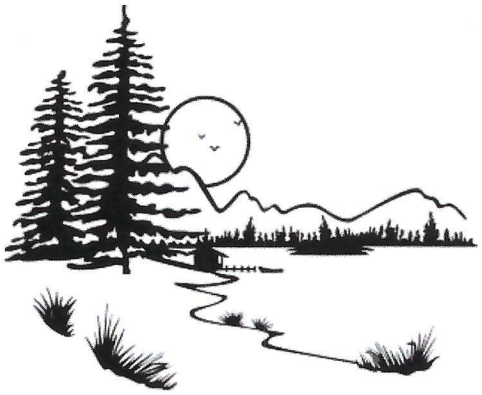
Thank You to Our Water Environment School Committee

Chair: Kay Hust

Registration & Treasurers: Pam Flynn & Anya Relleve

Jeannie Andersen
Hunter Bennett-Daggett
Tony Bisson
Ken Black
Erin Duffy
Paul Eckley
Brian Hemphill
Matt Jenkins
Matt LaForce
John Lewis
Charles Lytle
John Nagy
Jim Nurmi
Tim Owens
Daryl Payne
Naomi Sether
Andria Swann
Kristen Thomas
Judy West
Amy Willman
Matt Young
Matt Zak

Tuesday	Wednesday	Thursday
Pasta Buffet • Creamy Garlic Caesar Salad • Penne Pasta with Marinara Sauce • Fusilli with Pesto Cream Sauce • Meatballs or Garlic and Herb Chicken • Garlic Bread	*BBQ Buffet* • Chicken Thighs, Boneless, with BBQ Sauce • Pulled Pork with Korean BBQ Sauce • Choice of Asian or Traditional Coleslaw • Baked Beans • Rolls with Butter Homemade Mac and Cheese	*Chili Bar* • Choice of Vegetarian, Turkey or Beef Chili • Fresh Green Salad with Creamy Herb Dressing • Diced Onions • Shredded Cheddar Cheese • Sour Cream • Hot Sauce • Corn Bread Mini-Muffins



2017 Vendor's Display

This year's vendor's display will be on
Wednesday, March 29, 2017
in Randall Gymnasium.

Vendor's Day Raffle
Rules and Procedures

- Check the number on your name badge. This number corresponds with a number that has been put into a raffle jar that is located with the vendor coordinator.
- Beginning around 10 AM on vendor's day, a few prizes to be awarded are selected per hour.
- A number is selected from the raffle jar. The number is taped number to the item, and written down on the wall behind the raffle items. People are invited to check throughout the day to see if they have won anything.
- Prizes may be claimed any time before 2:50 pm at the vendor's display.
- The items selected and awarded throughout the day <u>are not</u> the largest or most valuable items.
- All items will have been awarded by the end of the afternoon break – 2:50 to 3:10 PM
- From 2:50 to 3:00 PM all of the remaining items except for the few very most valuable ones will be selected.
- *ANY selected prize that has not been claimed by **3:00 PM** will be recycled into the raffle pool.*
- *<u>Prizes not claimed by 2:50 pm are forfeited and raffled off to a new number from the jar. Numbers already drawn are not recycled into the raffle.</u>*
- From 2:50 to 3:05 pm **<u>all</u>** remaining items, including the most valuable, will be raffled off.
- The raffle will be completed by 3:05 to give enough time to get to the last class.
- Prize claimants must be present to win.
- If for some reason you have won a prize that is too big to carry with you, WES committee members will take it to the registration desk and hold it for you until after the last class.

Municipalities or other employers have varying standards for gifts that can be accepted at events like this; however the raffle items are purchased by ORWEF, and no particular prize could be attributed to any particular vendor. Anyone who claims a prize is responsible for determining if they are in compliance with their employer's policy, and anyone who claims a prize is responsible for any tax implications.

Please plan to visit & participate in the raffle!

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	WASTEWATER PRETREATMENT Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 103	BIOSOLIDS MANAGEMENT P102
7:00 – 8:00	**REGISTRATION, COMMUNITY CENTER**				
8:00-8:15	**OPENING CEREMONY**				
1 8:15-9:15	*Keynote Speaker:* ***Goals of the Operator--****Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gym*				
9:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**				
2 9:30-10:30	**Energy Matters: A Look at Sustainability and Energy Efficiencies** *Rich Allen*	**PT 101: Intro to Wastewater Pretreatment** *Matt Young*	**Newberg Inflow/ Infiltration Study** *Peter Olsen Keller Associates*	**Wastewater Disinfection** *Dale Richwine*	**Biosolids Jeopardy** *Dave Arguello Clean Water Services*
3 10:35-11:35	**Solids Handling, A New and Cost Effective Strategy for Removing Sludge from Wastewater Lagoons and Treatment Plants** *Rich Allen*	**PT 101: The Relationship Between Collection System Operations and the Pretreatment Program** *Jay Busher Clark Regional Wastewater District*	**Newberg Inflow/ Infiltration Study** *Continued*	**Wastewater Screenings** *Dale Richwine*	**Biosolids Regulatory Issues** *Paul Kennedy Oregon DEQ*
11:35-12:35	**LUNCH for Attendees – CAFETERIA**				
4 12:35-1:35	**Plastic Materials and Their Application** *Leon Telesmanich*	**PT-101: A Wastewater Operator's Guide to Pretreatment Devices** *Dan Parnell City of Portland*	**Wastewater Collection System Management** *Rick Allen BioLynceus*	**Non-Centralized Wastewater Treatment** *Lewis Titus*	**Site Authorizations/NCRS** *Paul Kennedy Oregon DEQ*
5 1:40-2:40	**Mobile Computing and Information Sharing at the Treatment Plant** *Jens Nielsen*	**PT-101: A Primer on Categorical Industrial Users** *Dan Parnell City of Portland*	**Wastewater Collection System Management** *Continued*	**Programmable Logic Controller Basics** *Skye Franyutti*	**Biosolids Management Plans** *Paul Kennedy Oregon DEQ*
2:50 – 3:10	**AFTERNOON BREAK – Cafeteria**				
6 2:55-3:55	**DEQ Electronic DMR Reporting #1** *Tiffany Yelton-Bram Oregon DEQ Joint Session in* ***P131***	**PT-101: Types of Industrial Waste and How They Can Impact a Treatment Plant** *Frank Dick City of Vancouver*	**Wastewater Collection System Management** *Continued*	**MBR Basics (pt. 1 of 2)** *Blake Raines*	**Solids Management at Stimson Lumber: The Use of Biosolids Management Principles** *Bill Fasth Brown and Caldwell*
7 4:00-5:00	**DEQ Electronic DMR Reporting #2** *Tiffany Yelton-Bram Oregon DEQ Joint Session in* ***P131***	**No Session**	**Wastewater Collection System Management** *Continued*	**Tour of Tri-City MBR Plant (pt. 2 of 2)** *Blake Raines*	**Comparison of Options for Biosolids Dewatering** *Matt Sprick, PE Carollo Engineers*

Session	STORMWATER Gregory Forum B&C	LABORATORY PRACTICES P131	TECHNOLOGY and ASSET MGMT P164	SAFETY P132
7:00 – 8:00	**REGISTRATION, COMMUNITY CENTER**			
8:00-8:15	**OPENING CEREMONY**			
1 8:15-9:15	*Keynote Speaker:* ***Goals of the Operator--****Polly Zehm—Deputy Director—Washington Department of Ecology Randall Gymnasium* *Randall Gym*			
9:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**			
2 9:30-10:30	**Smart Floodplain Management: Anticip. ESA, Climate Change & Other Objectives** *Nicole Maness, Willamette Partnership*	**Fundamentals of Electrochemical Measurements: pH, Conductivity, Residual Chlorine** *Mark McElroy Thermo-Orion*	**No Session**	**What can OSHA Do For ME?** *Craig Hamelund, Education Specialist Oregon OSHA*
3 10:35-11:35	**Artful and Ecological SW Facility Design** *Mike Faha, PLA, FASLA, LEED AP*	**Instrumentation & Methods For Basic Wastewater Analyses** *Dave Commons Hach Company*	**Stormwater Asset Management** *Juston Manville, Asset Management Consultant, HDR Inc.*	
11:35-12:35	**LUNCH for Attendees – CAFETERIA**			
4 12:35-1:35	**Successful School Rain Gardens** *Jamie Stamberger, Stamberger Outreach Consulting*	**Working Through The EPA Biotic Ligand Model For Copper** *Bob Baumgartner Clean Water Services*	**Peracetic Acid Solution** *Dale Richwine P.E., President Richwine Environmental*	**Hearing Conservation and How to Tell if YOUR Program is Effective** *Craig Hamelund, Education Specialist Oregon OSHA*
5 1:40-2:40	**Repair of Wilsonville SW Outfalls** *Steve Adams, P.E. City of Wilsonville*	**Developing and Implementing Tier 2 Monitoring Plans** *Spencer Bohaboy Oregon DEQ*	**Piloting the Cleargreen Deammonification Process at the Tri-City WRRF** *Dale Richwine P.E., President Richwine Environmental*	
2:50 – 3:10	**AFTERNOON BREAK – Cafeteria**			
6 2:55-3:55	**Bee-lieve It or Not! The Fate of Pesticides** *Kerry Rappold City of Wilsonville*	**DEQ Electronic DMR Reporting #1** *Tiffany Yelton-Bram Oregon DEQ*	**No Session**	**Welding Safety** *Craig Hamelund, Education Specialist Oregon OSHA*
7 4:00-5:00	**No Session**	**DEQ Electronic DMR Reporting #2** *Tiffany Yelton-Bram Oregon DEQ*	**No Session**	

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	WASTEWATER PRETREATMENT Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 103	BIOSOLIDS MANGEMENT P102
8 8:00-9:00	**Reduce Operating Costs with No-or-low Cost Energy Efficiency O&M Improvements** *Ray Hawksley*	**Obstacles and Opportunities Working with Municipalities** *Bill Frye* *Baker Commodities*	**Wastewater Collection System Asset Management** *Barry Buchanan, P.E.*	**Excel Management for Operations** *Chanin Bays* *Resource Recovery Program Supervisor, Clackamas County WES*	**Scientific Management of Nutrients in Biosolids Applications** *Dennis O'Neill* *Sustainable Agriculture*
9 9:05-10:05	VENDOR'S DISPLAY	**Getting the Most Out of Your Industrial User Survey** *Julie DuFresne* *LOTT*	**Wastewater Collection System Asset Management** *Continued*	**Pump Types and Application** *Bob Olijnyk*	**Biosolids Application from a Hauler/Applicator Perspective Part 1** *Eric Thwaites* *Tribeca Transport*
10:05-10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**				
10 10:15-11:15	**Using Excel as an Inexpensive CAD Program** *Joel Borchers*	VENDOR'S DISPLAY	**NASSCO Pipeline Program** *Marilyn Shepard*	**Understanding Nitrification/ Denitrification** *Don Diepenbroek*	**Biosolids Application from a Hauler/Applicator Perspective Part 2** *Eric Thwaites* *Tribeca Transport*
11 11:20-12:20	**SCADABot: The Evolution of SCADA Visualization and Data Access** *Carl Serpa, PE* *Portland Engineering*	**Elements of a Wastewater Pretreatment Program** *Matt Young* *City of McMinnville*	**NASSCO Pipeline Program** *Continued*	VENDOR DISPLAY	**Lincoln City Dewatering Improvements – Managing Biosolids on the Coast** *Nick Pisciotto, PE* *Kennedy/Jenks*
12:20-1:20	**LUNCH for Attendees – CAFETERIA**				
12 1:20-2:20	**Mechanical Seal Basic 1** *Jim Pronovost*	**What is a SLUG Discharge and How Should Collections Systems Staff and Treatment Plant Operators Respond** *Christina Davenport* *City of Bend*	VENDOR'S DISPLAY	**Wastewater Operation and Maintenance Basics** *Matt Jenkins*	**New Technologies in Digestion; Including Post Aerobic Digestion** *Chris McCalib* *Treatment Equipment Co.*
13 2:25-3:25	**DEQ Electronic DMR Reporting #3** *Tiffany Yelton-Bram* *Oregon DEQ*	**Understanding Industry Permits** *Steve Anderson* *CWS*	**Collection System Asset Management and New Technologies** *Michelle Beason, P.E.* *National Plant Svcs., Inc.*	**Wastewater Operator Certification** *Paula Carson* *Oregon DEQ*	VENDOR'S DISPLAY
3:25-3:40	AFTERNOON BREAK – Cafeteria				
14 3:40-4:40	**DEQ Electronic DMR Reporting #4** *Tiffany Yelton-Bram* *Oregon DEQ*	**No Session**	**Collection System Asset Management and New Technologies** *Continued*	**PID in Mechanical Form** *Justin Colton*	**How to Tell Your Biosolids Story** *Sheri Wantland* *Clean Water Services*

Session	STORMWATER Gregory Forum B&C	LABORATORY PRACTICES P131	TECHNOLOGY and ASSET MGMT Pauling 164	SAFETY Pauling 132
8 8:00-9:00	**Effectiveness of Outreach Efforts** *John Holvick* *DHM Research*	**Wastewater Sampling For Compliance/DMR Reporting** *Will Romanelli* *City of Portland BES*	**Condition Assessment Wastewater Force Mains** *Dan Buonadonna* *CH2M*	**Safety-At-Heights Fall Protection** *Greg McDonald*
9 9:05-10:05	VENDOR'S DISPLAY	**The Way to Weigh, The Fundamentals of Gravimetry** *Jennifer Shackelford* *WPCL QA Coordinator* *City of Portland*	**Utilizing Real Time Remote Monitoring in your Collections System** *Brogan Quist* *SmartCover® Sys.*	
10:05-10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**			
10 10:15-11:15	**Can Golf Course BMPs Keep Our Water Clean?** *David Phipps* *Golf Course Superintendents Assoc. of America*	**Basics of BOD Analyses, Common Mistakes and Their Resolution** *Keith Chapman* *Laboratory Manager* *City of Salem (ret)*	**Totally Integrated Automation – Integrating a PLC HMI and Drive Together in 1 Project** *Nathan Schiavo* *Wesco*	**VENDOR'S DISPLAY**
11 11:20-12:20	**Boeckman Road Wildlife Crossing Structures** *Leslie Bliss-Ketchum, PhD Candidate*	VENDOR'S DISPLAY	**No Session**	**Ladder Safety** *Paul Schuberg, Safety & Risk Officer City of Portland*
12:20-1:20	**LUNCH for Attendees – CAFETERIA**			
12 1:20-2:20	**A Flood Of Information** *Nancy Bush* *Clackamas County and Gari Johnson* *WES*	**Getting Ready for the New EPA MDL Procedure** *Chuck Lytle* *WPCL Lab Manager* *City of Portland*	**No Session**	**Hand Tool Safety** *Chris Lawrence Regional Safety Manager Boise Cascade*
13 2:25-3:25	**Green Street Maintenance & Lessons Learned** *Jeremy Person* *BES*	**Ethics Training for Wastewater Laboratories, Big and Small** *Kristen Thomas,* *WPCL Product, Coord.* *City of Portland*	VENDOR'S DISPLAY	
3:25-3:40	AFTERNOON BREAK – Cafeteria			
14 3:40-4:40	**Cascadia 9.0 - Are You Ready? Earthquakes & Utilities** *Allison Pyrch, PE, GE* *Hart Crowser, Inc.*	**No Session**	**No Session**	**No Session**

Session	**OPERATIONS & MAINTENANCE** McLoughlin Auditorium	**WASTEWATER PRETREATMENT** Pauling 101	**COLLECTION SYSTEMS** Gregory Forum A	**BASICS & BEYOND** Pauling 103	**BIOSOLIDS MGMT** P102
15 8:00- 9:00	**No Session**	**Collection System Troubles Area Improvement** *Paul Kramer* *City of Gresham*	**Trench Excavation Safety** *Eric Fullan* *City of Hillsboro*	**Norlift Forklift Training (pt. 1 of 3)** *Kevin O'Connor*	**Moving Toward a Class A Biosolids Program with Drying Beds** *Sundeep Kaur* *Kennedy/Jenks Consultants*
16 9:05- 10:05	**Submersible Pumps and Preventative Maintenance** *Dave Olson*	**Collection Systems and FOG Management** *Vince Chavez* *CWS*	**Trench Excavation Safety** *Continued*	**Norlift Forklift Training (pt. 2 of 3)** *Kevin O'Connor*	**Lessons Learned from Field Operations at Clackamas WES - Response to Spill Incident** *Chanin Bays* *Resource Recovery Program Supervisor* *Clackamas County WES*
10:05- 10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Community Center**				
17 10:15- 11:15	**Biological Phosphorus** *Chris Maher*	**Recovering Costs from High Strength Commercial Customers** *John Holtrop* *City of Portland*	**Trench Excavation Safety** *Continued*	**Norlift Forklift Training (pt. 3 of 3)** *Kevin O'Connor*	**Agronomic Rate Calculations** **Dr. Andrew Bary** *Washington State University*
18 11:20- 12:20	**Chemical Phosphorus Removal** *Chris Maher*	**Using What You've Got - An Intro to Mercury Minimization Plan Writing** *Paul Kramer* *City of Gresham*	**Work Zone Traffic Control Part 1** *Bill Kolzow* *T2 Trainer and Circuit Rider*	**Norlift Forklift Training (pt. 1 of 3)** *Kevin O' Connor*	**Topic: Nutrient Management Tools** *Dr. Andrew Bary* *Washington State University*
12:20- 1:20	**LUNCH for Attendees – CAFETERIA**				
19 1:20- 2:20	**Odor Control Technologies Overview** *Ken Galardi*	**FOG Energy Recovery at the Treatment Plant** *Dan Garbely* *CWS*	**Work Zone Traffic Control Part 2**	**Norlift Forklift Training (pt. 2 of 3)** *Kevin O'Connor*	**Design and Operation of Series WAS Thickening in a WASSTRIP Process** *Chris Maher,* *Operations Analyst* *Clean Water Services*
20 2:25- 3:25	**Process Control** *Adrienne Menniti* *CWS* ***In P131***	**Winery Industry Project** *Ryan Salem* *King County*	**Work Zone Traffic Control Part 3**	**Norlift Forklift Training (pt. 3 of 3)** *Kevin O'Connor*	**Optimizing Dewatering Operations** *Chris Maher,* *Operations Analyst* *Clean Water Services*
3:25- 3:40	**AFTERNOON BREAK – Cafeteria**				
21 3:40- 4:40	**No Session**	**No Session**	**Work Zone Traffic Control Part 4**	**(Hands On) How to use Excel in Wastewater Treatment** *Amy Willman* ***In Streeter S143***	**Fundamentals of Anaerobic Digester Mixing** *Brian Hemphill, PE,* *Hemphill Water Engineering*

Session	STORMWATER Gregory Forum BC	TECHNOLOGY and ASSET MGMT Pauling 164	SAFETY Pauling 132
15 8:00-9:00	**Geomorphic & MacroInvertebrate Monitoring in Clackamas County** *Gail Shaloum* *WES*	**No Session**	**Pretask Planning: Building Safety into Every Project** *Kevin Wheatcroft, Safety Management Consultant* *AGC Oregon Columbia Chapter*
16 9:05-10:05	**Willamette Falls Legacy Project** *Alex Gilbertson & Dave Elkin* *METRO*	**No Session**	
10:05 - 10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Community Center**		
17 10:15 - 11:15	**ODA CAFO Program Manager** *Wym Matthews* *ODA*	**No Session**	**The Duty to Have Fall Protection: Ten Key Elements of an Effective Program** *Jim Johnson, CEO* *D2000 Safety, Inc*
18 11:20 - 12:20	**No Session**	**No Session**	
19 1:20-2:20	**Willamette River 1938** *CCC Produced Video*	**No Session**	**No Session**
20 2:25-3:25	**No Session**	**No Session**	**No Session**
3:25-3:40	**AFTERNOON BREAK – Cafeteria**		
21 3:40-4:40	**No Session**	**No Session**	**No Session**

Operations & Maintenance — McLoughlin Auditorium

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2	9:30-10:30	**Energy Matters: A Look at Sustainability and Energy Efficiencies** *Rick Allen* In Energy Matters, attendees will briefly learn where the pressure of Energy Savings and Water Management come together through federal policies that translate into operational policies. The framework for policies that are driving their business will be explored as a backdrop to the conversation of how every facility can make changes that will help their bottom line and their long-term energy consumption. In this session, Mr. Allen will discuss the changing environment around sustainability, energy and water
#3	10:35-11:35	**Solids Handling, A New and Cost Effective Strategy for Removing Sludge from Wastewater Lagoons and Treatment Plants** *Rick Allen* Solids Handling for the removal of sludge deposits including how the process works. Discussion of different methods of sludge removal, how to determine your cost of removal and some new and accepted alternatives to mechanical extraction processes
#4	12:35-1:35	**Plastic Materials and their application.** *Leon Telesmanich* This course will look at case studies in general industrial uses of plastic materials with wastewater specific applications. It will also cover specific mechanical, thermal, and chemical properties and design considerations for machining and fabrication of finished plastic parts.
#5	1:40-2:40	**Mobile Computing and Information Sharing at the Treatment Plant** *Jens Nielsen* We will highlight advances in mobile computing and how they can be applied at the plant level to improve communication and training. Also will look at transferring knowledge from experienced operators to the next generation to eliminate loss of institutional knowledge.
#6	2:55-3:55	**DEQ Electronic DMR Reporting (JOINT SESSION WITH O&M)** ***Tiffany Yelton-Bram, Oregon DEQ*** Paper is out, electronic reporting is in. Leave frustration and anxiety behind by attending and getting all the info you need to fill out & submit your electronic monthly reports. This session is repeated at 4:00 PM, Session #7.
#7	4:00-5:00	**DEQ Electronic DMR Reporting (JOINT SESSION WITH O&M)** *Tiffany Yelton-Bram, Oregon DEQ* Paper is out, electronic reporting is in. Leave frustration and anxiety behind by attending and getting all the info you need to fill out & submit your electronic monthly reports. This session is repeated at 2:25 PM, Session #13.
Wednesday, March 29, 2017		
#8	8:00-9:00	**Reduce Operating Costs with No-or-Low Cost Energy Efficiency O&M Improvements** *Ray Hawksley* The presentation and discussion will share real-world operational improvements that have been successfully implemented at numerous Oregon water treatment and/or wastewater treatment facilities resulting in significant energy savings, reduced operating costs, and providing fast Return On Investment.
#9	9:05-10:05	***VENDOR'S DISPLAY***
#10	10:15-11:15	**Using Excel as an Inexpensive CAD program** *Joel Borchers, Clean Water Services* While CAD programs are the gold standard when dealing with drawings, they require a high level of training and are expensive. Excel has simplified drawing capabilities that are quick and easy to learn and implement.

#11	11:20-12:20	**SCADABot: The Evolution of SCADA Visualization and Data Access** *Carl Serpa, PE, Portland Engineering* The next evolution of SCADA system visualization is text messaging. Text messaging and smart phones are now part of your view into your system. SCADABot allows operators extreme convenience and flexibility to view live process information via text message. The presentation will review the operation and demonstrate the benefits of text message notification system.
#12	1:20-2:20	**Mechanical Seal Basic 1** *Jim Pronovost* The basics of mechanical pump seals from the beginning.
#13	2:25-3:25	**DEQ Electronic DMR Reporting (JOINT SESSION WITH O&M)** *Tiffany Yelton-Bram, Oregon DEQ* Paper is out, electronic reporting is in. Leave frustration and anxiety behind by attending and getting all the info you need to fill out & submit your electronic monthly reports. This session is repeated at 3:40 PM, Session #14.
#14	3:40-4:40	**DEQ Electronic DMR Reporting (JOINT SESSION WITH O&M)** *Tiffany Yelton-Bram, Oregon DEQ* Paper is out, electronic reporting is in. Leave frustration and anxiety behind by attending and getting all the info you need to fill out & submit your electronic monthly reports. This session is repeated at 3:40 PM, Session #14.
Thursday, March 30, 2017		
#15	8:00-9:00	**No Session**
#16	9:05-10:05	**Submersible Pumps and Preventative Maintenance** *Dave Olson* Submersible pump parts overview, common impellers used, safety around pumps and controls, what issues to look for and why we do preventative maintenance.
#17	10:15-11:15	**Biological Phosphorus Removal Fundamentals and Operation** *Chris Maher* Metabolic pathway of BPR, Process Configurations for BPR, Supplemental VFA for BPR, Case Study Iowa Hill WRF, Case Study Rock Creek AWWTF.
#18	11:20-12:20	**Chemical Phosphorus Removal Fundamentals and Operation** *Chris Maher* Phosphorus fractions, alum chemistry, precipitation and complexation, process configurations. Process control - dosing, mixing, settling, filtering
#19	1:20-2:20	**Odor Control Technologies Overview** *Ken Galardi* Typical technologies used for the capture and treatment of foul air from municipal wastewater collection and plant.
#20	2:25-3:25	**Process Control** *Adrienne Mennitie* Guidance for operation and troubleshooting of nitrification and biological phosphorus.
#21	3:40-4:40	**No Session**

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2	9:30-10:30	**PT 101: Intro to Wastewater Pretreatment** *Matt Young* An introduction to wastewater pretreatment designed to engage collections system staff and treatment plant operators.
#3	10:35-11:35	**PT 101: The Relationship Between Collection System Operations and the Pretreatment Program** *Jay Busher, Clark Regional Wastewater District* Outlining the way collection system staff can be involved in pretreatment program and the valuable relationship both departments should maintain.
#4	12:35-1:35	**PT 101: A Wastewater Operator's Guide to Pretreatment Devices** *Dan Parnell, City of Portland* Shedding the light on the various pretreatment devices that are used by industries to treat their process wastewater before sending it through the collections system to the wastewater treatment plant.
#5	1:40-2:40	**PT 101: A Primer on Categorical Industrial Users** *Dan Parnell, City of Portland* An introduction to how industries are classified under federal regulations.
#6	2:55-3:55	**PT 101: Types of Industrial Waste and How They Can Impact a Treatment Plant** *Frank Dick, City of Vancouver* This presentation will review different types of industrial waste and detail what the impacts would be on treatment plant if the waste were allowed to enter the collection system without treatment.
#7	4:00-5:00	**No Session**
Wednesday, March 29, 2017		
#8	8:00-9:00	**Obstacles and Opportunities Working with Municipalities** *Bill Frye, Baker Commodities* A business perspective of working with staff involved with the FOG program.
#9	9:05-10:05	**Getting the Most Out of Your Industrial User Survey** *Julie DuFresne, LOTT* How pretreatment staff use an industrial user survey to understand who is discharging into the collection system.
#10	10:15-11:15	***VENDOR'S DISPLAY***
#11	11:20-12:20	**Elements of a Wastewater Pretreatment Program** *Matt Young, City of McMinnville* Breaking down the elements of a pretreatment program and how it affects POTW operations.
#12	1:20-2:20	**What is a SLUG Discharge and How Should Collections Systems Staff and Treatment Plant Operators Respond** *Christina Davenport, City of Bend* A guide on what POTW staff should do when an industry releases a process waste SLUG discharge.
#13	2:25-3:25	**Understanding Industry Permits** *Steve Anderson, CWS* An operator's guide to understanding why and how industries are permitted.
#14	3:40-4:40	**No Session**

Thursday, March 30, 2017		
#15	8:00-9:00	**Collection System Troubles Area Improvement** *Paul Kramer, City of Gresham* How operations staff and pretreatment can coordinate to eliminate or reduce hotspots in the collection system.
#16	9:05-10:05	**Collection Systems and FOG Management** *Vince Chavez, CWS* Explains how important it is to have collections staff involved in FOG management.
#17	10:15-11:15	**Recovering Cost from High Strength Commercial Customers** *John Holtrop, City of Portland* How Portland's Extra Strength Surcharge Program recovers costs to the wastewater collections and treatment systems.
#18	11:20-12:20	**Using What You've Got - An Intro to Mercury Minimization Plan Writing** *Paul Kramer, City of Gresham* An approach to developing a Mercury Minimization Plan using your NPDES permit guidelines and what you may already be doing to manage this pollutant.
#19	1:20-2:20	**FOG Energy Recovery at the Treatment Plant** *Dan Garbely, CWS* How much a treatment plant can benefit from FOG Energy Recovery.
#20	2:25-3:25	**Winery Industry Project** *Ryan Salem, King County* A case study of how one POTW handled discharge from a winery.
#21	3:40-4:40	**No Session**

Collection Systems — *Gregory Forum A*

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2 #3	9:30-10:30 10:35-11:35	**Newberg Inflow/Infiltration Study** *Peter Olsen, Keller Associates* Data was collected from pump run times, continuous flow monitoring, smoke testing, cleaning & CCTV inspection & night-time monitoring. All the data was analyzed using GIS software & a cost benefit method to rank, prioritize & group rehabilitation projects into an I/I related CIP. Included was CCTV inspection training & certification, GIS system support, & lateral replacement program review & recommendations.
#4 #5 #6 #7	12:35-1:35 1:40-2:40 2:55-3:55 4:00-5:00	**Wastewater Collection System Management** *Rick Allen, BioLynceus* Discussion of FOG (fats, oils, and grease), H2S mitigation and other contaminants are examined. Specific protocols and programs are covered that may be utilized to help reduce FOG, odors, corrosion and their damaging impacts. Collection system and wastewater system professionals will benefit by learning key strategies to improve collection system management.
Wednesday, March 29, 2017		
#8 #9	8:00-9:00 9:05-10:05	**Wastewater Collection System Asset Management** *Barry Buchanan* Presentation on the need for asset management for collection systems, and successful techniques on establishing and maintaining an asset management program.
#10	10:15-11:15	**NASSCO Pipeline Program** *Marilyn Shepard* ***Marilyn is an industry expert on wastewater collection system condition assessment, evaluation, and rehabilitation for proper long term maintenance.*** NASSCO Pipeline Assessment & Certification Program Re-certification
#11	11:20-12:20	**NASSCO Pipeline Program** *Marilyn Shepard* NASSCO Pipeline Assessment & Certification Program Re-certification
#12	1:20-2:20	***VENDOR'S DISPLAY***
#13 #14	2:25-3:25 3:40-4:40	**Collection System Asset Management and New Technologies** *Michelle Beason, P.E.; Regional Manager, National Plant Services, Inc.* Wastewater Collection System newer technologies for asset management and/or system operation and maintenance.
Thursday, March 30, 2017		
#15 #16 #17	8:00-9:00 9:05-10:05 10:15-11:15	**Trench Excavation Safety** *Eric Fullan, Safety Officer, City of Hillsboro* Class on trench excavation safety; including trenching and shoring.
#18 #19 #20 #21	11:20-12:20 1:20-2:20 2:25-3:25 3:40-4:40	**Work Zone Traffic Control** *Bill Kolzow, T2 Trainer and Circuit Rider* At the completion of this four hour class and after successfully passing the written examination, the student will receive a certificate card from T2 in Public Agency Work Zone Traffic Control. Card will be valid for three years.

Tuesday, March 28, 2017		
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#2	9:30-10:30	**Wastewater Disinfection** *Dale Richwine, Richwine Environmental, Inc.* Fundamentals of wastewater disinfection. Disinfection using gas chlorine, sodium hypochlorite, UV, ozone and peracetic acid.
#3	10:35-11:35	**Wastewater Screening** *Dale Richwine, Richwine Environmental, Inc.* Fundamental of wastewater screening. Screen types with advantages and disadvantages. Short discussion of screening hydraulics provided.
#4	12:35-1:35	**Non-Centralized Wastewater** *Lewis Titus*
#5	1:40-2:40	**Programmable Logic Controller (PLC) Basics** *Skye Franyutti, Clackamas County Water Environment Services* Programmable logic controller layout and hardware application for wastewater treatment.
#6	2:55-3:55	**Membrane Basics** *Blake Raines, Waster Environment Services* Overview of what a membrane is and how they effectively treat wastewater.
#7	4:00-5:00	**Tour of Tri-City MBR Plant** *Blake Raines, Waster Environment Services* Discussion of key components needed in order for a wastewater membrane plant to perform at its best.
Wednesday, March 29, 2017		
#8	8:00-9:00	**Excel Management for Operations** *Chanin Bays, Resource Recovery Program Supervisor,* *Clackamas County Water Environment Services* Overview of tools and tips for creating, auditing and maintaining Excel workbooks used for wastewater operations process control and reporting. As facilities become increasingly dependent on Excel workbooks for process reports it is even more important that these reports be audited and understood by all users.
#9	9:05-10:05	**Pump Types and Applications** *Bob Olijnyk, PumpTech* Looking at various types of pump designs and their applications in relation to wastewater.
#10	10:15-11:15	**Understanding Nitrification/Denitrification** *Don Diepenbroek, Xylem* A basic understating of wastewater treatment plant processes with an emphasis on nitrification and denitifrication.
#11	11:20-12:20	***VENDOR'S DISPLAY***
#12	1:20-2:20	**Wastewater Operation and Maintenance Basics** *Matthew Jenkins, City of Ridgefield, WA* Introduction to basic operation and maintenance tasks, skills and techniques necessary to succeed as a wastewater treatment worker. Topic covered: plant rounds, equipment checks, basic preventative maintenance, process control sampling and analysis and case studies of plant problems.
#13	2:25-3:25	**Wastewater Operator Certification** *Paula Carson, Oregon Department of Environmental Quality* Overview of the various wastewater operator certifications; review of application forms; review of qualification requirements; wastewater permit and system classification basics; website resources.

#14	3:40-4:40	**PID Control in Mechanical Form** *Justin Colton, OCD Automation, Inc.* PID control is often misunderstood, this will attempt to show with a physical controller.
Thursday, March 30, 2017		
#15 #16 #17	8:00-9:00 9:05-10:05 10:15-11:15	**Forklift Certification Training—Session 1** *Kevin O'Connor, Norlift of Oregon* 3 hour class helps fulfill the OSHA requirements for operator safety training for forklifts. Covers Forklift Basics, pre-operation inspections, handling characteristics, load handling, balance and stability, fueling and battery charging. Concentration on the safe handling of wastewater chemicals.
#18 #19 #20	11:20-12:20 1:20-2:20 2:25-3:25	**Forklift Certification Training—Session 2** *Kevin O'Connor, Norlift of Oregon* 3 hour class helps fulfill the OSHA requirements for operator safety training for forklifts. Covers Forklift Basics, pre-operation inspections, handling characteristics, load handling, balance and stability, fueling and battery charging. Concentration on the safe handling of wastewater chemicals.
#21	3:40-4:40	**"Hands On" How to Use Excel in Wastewater Treatment** *Amy Willman, Clackamas County Water Environment Services* ***IN STREETER HALL ROOM S143*** The practical application of Excel in wastewater treatment. Focus on data collection, charting and trending. The tools learned in this course will allow operators to confidently and accurately use Excel in many aspects of wastewater treatment.

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2	9:30-10:30	**Biosolids Jeopardy** *Dave Arguello, Clean Water Services* Game-style interaction on various principles and regulations regarding biosolids management. ***OESAC Approved #3190***
#3	10:35-11:35	**Biosolids Regulatory Issues** *Paul Kennedy, Oregon DEQ* A primer on state and federal regulations relating to management of biosolids. *OESAC Approved #3190*
#4	12:35-1:35	**Site Authorizations/NCRS** *Paul Kennedy, Oregon DEQ* How to obtain a site authorization, including the use of NRCS on-line soils information *OESAC Approved #3190*
#5	1:40-2:40	**Biosolids Management Plans** *Paul Kennedy, Oregon DEQ* How to develop and maintain required biosolids management plans *OESAC Approved #3190*
#6	2:55-3:55	**Solids Management at Stimson Lumber: The Use of Biosolids Management Principles** *Bill Fasth, Brown and Caldwell* Case history of applying biosolids principles and regulations in development and maintenance of an effective residuals management program at an industrial facility.
#7	4:00-5:00	**Comparison of Options for Biosolids Dewatering** *Matt Sprick, PE, Carollo Engineers* Overview of the three major dewatering technologies - centrifuge, screw press, and belt filter press; with discussion of impacts and optimization of polymer application.
Wednesday, March 29, 2017		
#8	8:00-9:00	**Scientific Management of Nutrients in Biosolids Applications.** *Dennis O'Neill, Sustainable Agriculture* Scientific management of nutrients in biosolids applications *OESAC Approved #3190*
#9	9:05-10:05	**Biosolids Application from a Hauler/Applicator Perspective Part 1** *Eric Thwaites, Tribeca Transport* What you should know about working with your hauling contractor.
#10	10:15-11:15	**Biosolids Application from a Hauler/Applicator Perspective Part 2** *Eric Thwaites, Tribeca Transport* What you should know about working with your hauling contractor.
#11	11:20-12:20	**Lincoln City Dewatering Improvements – Managing Biosolids on the Coast** *Nick Pisciotto, PE, Kennedy/Jenks Consultants* Case history of biosolids processing improvements at the Lincoln City, OR wastewater treatment plant.
#12	1:20-2:20	**New Technologies in Digestion; Including Post Aerobic Digestion** *Chris McCalib, Treatment Equipment Co.*
#13	2:25-3:25	***VENDOR'S DISPLAY***
#14	3:40-4:40	**How to Tell Your Biosolids Story** *Sheri Wantland, Clean Water Services* Methods and approaches appropriate for communicating with the media and the public about your biosolids program

Thursday, March 30, 2017		
#15	8:00-9:00	**Moving Toward a Class A Biosolids Program with Drying Beds** *Sundeep Kaur, Kennedy/Jenks Consultants* Case history of developing a Class A biosolids program incorporating drying beds to meet regulatory standards.
#16	9:05-10:05	**Lessons Learned from Field Operations at Clackamas WES - Response to Spill Incident** *Chanin Bays, Resource Recovery Program Supervisor, WES of Clackamas County* Investigation and changes in operational procedures resulting from field application accident.
#17	10:15-11:15	**Agronomic Rate Calculations** *Dr. Andrew Bary, Washington State University* How to use available tools for developing appropriate agronomic rates for your biosolids sites. *Topic OESAC Approved #3190 given by a different speaker; CV provided*
#18	11:20-12:20	**Nutrient Management Tools** *Dr. Andrew Bary, Washington State University* How to manage soils using appropriate sampling and analysis methods. *Topic OESAC Approved #3190 given by a different speaker; CV provided*
#19	1:20-2:20	**Design and Operation of Series WAS Thickening in a WASSTRIP Process** *Chris Maher, Operations Analyst, Clean Water Services* Customized operation of gravity belt thickeners to optimize performance
#20	2:25-3:25	**Optimizing Dewatering Operations** *Chris Maher, Operations Analyst, Clean Water Services* Case history of operation of biosolids dewatering system at Rock Creek facility.
#21	3:40-4:40	**Fundamentals of Anaerobic Digester Mixing** ***B**rian Hemphill, PE, Hemphill Water Engineering* Current trends in application of various methods of mixing anaerobic digesters.

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2	9:30-10:30	**Smart Floodplain Mgmt: Anticip. ESA, Climate Change & Other Objectives** *Nicole Maness, Willamette Partnership* Waterways are a nexus of regulatory and economic pressures for Oregon communities. Small communities must manage their rivers, streams, and floodplains to meet a complex and changing set of requirements. In the last year, significant developments have affected policies on floodplain and stormwater management. This talk will explore how a One Water framework could connect the regulatory and resources silos for communities developing integrated approaches to policy and planning that meet stormwater and floodplain requirements and foster partnerships between floodplain managers, stormwater managers, and the non-profit and research communities. This session will cover potential impacts to utilities from changes in floodplain regulations to be compliant with the Endangered Species Act. How compliance can help achieve compliance with other regulations such as NPDES permits and DEQ water quality standards.
#3	10:30-11:30	**Artful and Ecological Stormwater Facility Design** *Mike Faha, PLA, FASLA, LEED AP* Aesthetics and ecology of stormwater management facilities. With the emphasis on Low Impact Design (LID) these facilities are integrated into the more formal landscape areas and more apparent to local citizens. Discussion of methods to design and maintain functional facilities that are also viewed as attractive assets.
#4	12:30-1:35	**Successful School Rain Gardens** *Jamie Stamberger, Stamberger Outreach Consulting* Installing rain gardens at schools (and other public spaces) is a great idea that comes with many aspects and challenges to consider. Local rain garden outreach and installation expert, Jamie Stamberger will walk through her process by installing successful school rain gardens, including safe site selection for reducing stormwater runoff & pollution, permissions and permits, long-term maintenance, getting students involved, integration into school culture and curriculum, and connecting the project to the larger community. Case studies will be included.
#5	1:40-2:40	**Repair of Wilsonville SW Outfalls** *Steve Adams, P.E., City of Wilsonville* The City of Wilsonville has many stormwater outfalls constructed in the 1990's. Due to the design used at that time, and the City not consistently requiring stormwater detention, moderate to severe erosion has occurred at the outfalls requiring the City to initiate the redesign and reconstruction at several outfall locations. Five of these outfalls are on the banks of the Willamette River requiring additional permitting and approval from Army Corps of Engineers, National Marine Fisheries Service, and Oregon DEQ, as well as coordinating and working with HOA's and neighboring homeowners.
#6	2:55-3:55	**Bee-lieve It or Not! The Fate of Pesticides** *Kerry Rappold, City of Wilsonville* In June 2013, an estimated 50,000 bumblebees died in a Wilsonville retail parking lot. The bee deaths were directly related to a pesticide application for the control of aphids on the parking lot trees. In response to this tragedy, the City of Wilsonville has partnered with the Northwest Center for Alternatives to Pesticides to restore healthy pollinator habitat and expand community awareness and stewardship. Habitat will be added to city and school district property, and an integrated pest management plan will be developed to maintain a healthy environment for pollinators. This presentation will address pollinators, pesticides, habitat restoration, IPM and connections to stormwater management and monitoring.
#7	4:00-5:00	**No session**

Wednesday, March 29, 2017		
#8	8:00-9:00	**Effectiveness of Outreach Efforts** *John Holvick, DHM Research* John Horlick from DHM Research will share findings from years of research with Oregonians about what they value, what they think, and how they talk about water. The presentation will explore how everyday people put water into the broader context of their lives and their politics. It will conclude with recommendations about how to communicate about water to your customers, using language that will resonate and inspire.
#9	9:05-10:05	**VENDORS**
#10	10:15-11:15	**Can Golf Course BMPs Keep Our Water Clean?** *David Phipps, Golf Course Superintendents Assoc. of America* David is considered one of the Northwest's leaders in golf course environmental stewardship and innovation. While working as the superintendent at Stone Creek Golf Club he received numerous awards and national recognition for his efforts. He was also involved in the revision of the OGCSA Environmental Stewardship Guidelines. He will be discussing best management practices developed by Oregon golf course superintendents that are intended to enhance and protect water quality.
#11	11:20-12:20	**Boeckman Road Wildlife Crossing Structures** *Leslie Bliss-Ketchum, PhD Candidate* The Boeckman Road project in Wilsonville Oregon includes many features for stormwater management and by design also provide many benefits to wildlife. This presentation will give background information on the project features and goals as well as details on the wildlife monitoring work that has been ongoing at the site since 2008.
#12	1:20-2:20	**A Flood Of Information** *Nancy Bush, Clackamas County and Gari Johnson, WES* Disasters such as floods impact utilities and property. Property owners are often at a loss as to which agencies they need to work with during the disaster and afterwards. Clackamas County put together a series of public workshops where the public could learn about resources and permitting and meet with representatives of this myriad of agencies so that they could be better prepared for the next event.
#13	2:25-3:25	**Green Street Maintenance & Lessons Learned** *Jeremy Person, BES* Jeremy will present details about the City of Portland's Green Street Maintenance Program that began with 3 green streets in 2003 and expanded to approximately 1,600 in 2015. The presentation will discuss program challenges, maintenance approaches and service level description, and lessons learned related to facility design.
#14	3:40-4:40	**Cascadia 9.0 - Are You Ready? Earthquakes & Utilities** *Allison Pyrch, PE, GE; Hart Crowser, Inc.* Allison has over 12 years of geotechnical engineering consulting experience, with a background that includes many infrastructure and development projects, such as interstate improvements, wastewater treatment plants, and large residential and commercial developments. Allison has also been active in the American Society of Engineers' Technical Council on Lifeline Earthquake Engineering (ASCE - TCLEE). She travelled to Chile and Japan with the TCLEE team to evaluate lifeline performance during and after the major subduction zone earthquakes and tsunamis in those countries. Allison's presentation will focus on our earthquake risks and the effects of subduction zone earthquakes on the built environment and lifelines in Chile and Japan and the infrastructure damage we can expect here in the Pacific Northwest when a similar quake event occurs.
Thursday, March 30, 2017		
#15	8:00-9:00	**Geomorphic & MacroInvertebrate Monitoring in Clackamas County** *Gail Shaloum, WES* WES funds a long-term monitoring project to evaluate stream health in its Districts. This presentation will report the results of both benthic macroinvertebrates and geomorphic sampling. We can observe the physical impacts to stream channels from hydromodification, but how does that affect the biological communities that live on the bottoms of streams? What are the cumulative effects of hydromodification on channel form and function, and the ecological health of our streams?

#16	9:05-10:05	**Willamette Falls Legacy Project** *Alex Gilbertson & Dave Elkin, METRO* The Willamette Falls will be open to the public for the first time in 150 years. The 22 acre former Blue Heron Mill property will be redesigned to create a vibrant new development and a world-class Riverwalk to the Falls. The new Riverwalk design will encompass the four core values of public access, economic redevelopment, historical and cultural interpretation, and healthy habitat. The presentation will discuss our early efforts on the identifying pollutants and contaminants, conceptual design phase, allowing for stormwater treatment and river buffer restoration and the complexities and challenges this unique site has provided.
#17	10:15-11:15	**ODA CAFO Program Manager** *Wym Matthews, ODA* The Departments of Agriculture (ODA) and Environmental Quality (DEQ) jointly regulate Confined and Concentrated Animal Feeding Operations (CAFOs) in Oregon. ODA implements and operates the CAFO Permit, inspection and compliance parts of the program. CAFOs that are required to register to a Permit must develop an Animal Waste Management Plan (AWMP) that describe how they manage any contaminated stormwater and all manure and process wastewater generated so that no discharge to surface or ground waters of the state occurs. Wym Matthews, the ODA CAFO Program Manager will outline the Program and Permit requirements and describe the program activities.
#18	11:20-12:20	**No session**
#19	1:20-2:20	**Willamette River 1938** *CCC Produced Video* Documentary film with narration archival footage of staff performing water quality sampling and testing of the Willamette River in 1938. This startling footage was taken as part of a campaign at that time to showcase the need for treatment of sewers prior to discharge into the Willamette. Documents historic water quality concerns, demonstrates water quality testing methods of the time, and use of native fishes to test toxicity.
#20	2:25-3:25	**No session**
#21	3:40-4:40	**No session**

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2	9:30-10:30	**Fundamentals of Electrochemical Measurements** *Mark McElroy, Thermo-Orion* The "hidden" problem with these fundamental analyses is the ease of use with modern instrumentation. However, there are many tricks of the trade that will help you smooth out problems and generate better data.
#3	10:35-11:35	**Instrumentation & Methods For Basic Wastewater Analyses** *Dave Commons, Hach Company* Learn the latest in lab and process instrumentation available from Hach.
#4	12:35-1:35	**Working Through The EPA Biotic Ligand Model For Copper** **Speaker:** Bob Baumgartner, Clean Water Services **Brief Description:** The BLM is an attempt to quantitate values for metals in receiving waters that more accurately account for biota health effects. It's complicated, it's esoteric, and it requires a lot of data. Learn how CWS is navigating the entire process from scoping, sampling and analysis to getting final results.
#5	1:40-2:40	**Developing and Implementing Tier 2 Monitoring Plans** *Spencer Bohaboy, Oregon DEQ* Your RPA has been turned in to the DEQ. Life is good...until you get a "Monitoring Action Letter" in the mail! Now what? Learn the steps in successfully getting through the Tier 2 process.
#6	2:55-3:55	**DEQ Electronic DMR Reporting (JOINT SESSION WITH O&M)** *Tiffany Yelton-Bram, Oregon DEQ* Paper is out, electronic reporting is in. Leave frustration and anxiety behind by attending and getting all the info you need to fill out & submit your electronic monthly reports. This session is repeated at 4:00 PM, Session #7. ***1st Session—You may only attend 1 session***
#7	4:00-5:00	**DEQ Electronic DMR Reporting (JOINT SESSION WITH O&M)** *Tiffany Yelton-Bram, Oregon DEQ* Paper is out, electronic reporting is in. Leave frustration and anxiety behind by attending and getting all the info you need to fill out & submit your electronic monthly reports. This session is repeated at 4:00 PM, Session #7. ***1st Session—You may only attend 1 session***
Wednesday, March 29, 2017		
#8	8:00-9:00	**Wastewater Sampling For Compliance/DMR Reporting** *Will Romanelli, City of Portland BES Field Operations* Sampling is THE fundamental step in generating good data for regulatory reporting. Learn what to do and what not to do so you can get it right the first time.
#9	9:05-10:05	**The Way to Weigh, Fundamentals & Pitfalls of Gravimetry** *Jennifer Shackelford, City of Portland WPCL QA Coordinator* Using the analytical balance is a little more complicated that it seems. Learn how to quickly set up, calibrate, and use the balance to get accurate and precise results.
#10	10:15-11:15	**The Basics of BOD Analyses - Common Mistakes & Their Resolution** *Keith Chapman, Laboratory Manager, City of Salem (ret.)* Keith will help smooth out the wrinkles in this sometimes mystifying and always challenging analysis. Get the right BOD results without the stress.
#11	11:20-12:20	***VENDOR'S DISPLAY***

#12	1:20-2:20	**Getting Ready for the New EPA MDL Procedure** *Chuck Lytle, City of Portland WPCL Laboratory Manager* Just when you thought you'd heard the end of it, the EPA is proposing to up the ante when it comes to detection limits. Soon to appear at 40 CFR 136, get ahead of the game and learn what it's all about.
#13	2:25-3:25	**Ethics Training for Wastewater Laboratories, Big and Small** *Kristen Thomas, City of Portland WPCL Production Coordinator* It's required for accreditation and is just plain good sense for ALL lab personnel to understand the ethical pitfalls in generating legally defensible data. And, you get a certificate suitable for framing when you complete the session!
#14	3:40-4:40	**No Session**
Thursday, March 30, 2017—No Sessions		

Technology & Asset Management — Pauling Center P164

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2	9:30-10:30	**No Sessions**
#3	10:35-11:35	**Stormwater Asset Management** With EPA regulations becoming more stringent and green infrastructure becoming more popular stormwater asset management is a growing sector of asset management. Juston will go over some of the trends and issues in stormwater asset management *Juston Manville, Asset Management Consultant, HDR Inc.* • **8 years as a department manager in local government with a focus on GIS and Asset Management** • **23 years in the utility business** • **Has worked with municipal clients across the country building asset management strategy and O&M optimization**
#4	12:35-1:35	**Screw Press Pilot Project** *Dale Richwine P.E., President Richwine Environmental* WES evaluated equipment from 5 screw press manufactures to compare performance between manufacturers and with centrifuge dewatering. This presentation will present the results of the pilots and compare the results between the two technologies and the screw press manufacturers
#5	1:40-2:40	**Piloting the Cleargreen Deammonification Process at the Tri-City WRRF** *Dale Richwine P.E., President Richwine Environmental* Sidestreams from the dewatering of anaerobic digester biosolids often contain a high ammonia-nitrogen contributing up to 25% of the nitrogen load of the treatment plant influent. Typically, sidestreams are recycled to the head of the plant causing significant stress on the secondary treatment process (e.g. biological process upset, increased energy consumption and increased chemicals consumption). The deammonification process encompasses two autotrophic biological reactions; namely nitritation and anaerobic ammonia oxidation (ANAMMOX®). Deammonification utilizing the Anammox bacteria has become an attractive solution for nitrogen-laden wastewater treatment primarily due to its potential in reducing chemical usage and energy consumption compared to traditional nitrification-denitrification processes. Theoretically, plants can accomplish savings up to 65% in oxygen and significant savings in supplemental carbon and alkalinity savings by employing a deammonification process. The specialized nature of a deammonification system eliminates nitratation (aerobic conversion of nitrite in to nitrate) and maintains a delicate balance between aerobic ammonia oxidation and anaerobic ammonia oxidation. The deammonification pilot study utilizing the Cleargreen process was conducted at the Tri-City, OR WRRF. The Cleargreen process uses a sequencing batch reactor that incorporates a unique process control strategy to enrich activated sludge with anaerobic ammonia oxidizing (anammox) bacteria. Process operational parameters such as anoxic/aerobic sequences, nitrite/ammonia ratios, dissolved oxygen etc. are controlled to provide favorable conditions for anammox enrichment. The primary objective of this study was to demonstrate process capabilities and robustness over a wide range of environmental conditions for incorporation into the plant's solids handling upgrades. The paper will provide the results of the study from startup through completion including characterization of the centrate, process control requirements, system stability and the capital and O&M costs to incorporate the process into full scale operation at the Tri-City WRRF.
#6	2:55-3:55	**No Session**
#7	4:00-5:00	**No Session**

Wednesday, March 29, 2017		
#8	8:00-9:00	**Condition Assessment for Wastewater Force Main** *Dan Buonadonna, CH2M* A detailed review of the state of the industry wastewater force mains condition assessment strategies and technologies.
#9	9:05-10:05	**Utilizing Real Time Remote Monitoring in your Collections System** *Brogan Quist, Regional Manager, SmartCover Systems* Real-time remote water level monitoring has identified locations where a possible sewer system overflow (SSO) was developing and alerted these conditions before the overflow, allowing field staff to visit the site and perform corrective actions. Locating these problems prior to an SSO actually occurring has enabled users of the Hadronex SmartCover® sewer monitoring system to pinpoint the causes of these blockages. By placing the remote monitors at trouble sites, water levels are wirelessly transmitted in real-time to the collection system operator and the knowledge of these water levels and the lack of problems at these sites has enabled re-deployment of staff to other problem areas. Also, remote real-time level monitors provide a means to detect and correlate rain events with I&I. The ability to identify, quantify and track down sources of I&I is critical to minimizing problems with overflows during significant precipitation events. The ability to overlay rain data with level or flow data provided by real time monitoring can enhance I & I usage even further.
#10	10:15-11:15	**Totally Integrated Automation – Integrating a PLC HMI and Drive Together in 1 Project** *Nathan Schiavo, Wesco* Program an industrial controller to run a variable speed drive and monitor process variables from a touch enabled user interface with one programming interface. This is a big step forward in the integration of different systems (controller, motors, user interface) to create simplified control solutions to multidisciplinary applications
#11	11:20-12:20	**No Session**
#12	1:20-2:20	**No Session**
#13	2:25-3:25	***VENDOR'S DISPLAY***
#14	3:40-4:40	**No Session**

Tuesday, March 28, 2017		
#1	8:15-9:15	**Keynote: Goals of the Operator** *Polly Zehm—Deputy Director—Washington Department of Ecology* *Randall Gymnasium* As permits get more complex, and limits get tighter, the role of the operator becomes crucial. The operator is vital in keeping the treatment process in compliance. We rely on operational staff to be on the front line of public health. Polly Zhem, WA Dept. of Ecology's Deputy Director, speaks about our common goals, the role of the operator and the impacts to our water quality.
#2 #3	9:30-10:30 10:30-11:30	**What Can OSHA Do For ME?** *Craig Hamelund, Education Specialist, Oregon OSHA* Have you ever asked yourself "What can OSHA do for me?" This session will answer What's the difference between Federal OSHA and OR-OSHA?; Enforcement vs. Compliance?; why should I Consult with OSHA? Who makes the rules? What the role of OR-OSHA in your Employer's safety program? Craig will also tell you what resources and classes Oregon OSHA offers and why you should take one.
#4 #5	12:30-1:35 1:40-2:40	**Hearing Conservation and How to Tell if YOUR Program is Effective** *Craig Hamelund, Education Specialist, Oregon OSHA* Is your workplace some or all the time NOISY!? Do you know what resources to use to determine how noisy, and some of the rules, program elements, and efforts required for your workplace's conditions? During this class, we discuss the rules for hearing conservation and what it takes to maintain a hearing conservation program. Also, as an employee, how we can get people to buy into the program and the benefits of wearing the hearing protection; the reason to get the "right" hearing protection and the benefits of noise monitoring. We discuss working with audiograms and the follow-up needed after the hearing tests are done. Plus how to sell your boss on improving your hearing program.
#6 #7	2:55-3:55 4:00-5:00	**Welding Safety** *Craig Hamelund, Education Specialist, Oregon OSHA* This session describes the many different welding processes found in industry and construction with an emphasis on the physical hazards they pose. Applicable Oregon OSHA requirements will be discussed. Relevant case studies and sampling data will be reviewed as well as the appropriate engineering controls and personal protective equipment used for identified hazards.
Wednesday, March 29, 2017		
#8 #9	8:00-9:00 9:05-10:05	**Safety – At- Heights Fall Protection** *Greg McDonald* Fundamentals of safety at heights fall protection, regulations, fall hazard control methods, physics of a fall, anchor points, identifying and selection of equipment, building systems-work positioning, restraint & personal fall arrest, calculating fall distance, suspension trauma & rescue requirement and required equipment inspections.
#10	10:15-11:15	**VENDORS**
#11	11:20-12:20	**Ladder Safety** *Paul Schuberg, Safety & Risk Officer City of Portland* This class will cover ladder safety standards and risks posed from a variety of ladders used in wastewater and at home.
#12 #13	1:20-2:20 2:25-3:25	**Hand Tool Safety** *Chris Lawrence, Regional Safety Manager, Boise Cascade* Hand tools, powered hand tools in particular, are involved in many worker injuries. This includes injuries to mechanics, construction workers, production workers, utility workers, maintenance, etc. This class discusses what OSHA has to say about hand tool safety and point out some best practices including inspection and safe operation.
#14	3:40-4:40	**No Session**

Thursday, March 30, 2017		
#15 #16	8:00-9:00 9:05-10:05	**Pretask Planning: Building Safety into Every Project** *Kevin Wheatcroft, Safety Management Consultant, AGC Oregon Columbia Chapter* A pretask assessment is the foundation of a strong health and safety program. An assessment is only a snapshot of the task at that moment in time. Jobsites are in constant state of change, new tasks, new equipment, new processes, new workers, and often new supervisors. An effective pre-task plan (P-T-P) is reviewed and updated regularly. A pre-task-plan identifies current conditions, current tasks, jobsite changes in personnel, equipment needs, needs for appropriate PPE, and upsets at the jobsite that may affect these tasks. A pre-task plan should be conducted in a team approach by workers closest to the job. A fresh set of eyes, a supervisor, manager, workers, or consultant, can help by identifying hazardous conditions that workers at the jobsite may have become used to and overlooked. An effective pre-task plan divides the jobsite into major work areas or steps in the flow of work, helping to identify health and safety concerns and effective measures to be taken for specific tasks.
#17 #18	10:15-11:15 11:20-12:20	**The Duty to Have Fall Protection: Ten Key Elements of an Effective Program** *Jim Johnson, CEO D2000 Safety, Inc* When workers are exposed to fall hazards, the employer must design and implement a fall protection program. The scope and content of these programs can vary widely; but, all effective programs share common characteristics. One example is reflecting the new Oregon OSHA regulations for construction. In this session, we explore the key elements of effective fall protection programs and provide participants with checklists and other resources they can use to ensure their location's program meets these standards.
#19	1:20-2:20	**No Session**
#20	2:25-3:25	**No Session**
#21	3:40-4:40	**No Session**

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