CELEBRATING 42 YEARS OF EDUCATION

ORWEF
Oregon Water Education Foundation

Water Environment School 2018

Operations & Maintenance Laboratory Practices
Stormwater Collection Systems Safety
Wastewater Basics Basics & Beyond
Wastewater Pretreatment Biosolids Management

42nd Annual

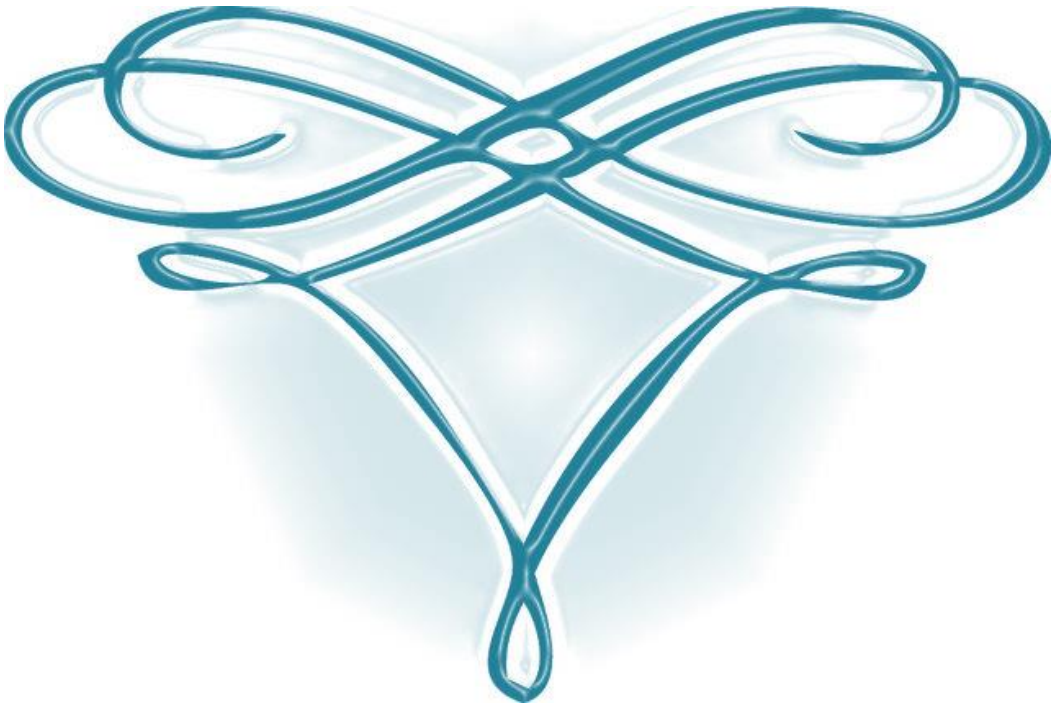
March 27-29

Vendor Display

Clackamas Community College | Oregon Water Education Foundation

SESSION SCHEDULE & DESCRIPTIONS

OESAC Approved
2.1 Wastewater &1.2 Drinking Water CEUs
#3597



2018 Vendor's Display

This year's vendor's display will be on
Wednesday, March 28, 2018
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 131
7:00 – 8:00	**REGISTRATION, COMMUNITY CENTER**			
8:00-8:15	**OPENING CEREMONY**			
1 8:15-9:15	*Keynote Speaker* ***Utilities of the Future*** *Bob Baumgartner—Clean Water Services* *Randall Gymnasium*			
9:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**			
2 9:30-10:30	**Bio-Augmentation vs. Bio-Stimulation** *Rick Allen* *BIOLYNCEUS*	**Salem Public Works Waste Processing Facility** *Nitin Joshi* *City of Salem*	**What To Do With That Culvert?** *Aaron Guffey* *E. Multnomah Soil & Water Conservation District* *Combined with Stormwater in GF B&C*	**Ergonomics for Wastewater Operators** *Dr. Ben Hokenson*
3 10:35-11:35	**Solids Handling, A New and Cost Effective Strategy for Removing Sludge from Wastewater Lagoons and Treatment Plants** *Rick Allen* *BIOLYNCEUS*	**Toxics in Consumer Products** *Lisa Cox* *Oregon Department of Environmental Quality*	**Winning the Fight Against Wipes and Preventing Pump Clogs in Collections** *Dave Barkey* *JWC Environmental*	**How to Get a Job in the Wastewater Field** *Greg Eyerly* *WES*
12::00-1:00	**LUNCH for Attendees – CAFETERIA**			
4 12:35-1:35	**BNR with External Carbon** *Rick Allen* *BIOLYNCEUS*	**Fundamentals of Electronic Measurement: pH, Conductivity, Residual Chlorine, Etc.** *Mark McElroy* *Thermo* *Joint Session with Lab In P101*	**Collection System Asset Management** *Barry Buchanan, P.E.* *Buchanan and Associates*	*No Session*
5 1:40-2:40	**Process Control Nitrogen Removal** *Adrienne Menitti* *Clean Water Services*	**Fundamentals of Electronic Measurement: pH, Conductivity, Residual Chlorine, Etc.** *Continued*	**Collection System Strategies** *Rick Allen* *BIOLYNCEUS*	**Wastewater Membrane Basics (Section 1)** *Blake Raines* *WES*
2:50 – 3:10	**AFTERNOON BREAK – Cafeteria**			
6 2:55-3:55	**Process Control for Phosphorus Removal** *Adrienne Menitti* *Clean Water Services*	**It's Complicated: Controlling Odors in King County WTD ESI** *David Kopchynski* *Parametrix*	**Collection System Strategies** *continued*	**Tour of Tri-City's Membrane Bioreactor Plant (Section 2)** *Blake Raines* *WES*
7 4:00-5:00	**Totally Integrated Automation – Integrating a PLC HMI and Drive Together in 1 Project** *Nathan Schiavo* *Wesco*	**No Session**	**Collection System Strategies** *continued*	**Tour of Tri-City's Conventional Activated Sludge Plant (Section 3)** *Blake Raines* *WES*

Session	BIOSOLIDS MANAGEMENT P102	STORMWATER Gregory Forum B&C	LABORATORY PRACTICES P103	SAFETY P132
7:00 – 8:00	**REGISTRATION, COMMUNITY CENTER**			
8:00-8:15	**OPENING CEREMONY**			
1 8:15-9:15	*Keynote Speaker* ***Utilities of the Future*** *Bob Baumgartner—Clean Water Services* *Randall Gymnasium*			
9:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**			
2 9:30-10:30	**Biosolids Primer, Part 1** *Brian Hemphill, PE* *Hemphill Water Engineering, LLC*	**What To Do With That Culvert?** *Aaron Guffey* *E. Multnomah Soil & Water Conservation District*	**How To Solve It** *Kristen Thomas* *City of Portland Water Pollution Control Laboratory* *&* *Ken Earle* *EZ Kem, Inc.*	**Managing Your Confined Space Program** *Craig Hamelund* *Oregon OSHA*
3 10:35-11:35	**Biosolids Primer, Part 2** *Brian Hemphill, PE* *Hemphill Water Engineering, LLC*	**Oregon Watershed Enhancement Board: 20 Years On** *Meta Loftsgaarden* *OWEB*	**Modern Instrumental Methods in Wastewater Analyses** *Brady Miller* *Astoria-Pacific*	**Managing Your Confined Space Program** ***Continued***
12::00-1:00	**LUNCH for Attendees – CAFETERIA**			
4 12:35-1:35	**Biosolids Regulatory Issues** *Paul Kennedy* *Oregon DEQ*	**Climate Change Impacts on Stormwater & Wastewater Utilities** *Matt Glazewski* *Water Environment Services*	**Fundamentals of Electronic Measurement: pH, Conductivity, Residual Chlorine, Etc.** *Mark McElroy* *Thermo* *Combined with Pretreatment in P101*	**Managing Your Confined Space Program** ***Continued***
5 1:40-2:40	**Site Authorization/soils NRCS** *Paul Kennedy* *Oregon DEQ*	**Continuous Monitoring & Adaptive Control (CMAC) of Stormwater Ponds** *Leah Johanson, PE* *Water Environment Services*	**Fundamentals of Electronic Measurement: pH, Conductivity, Residual Chlorine, Etc.** ***Continued***	**Managing Your Confined Space Program** ***Continued***
2:50 – 3:10	**AFTERNOON BREAK – Cafeteria**			
6 2:55-3:55	**Biosolids Management Plans** *Paul Kennedy* *Oregon DEQ*	**Stormwater 101** *Angela Wieland, PE* *Brown & Caldwell*	**Problem Solving for the Future: Strategic Planning in the Public Sector** *Kristen Thomas* *City of Portland Water Pollution Control Laboratory*	**Managing Your Confined Space Program** ***Continued***
7 4:00-5:00	**Biosolids Jeopardy** *Dave Arguello* *Clean Water Services*	**No Session**	**No Session**	**Slips Trips and Falls** *Judy West* *Clean Water Services*

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	WASTEWATER PRETREATMENT Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 131
8 8:00-9:00	**An Examination of Plastic Materials in Wastewater Applications** *Leon Telesmanich*	**How to Read a Lab Report** *Matt Young* *City of McMinnville*	**Work Zone Traffic Safety*** *Tony Jobanek* *ODOT Technology Transfer Center*	**Excel Management for Wastewater Operations** *Chanin Bays* *WES*
9 9:05-10:05	VENDOR'S DISPLAY	**Plumbing Plan Review - Pretreatment and FOG Devices** *Jason Oster* *Clark Regional Wastewater District*	**Work Zone Traffic Safety*** ***Continued***	**Excel Management for Wastewater Operations** *Continued*
10:05-10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**			
10 10:15-11:15	**Reducing Operating Costs with Energy Efficient Improvements** *Eric Braddock* *Energy Trust of Oregon*	VENDOR'S DISPLAY	**Work Zone Traffic Safety*** ***Continued***	VENDOR'S DISPLAY
11 11:20-12:20	**Electronic Operations Manuals utilizing a SharePoint Platform** *Joel Borchers* *Clean Water Services*	**Community Based Pretreatment** *Clayton Brown* *Oregon Association of Clean Water Agencies*	**Work Zone Traffic Safety*** ***Continued***	**Introduction to Corrosion Control** *Jeff Stallard* *WES*
12:20-1:20	**LUNCH for Attendees – CAFETERIA~ Test of CCC Emergency System @ 12:30PM**			
12 1:20-2:20	**Low Temperature Drying of Biosolids** *Jens Nelisen* *Treatment Equipment Company*	**Industrial User Inspections** *Dade Pettinger* *City of Vancouver, WA*	VENDOR'S DISPLAY	**Occupational Exposure to Hydrogen Sulfide** *Ben Marks* *G2 Consultants Inc.*
13 2:25-3:25	**Secondary Clarifier Optimization Using State Point Analysis** *Mark Walter* *Water Dude Solutions*	**Gresham's Hauled Waste Plan** *Julia Crown* *City of Gresham*	**Surge Events in Pipelines and the Impact of Air Valves** *D. Kim Sorensen, P.E.* *A.R.I. USA Inc.*	**Pump Types and Applications** *Bob Olijnyk* *Pump Tech*
3:25-3:40	AFTERNOON BREAK – Cafeteria			
14 3:40-4:40	**Gas Detection & Confined Spaces, What You Need to Know** *Greg McDonald* *Ritz Safety*	**A Case for Coordinated FOG Management** *Bob Patterson* *Clark County Public Works* ***Joint Session with Stormwater in Gregory Forum B & C***	**Infiltration and Inflow Study, City of Camas** *Kenneth Charles Alexander* *Jay Swift* *Kyle Kirwan* *Gray & Osborne, Inc.*	**Hands On' How to Use Excel In Wastewater Treatment** *Amy Willman* *WES* ***Meeting in McLoughlin Hall Room M132***

**You must complete all 4 hours and successfully pas written exam for certification card, valid for 3 years.*

Session	BIOSOLIDS MANGEMENT P102	STORMWATER Gregory Forum B&C	LABORATORY PRACTICES P103	SAFETY Pauling 132
8 8:00-9:00	**Transition to Cake Program at Clackamas WES** *Chanin Bays* *Resource Recovery Program Supervisor* *WES of Clackamas County*	**Natural Treatment Systems - Creating Benefits Beyond Wastewater Treatment** *Carol Murdock* *Clean Water Services* *&* *Joe Liebezeit* *Portland Audubon*	**Sometimes You Just Have to Say No** *Chuck Lytle, Laboratory Manager* *City of Portland Water Pollution Control Laboratory*	**First Aid, CPR & AED** *Toby Holborn* *Holborn Safety* ****Preregistration Required******
9 9:05-10:05	**Am I Running Dirty?** *Kelly Brown* *BDP Industries*	VENDOR'S DISPLAY	**Ethics In Wastewater and Laboratory Operations** *Gary Ward* *Ward Associates*	**First Aid, CPR & AED** *Continued*
10:05-10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**			
10 10:15-11:15	**Land Application of Industrial Pretreatment Lagoon Solids: Vancouver, WA** *Bill Fasth* *Brown & Caldwell*	**Erosion Control Products for Sewer CIP and Development Projects** *Kevin Jenison* *ACF West, Inc*	**Sixty Years of Problem Solving Experience In Wastewater Analyses** *Jennifer Shackelford* *Mackenzie Zirk* *Kris Dennis* *City of Portland Water Pollution Control Laboratory*	**First Aid, CPR & AED** *Continued*
11 11:20-12:20	**Scientific Nutrient Management** *Dennis O'Neill* *O'Neill Sustainable Ag Consulting, LLC*	**Clackamas River Enhancement Projects** *Peter Guillozet* *&* *Brian Vaughn* *METRO*	VENDOR DISPLAY	VENDOR'S DISPLAY
12:20-1:20	**LUNCH for Attendees – CAFETERIA**			
12 1:20-2:20	**Agronomic Rate Calculations** *Dan Sullivan, PhD* *Oregon State University*	**DEQ's NPDES 1200-C Permit Program** *Michael Kennedy* *Oregon Department of Environmental Quality*	**Deciphering the Paperwork: How to Interpret your NPDES Permit & Read a Lab Report** *Jennifer Shackelford* *&* *Amanda Haney* *City of Portland Bureau of Environmental Services*	***No Session***
13 2:25-3:25	VENDOR'S DISPLAY	**DEQ's NPDES 1200-Z Permit Program** *Michael Kennedy* *Oregon Department of Environmental Quality*	**TKN Without Tears** *Paul Winkler* *Shimadzu USA*	**Safety At Heights -- Fall Protection Oregon OSHA OAR Division 2 1910.28 & 1910.140** *Greg McDonald* *Ritz Safety*
3:25-3:40	AFTERNOON BREAK – Cafeteria			
14 3:40-4:40	**Nutrient Management Tools** *Dan Sullivan, PhD* *Oregon State University*	**A Case for Coordinated FOG Management** *Bob Patterson* *Clark County Public Works* ***Combined with Pretreatment in Gregory Forum B & C***	***No Session***	**Safety At Heights *Continued***

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	WASTEWATER PRETREATMENT Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 131
15 8:00-9:00	**No Session**	**FOG Program 101 Module 1** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person** *Jim Johnson* *D2000 Safety* ******Preregistration Required******	**Hydraulics for Operators** *Lynne Chicoine* *WES*
16 9:05-10:05	**No Session**	**FOG Program 101 Module 1** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person Training** ***Continued***	**Operation and Maintenance Basics** *Matt Jenkins* *The City of La Center*
10:05-10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Community Center**			
17 10:15-11:15	**No Session**	**FOG Program 101 Module 2** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person Training** ***Continued***	**Polymer Seminar for Wastewater Treatment** *Jacob Cole* *&* *Rawlin Castro* *SNF Polydyne Inc.*
18 11:20-12:20	**SLG Technology - Drier Cake - Less Odor** *Drew Mearns* *Orege*	**FOG Program 101 Module 2** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person Training** ***Continued***	**Optimizing Polymer Mixing and Activation for Wastewater Treatment** *Lashley Loomis* *UGSI Solutions*
12:20-1:20	**LUNCH for Attendees – CAFETERIA**			
19 1:20-2:20	**Solids Reduction in Wastewater** *Jon Neuenschwander* *VogelsangUSA*	**FOG Program 101 Module 3** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person Training** ***Continued***	**NET DMR: How to, Excel Spreadsheet Use and Summary Statistics** *Tiffany Yelton Bram* *DEQ*
20 2:25-3:25	***No Session***	**FOG Program 101 Module 3** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person Training** ***Continued***	**NET DMR: How to, Excel Spreadsheet Use and Summary Statistics** *Tiffany Yelton Bram* *DEQ*
3:25-3:40	**AFTERNOON BREAK – Cafeteria**			
21 3:40-4:40	**Rotary Lobe Pumps in Wastewater** *Jon Neuenschwander* *VogelsangUSA*	**FOG Program 101 Module 4** *Clayton Brown* *Western States Alliance*	**Excavation Safety Competent Person Training** ***Continued***	**Hands On' How to Use Excel in Wastewater Treatment** *Amy Willman* *WES* ***Meeting in McLoughlin Hall Room M132***

Session	**BIOSOLIDS MGMT** P102	**STORMWATER** Gregory Forum BC	**SAFETY** Pauling 132
15 8:00-9:00	**Optimizing Dewatering Operations** *Chris Maher* *Clean Water Services*	**Stormwater Sampling Techniques** *Randy Belston* *Portland Bureau of Environmental Services*	**Excavation Safety Competent Person** *Jim Johnson* *D2000 Safety* ******Preregistration Required****** *Meets In Gregory Forum A*
16 9:05- 10:05	**Optimizing Polymer Mixing and Activation** *Lashley Loomis* *USGI Solutions, Inc/Polyblend*	**Portland's Watershed Health Monitoring Overhaul** *Colin Kambak* *Chris Prescott &* *Jason Law* *Portland Bureau of Environmental Services*	**Excavation Safety Competent Person** ***Continued***
10:05- 10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Community Center**		
17 10:15- 11:15	**Solids Processing Upgrades at the Tri-City Water Pollution Control Plant** *Lynne Chicoine, PE* *Capital Program Manager WES of Clackamas County*	**No Session**	**Excavation Safety Competent Person** ***Continued***
18 11:20- 12:20	**Class A Biosolids Program Based on Autothermal Aerobic Digestion** *Tim Munro* *City of McMinnville*	**Oregon Water Toxics Monitoring & Reduction Opportunities** *Kevin Masterson* *Oregon Department of Environmental Quality*	**Excavation Safety Competent Person** ***Continued***
12:20- 1:20	**LUNCH for Attendees – CAFETERIA**		
19 1:20-2:20	**Biosolids Dewatering Polymer Optimization** *Stephanie Kerns* *Biosolids Coordinator, City of Salem*	**Partnership for Surface Water Protection** *Bob Patterson* *Clark County*	**Excavation Safety Competent Person** ***Continued***
20 2:25-3:25	**Transition of Salem's Biosolids Program** *Stephanie Kerns* *Biosolids Coordinator, City of Salem*	**Lost Rivers** *(Video)*	**Excavation Safety Competent Person** ***Continued***
3:25-3:40	**AFTERNOON BREAK – Cafeteria**		
21 3:40-4:40	**Comparison of Options for Biosolids Dewatering** *Matt Sprick, PE* *Carollo Engineers*	**Lost Rivers** *(Video)*	**Excavation Safety Competent Person** ***Continued***

Operations & Maintenance — McLoughlin Auditorium

Tuesday, March 27, 2018		
#1	8:15-9:15	***Keynote:*** *Randall Gymnasium* ***Utilities of the Future*** *Bob Baumgartner—Clean Water Services* Presentation about the wastewater treatment utility, its history and intent, its evolution and finally future development.
#2	9:30-10:30	**Bio-Augmentation vs. Bio-Stimulation** *Rick Allen ~ BIOLYNCEUS* Discuss the importance of microbiology in your system and how the use of augmentation or stimulation can enhance your existing operations. You will also receive a high level description of the difference between programs and how you can utilize these programs to enhance your operations, or to re-start a plant.
#3	10:35-11:35	**Solids Handling, A New and Cost Effective Strategy for Removing Sludge from Wastewater Lagoons and Treatment Plants** *Rick Allen ~ BIOLYNCEUS* 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	**BNR with External Carbon** *Rick Allen ~ BIOLYNCEUS* With emerging mandates on managing nutrient loading and contaminants, there are additional regulatory concerns coming. In Bio-Nutrient Removal, Rick looks at some of the reasons why these regulatory concerns are being created and some additional rules that are coming down the pipe.
#5	1:40-2:40	**Process Control Nitrogen Removal** *Adrienne Menitti~ Clean Water Services* Fundamental information on the operation and control of nitrification and de nitrification in biological wastewater treatment. Process control and troubleshooting concepts will be illustrated with interactive problem solving exercises using the WEF Ops Challenge simulator.
#6	2:55-3:55	**Process Control for Phosphorus Removal** *Adrienne Menitti~ Clean Water Services* Fundamental information on the operation and control of biological and chemical phosphorus removal. Process control and troubleshooting concepts will be illustrated with interactive problem solving exercises using the WEF Ops Challenge simulator.
#7	4:00-5:00	**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
Wednesday, March 28, 2018		
#8	8:00-9:00	**An Examination of Plastic materials in Wastewater Applications** *Leon Telesmanich* Examine the use of plastics in wastewater applications. Included will be the selection of materials to address application specific requirements, including mechanical, thermal, electrical, chemical, machining and fabrication considerations.
#9	9:05-10:05	*VENDOR'S DISPLAY ~ Randall Gymnasium*
#10	10:15-11:15	**Reducing Operating Costs with Energy Efficient Improvements** *Eric Braddock ~ Energy Trust of Oregon* Water and Wastewater treatment plants require a significant energy input, so we will discuss specific high energy use systems common in W/WW and potential energy efficiency opportunities including ideas to help reduce operating costs. This will include general ideas and actual completed projects by peers with results
#11	11:20-12:20	**Electronic Operations Manuals Utilizing a SharePoint Platform** *Joel Borchers ~ Clean Water Services* Many O&M manuals are developed to satisfy DEQ regulations. These manuals usually end up on bookshelves to collect dust. SharePoint allows plants to treat their O&M manual as a resource that is easily updatable by the plant staff and can utilize multi-media to create content that is visual, dynamic, accessible, relevant, and easily retrievable.

#12	1:20-2:20	**Low Temperature Drying of Biosolids** *Jens Nelisen ~ Treatment Equipment Company* Explore new technologies available in low temperature drying of biosolids and how small to medium plants around the country are utilizing these units to drastically reduce hauling costs and avoid land application restrictions.
#13	2:25-3:25	**Secondary Clarifier Optimization Using State Point Analysis** *Mark Walter ~ Water Dude Solutions* An overview of various RAS control methods and focus on state point analysis tool.
#14	3:40-4:40	**Gas Detection & Confined Spaces: What You Need to Know** *Greg McDonald ~ Ritz Safety* Maintenance, use and care of gas monitoring equipment, Bump Testing and calibration requirements, sensor response, checking peak readings and OSHA compliance
Thursday, March 29, 2018		
#15	8:00-9:00	**No Session**
#16	9:05-10:05	**No Session**
#17	10:15-11:15	**No Session**
#18	11:20-12:20	**SLG Technology - Drier Cake - Less Odor** *Drew Mearns~ Orege* SLG Technology, using only compressed air, creates an emulsified sludge that is a mixture of air and sludge to allow for better water drainage producing a drier cake, and simultaneously strips H2S, Producing a reasonable Return on Investment that reduces risk and greenhouse footprint.
#19	1:20-2:20	**Solids Reduction in Wastewater** *Jon Neuenschwander ~ VogelsangUSA* Solids reduction is a necessary requirement in collection systems these days, due to the ongoing use of flushable wipes. Clogging lift stations, pumps, valves are continuously problematic and keep maintenance crews busy. Solids reduction equipment are a true key to keeping maintenance low and reliability high.
#20	2:25-3:25	***No Session***
#21	3:40-4:40	**Rotary Lobe Pumps in Wastewater** *Jon Neuenschwander ~ VogelsangUSA* Rotary lobe pumps have become increasingly popular in wastewater treatment plants due to the requirements of simple inline maintenance. Not only are they simple to repair inline, but common wear & tear maintenance is performed by a single person versus multiple people when piping is required to be removed

Tuesday, March 27, 2018		
#1	8:15-9:15	***Keynote:*** *Randall Gymnasium* ***Utilities of the Future*** *Bob Baumgartner—Clean Water Services* Presentation about the wastewater treatment utility, its history and intent, its evolution and finally future development.
#2	9:30-10:30	**Salem Public Works Waste Processing Facility** *Nitin Joshi~ City of Salem* An introduction of Salem's new Centralized Waste Processing Facility for handling septic wastewater, street sweeping and vactor waste.
#3	10:35-11:35	**Toxics in Consumer Products** *Lisa Cox~ Oregon Department of Environmental Quality* Toxics in consumer products; where are they and where do they go once they enter the wastewater collection system?
#4	12:35-1:35	**Fundamentals of Electrochemical Measurements** *Mark McElroy~ Thermo* The basics of the most important analyses: pH, Conductivity, Residual Chlorine, etc. ***Joint session with Lab in P101***
#5	1:40-2:40	**Fundamentals of Electrochemical Measurements** ***Continued***
#6	2:55-3:55	**It's Complicated: Controlling Odors in King County Wastewater Treatment Division's East Side Interceptor** *David Michael Kopchynski~Parametrix* Case Study: How King County approached odor issues at an interceptor that runs through the heart of Bellevue, WA. Included methods used to characterize odor, design elements, testing and modeling methods and unique site challenges related to public opposition and the presence of walking / biking trails.
Wednesday, March 28, 2018		
#8	8:00-9:00	**How to Read a Lab Report** *Matt Young ~City of McMinnville* For the non-analyst: how to read a lab report and other things people assume you already know. What to do about common lab analysis problems. Topics include: QA/QC, reporting limits vs. detection limits, matrix spikes, J-flags and much more.
#9	9:05-10:05	**Plumbing Plan Review - Pretreatment and FOG Devices** *Jason Oster ~ Clark Regional Wastewater District* How to read plumbing plans that have treatment devices like grease traps or industrial pretreatment devices and what to look for.
#10	10:15-11:15	***VENDOR'S DISPLAY~ Randall Gymnasium***
#11	11:20-12:20	**Community Based Pretreatment** *Clayton Brown ~ Oregon Association of Clean Water Agencies* A primer on the Community-Based Voluntary Pretreatment Program Tool assisting municipalities that do not have state approved programs. The municipality will find this information useful for protecting wastewater treatment plant operations and collection system.
#12	1:20-2:20	**Industrial User Inspections** *Dade Pettinger~ City of Vancouver* How to protect your receiving WWTP through comprehensive facility inspections. Covering the basics of an industrial user inspection - how to prepare, what to look for, and follow-up considerations.
#13	2:25-3:25	**Gresham's Hauled Waste Plan** *Julia Crown~City of Gresham* The Industrial Pretreatment Program, and City code, require that all wastewater hauled to any point in the City's collection program is approved. The City recently wrote and submitted a Hauled Waste Plan to accept domestic waste to our collection system from four local schools. This presentation will describe the need for and the process of writing and submitting the Hauled Waste Plan for domestic waste.

#14	3:30-4:40pm	**A Case for Coordinated FOG Management** *Bob Patterson~Clark County Public Works* Opportunities examined to encourage coordination and partnerships between FOG and Stormwater programs including the benefits seen in the collections system, and storm water infrastructure. ***Combined with Stormwater in Gregory Forum B & C***
Thursday, March 29, 2018		
#15	8:00-9:00	**FOG Program 101** *Clayton Brown ~ Western States Alliance* This full-day training course will provide insight into why FOG Programs are such a critical part of a pretreatment program, and provide utilities with tools to identify and understand the problems and make improvements in their systems. *Certificate of course participation will be provided to attendees who attend the full day session.* **Module 1**: Purpose of FOG Abatement Program, Legal Authority - Ordinance Language, Developing Inventory of Food Service Establishments (FSE), Identifying Stakeholders, Developing & Implementing Communication Plan
#16	9:05-10:05	**FOG Program 101** Module 1 *continued*
#17	10:15-11:15	**FOG Program 101** *Clayton Brown ~ Western States Alliance* **Module 2**: Intro to Preferred Pumper Program, Identification of Training Needs and Training Program Development, Public Outreach - Printed MAterials, Forms, Reports and Logs, Identification of Best Practices
#18	11:20-12:20	**FOG Program 101** Module 2 *continued*
#19	1:20-2:20	**FOG Program 101** *Clayton Brown ~ Western States Alliance* **Module 3**: Intro to Food Service Establishment Inspections, Grease Removal Device Sizing, Plumbing Plan Review, Conducting Field Inspections and Investigations
#20	2:25-3:25	**FOG Program 101** *Clayton Brown ~ Western States Alliance* Module 3 *continued*
#21	3:40-4:40pm	**FOG Program 101** *Clayton Brown ~ Western States Alliance* **Module 4**: Data Acquisition and Management

Tuesday, March 27, 2018		
#1	8:15-9:15	***Keynote:*** *Randall Gymnasium* ***Utilities of the Future*** *Bob Baumgartner—Clean Water Services* Presentation about the wastewater treatment utility, its history and intent, its evolution and finally future development.
#2	9:30-10:30	**What to Do With That Culvert?** ***Combined with Stormwater in Gregory Forum B & C*** *Aaron Guffey~E. Multnomah Soil & Water Conservation District* Multiple agencies and the Johnson Creek Watershed Council came together to remove, replace or modify 7 culverts in the N. Fork of Johnson Creek to restore fish passage and improve the stream hydrology. A variety of options were implemented, including three different methods on the East Multnomah SWCD property alone! Learn about the site conditions, how the alternatives were chosen and the challenges that were overcome.
#3	10:35-11:35	**Winning the Fight Against Wipes and Preventing Pump Clogs in Collections** *Dave Barkey~JWC Environmental* JWC's presentation will first investigate the state of the wipes market today and current developments in the industry. We will then look at PSA's and legal efforts as well as their effectiveness. Finally we will look at technical options in pumps and grinders to pre-conditioning solids in collections. The overall goal is to provide information on various options available to provide effective solutions to prevent pump damage, eliminate worker safety risks, and reduce the time and energy costs associated with pump clogging.
#4	12:35-1:35 4:00-5:00	**Collection System Asset Management** *Barry Buchanan, P.E.~ Buchanan and Associates* Collection system asset management instruction; including what is asset management, what a well-defined program looks like, tools available for completing an asset management plan, the benefits to an agency for having a completed and updated asset management program.
#5	1:40-2:40	**Collection System Strategies** *Rick Allen~ Biolynceus* Professionals will learn the importance of managing collection systems and utilizing pre-treatment to enhance plant operations. Attendees will look at the types of programs that will be of benefit to their system. Program 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 improve FOG, Odors, Corrosion and the damaging impact of contaminants. Collection system and wastewater system professionals will benefit by learning key strategies to improve collection system management. Programs and protocols along with emerging issues are included in the discussion of how systems around the country are improving their wastewater programs by incorporating pre-treatment and collection system management strategies.
#6	2:55-3:55	**Collection System Strategies** *Continued*
#7	2:55-3:55	**Collection System Strategies** *Continued*
Wednesday, March 28, 2018		
#8 #9 #10 #11	8:00-9:00 9:05-10:05 10:15-11:15 11:20-12:20	**Work Zone Traffic Safety** *Tony Jobanek~ ODOT Technology Transfer Center* 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.
#12	1:20-2:20	***VENDOR'S DISPLAY***

#13	2:25-3:25	**Surge Events in Pipelines and the Impact of Air Valves** *D. Kim Sorensen, P.E.~ A.R.I. USA Inc.* Water and wastewater systems throughout the USA utilize pump stations, gravity pressure flow, and piping layouts that vary in total system efficiency, reliability, and longevity. These systems often have significant elevation differences as well as operational patterns that increase the possibility of air entering the pipelines. Typically, air valves are employed to reduce the impact of air trapped in our pipeline systems. There have been many reports as well as anecdotal evidence that air valves can increase the magnitude of surges in our pipe systems. But, what really happens in a pipeline during a surge event? What causes a surge event? What are the impacts of a surge event? And, what happens at air valves in a surge event? This presentation discusses the causes of surge events, the potential impacts of surge events pipelines, the impacts of air valves on surge events and the use of air valves as way to reduce/control pipeline surge events. There has been a great deal of discussion regarding the use of air valves to control surge events. How they work and how they can help control pipeline surge is discussed in detail. The results of air valve testing in surge conditions and the impact these valves have on pipeline surge are demonstrated. Emerging air valve technologies to help control pipeline transients are discussed.
#14	3:40-4:40	**Infiltration and Inflow Study, City of Camas** *Kenneth Charles Alexander, Jay Swift, Kyle Kirwan~ Gray & Osborne, Inc.* The City of Camas (City) wastewater collection system consists of 87.5 miles of gravity sewer, force main, and septic tank effluent pump systems (STEP). The STEP lines account for over 50 percent of the service area and their dilute flows combined with infiltration and inflow (I/I) entering the gravity collection system create problems with the City's wastewater treatment facility (WWTF) meeting TSS and BOD percent removal requirements. The Washington State Department of Ecology had previously granted the City a relaxed requirement for TSS and BOD removal due to dilute flows because the WWTF has not had effluent compliance issues. However, with the most recent NPDES permit renewal, the City was required to create a formal I/I removal program focused on inflow, requiring removal of inflow to achieve a peaking factor of less than 3.4:1 in each basin, as a condition of keeping the relaxed TSS/BOD removal requirements. Gray & Osborne conducted a study identifying I/I entering the City's collection system and develop a prioritized project list and O&M program for I/I reduction. Field work consisted of smoke testing all gravity sewers, targeted inspection of the most problematic manholes, and televised inspection of subbasins shown to have the greatest susceptibility to inflow based on wet weather pump station data analysis. A key element of the field study was strategically located collection system flow meters with remote data transmission permitting real time analysis of collection system flows during high rainfall events. The study report provided a prioritized list of more than 100 projects on a five year schedule that included disconnecting storm sewers and roof drains from the sanitary sewer, pipe rehabilitation/replacement and cleanout repairs. The City is expected to meet its I/I reduction goals within the first two years of implementing the highest priority projects.
Thursday, March 29, 2018		
#15 #16 #17 #18 #19 #20 #21	8:00-9:00 9:05-10:05 10:15-11:15 11:20-12:20 1:20-2:20 2:25-3:25 3:40-4:40	**Excavation Safety Competent Person** *Jim Johnson ~D2000 Safety* Cave-ins and other excavation hazards are one of the leading causes of deaths and injuries on construction sites. This course can help ensure the safety of anyone who works in or around excavations by ensuring that the competent person has the skills and knowledge needed to identify hazards and take corrective action. The exact skills and knowledge needed depend on the type of excavation activity being performed. This program reviews a wide range of common excavation types and looks at the hazards associated with each. The students also spend time reviewing excavation safety plans that can be adapted to the needs of their organizations. This course covers the latest industry practices and regulatory requirements. It generally requires two days but can be taught in one day as refresher training or as a basic skills class. ***Combined with Safety in Gregory Forum A***

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#2	9:30-10:30	**Ergonomics for Wastewater Operators** *Ben Hokenson, D.C.* Quick evaluations of spinal function, importance of posture, effects of repetitive stress, ways to "self-treat", what to look for in a provider if you need additional help. Based on the latest evidence
#3	10:35-11:35	**How to Get a Job in the Wastewater Field** *Greg Eyerly~WES* How to break into the wastewater field, get a better job, advance, and become a manager. Interviewing tips, resume building and how to sell your skills to employers.
#4	12:35-1:35	I*No Session*
#5	1:40-2:40	**Wastewater Membrane Basics (Section 1)** *Blake Raines ~ WES* Provide a summary of how a GE wastewater membrane bioreactor plant operations, including terms and operating modes. Discuss some key plant design requirements, process control testing and personal lessons learned from operating an MBR.
#6	2:55-3:55	**Tour of Tri-City's Membrane Bioreactor Plant (Section 2)** *Blake Raines ~ WES* ***Continued***
#7	4:00-5:00	**Tour of Tri-City's Membrane Bioreactor Plant (Section 3)** *Blake Raines ~ WES* ***Continued***
Wednesday, March 28, 2018		
#8	8:00-9:00	**Excel Management for Wastewater Operations** *Chanin Bays ~WES* An 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	**Excel Management for Wastewater Operations** *Continued*
#10	10:15-11:15	***VENDOR'S DISPLAY~ Randall Gymnasium***
#11	11:20-12:20	**Introduction to Corrosion Control** *Jeff Stallard ~ WES* Presentation of the concepts of what causes corrosion and approaches that can be taken to mitigate corrosion in the wastewater facilities environment.
#12	1:20-2:20	**Occupational Exposure to Hydrogen Sulfide** *Ben Marks ~ G2 Consultants, Inc.* Awareness of occupational exposure to hydrogen sulfide during wastewater treatment oeprations.
#13	2:25-3:25	**Pump Types and Applications** *Bob Olijnyk~Pump Tech* Various types of pumps and their applications
#14	3:40-4:40	**Hands On How to use Excel in Wastewater Treatment—** ***Meeting in McLoughlin HallRoom M132*** *Amy Willman ~ WES* Learn how to use Excel in wastewater treatment. Focus on data collection, charting, trending and using formulas. The tools learned in this course will allow operators to accurately use Excel in many aspects of wastewater treatment.
Thursday, March 29, 2018		
#15	8:00-9:00	**Hydraulics for Operators** *Lynne Chicoine ~WES* Basic hydraulics including how to develop and understand a WRRF hydraulic profile; how to calculate headloss; and how to develop a system curve and understand pump curves.

#16	9:05-10:05	**Operation & Maintenance Basics** *Matt Jenkins ~ City of LaCenter* Basic operation and maintenance strategies and tasks for both conventional and MBR facilities. Topics covered will include: process control, basic maintenance planning and troubleshooting.
#17	10:15-11:15	**Polymer Seminar for Wastewater Treatment** *Jacob Cole & Rawlin Castro ~SNF Polydyne, Inc.* Coagulation/flocculation theory and application for water and wastewater treatment. Revieing ways in which treatment facilities can optimize their current process and potentially improve desired results.
#18	11:20-12:20	**Optimizing Polymer Mixing and Activation for Wastewater Treatment** *Lashley Loomis~UGSI Solutions* Review the basics of polymer chemistry, goals of activation, the development of polymer mixing equipment and equipment configuration basics for wastewater treatment.
#19	1:20-2:20	**NET DMR: How to, Excel Spreadsheet Use and Summary Statistics** *Tiffany Yelton-Bram ~DEQ* Overview of NetDMR, hands on use of NetDMR, how to use an Excel spreadsheet of DMR data and attach it to NetDMR, and how to calculate certain summary statistics required by NetDMR.
#20	2:25-3:25	**NET DMR: How to, Excel Spreadsheet Use and Summary Statistics** ***Continued***
#21	3:40-4:40	**Hands On How to use Excel in Wastewater Treatment** ***Meeting in McLoughlin HallRoom M132*** *Amy Willman ~ WES* Learn how to use Excel in wastewater treatment. Focus on data collection, charting, trending and using formulas. The tools learned in this course will allow operators to accurately use Excel in many aspects of wastewater treatment.

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#2	9:30-10:30	**Biosolids Primer, Part 1** *Brian Hemphill, PE~ Hemphill Water Engineering, LLC* Basics of residuals in wastewater, to provide background for managing residuals and biosolids.
#3	10:35-11:35	**Biosolids Primer, Part 2** *Brian Hemphill, PE~ Hemphill Water Engineering, LLC* Basics of residuals in wastewater, to provide background for managing residuals and biosolids.
#4	12:35-1:35	**Biosolids Regulatory Issues** *Paul Kennedy~ Oregon DEQ* State and federal regulations covering biosolids management
#5	1:40-2:40	**Site Authorization/Soils NRCS** *Paul Kennedy~ Oregon DEQ* How get obtain a site authorization; use of NRCS to get required soils information
#6	2:55-3:55	**Biosolids Management Plans** *Paul Kennedy~ Oregon DEQ* How to write and manage acceptable Biosolids Management Plans per DEQ requirements
#7	4:00-5:00	**Biosolids Jeopardy** *Dave Arguello~Clean Water Services* Quiz format to learn important elements of biosolids management.
Wednesday, March 28, 2018		
#8	8:00-9:00	**Transition to Cake Program at Clackamas WES** *Chanin Bays~Clackamas County WES* Case history describing the transition from a liquids-based program for WES' two large plants to one focused on cake application
#9	9:05-10:05	**Am I Running Dirty?** *Kelly Brown ~ BDP Industries* Operating your dewatering system to balance cake solids with the quality of the return stream (filtrate).
#10	10:15-11:15	**Land Application of Industrial Pretreatment Lagoon Solids: Vancouver, WA** *Bill Fasth ~ Brown & Caldwell* Case history of the design and execution of a project to remove and apply waste solids from treatment lagoon.
#11	11:20-12:20	**Scientific Nutrient Management** *Dennis O'Neill~ O'Neill Sustainable Ag Consulting, LLC* Optimizing land application programs based on soils analysis.
#12	1:20-2:20	**Agronomic Rate Calculations** *Dan Sullivan, PhD~Oregon State University* How to calculate appropriate biosolids loading rates using available tools.
#13	2:25-3:25	***VENDOR'S DISPLAY***
#14	3:40-4:40	**Nutrient Management Tools** *Dan Sullivan, PhD~Oregon State University* How to use available tools for developing appropriate agronomic rates for your biosolids sites.
Thursday, March 29, 2018		
#15	8:00-9:00	**Optimizing Dewatering Operations** *Chris Maher~Clean Water Services* Case history of operation of biosolids dewatering system at Rock Creek facility; complete cost accounting to find the optimum operating point.
#16	9:05-10:05	**Optimizing Polymer Mixing and Activation** *Lashley Loomis~ USGI Solutions, Inc/Polyblend* Review of the basics of polymer chemistry, goals of activation, the development of polymer mixing equipment and equipment configuration basics.
#17	10:15-11:15	**Solids Processing Upgrades at the Tri-City Water Pollution Control Plant** *Lynne Chicoine, PE~Clackamas County WES* Case history of major upgrades to the solids system at the Tri-City plant.

#18	11:20-12:20	**Class A Biosolids Program Based on Autothermal Aerobic Digestion** *Tim Munro~City of McMinnville* Description of the Class A ATAD process, how it was developed, and its operation in McMinnville. Experiences with a liquid Class A biosolids product.
#19	1:20-2:20	**Biosolids Dewatering Polymer Optimization** *Stephanie Kerns~City of Salem* Results of ongoing efforts to optimize dewatering performance.
#20	2:25-3:25	**Transition of Salem's Biosolids Program** *Stephanie Kerns~City of Salem* Case history of Salem's biosolids program and how it has adjusted to changing conditions over the years.
#21	3:40-4:40	**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.

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#3	10:30-11:30	**Oregon Watershed Enhancement Board: 20 Years On** *Meta Loftsgaarden~ OWEB* The Oregon Watershed Enhancement Board (OWEB) is a state agency that provides grants to help Oregonians take care of local streams, rivers, wetlands and natural areas. Community members and landowners use scientific criteria to decide jointly what needs to be done to conserve and improve rivers and natural habitat in the places where they live. OWEB grants are funded from the Oregon Lottery, federal dollars, and salmon license plate revenue. The agency is led by a 17 member citizen board drawn from the public at large, tribes, and federal and state natural resource agency boards and commissions. Celebrating its 20th anniversary, this presentation will discuss the accomplishments made by this innovative partnership including: Types of work and projects completed with OWEB and partner funding, Limited statistical data such as quantity of stream miles restored, and Current issues & topics of concern.
#4	12:30-1:35	**Climate Change Impacts on Stormwater & Wastewater Utilities** *Matt Glazewski, Public Policy Analyst, Instructor at PCC~WES* A description of projected climate change impacts in the Pacific Northwest will be presented with extra focus on impacts related to stormwater and wastewater utility management. Related topics include infrastructure resiliency, stormwater retention and detention, facility design, and operations challenges.
#5	1:40-2:40	**Continuous Monitoring & Adaptive Control (CMAC) of Stormwater Ponds** *Leah Johanson, PE~Water Environment Services* This presentation will showcase Continuous Monitoring and Adaptive Control (CMAC), an innovative and alternative solution to managing stormwater, with a focus on its application by Water Environment Services (WES) to enhance water quality while reducing upstream flooding risk caused by the municipal stormwater system.
#6	2:55-3:55	**Stormwater 101** *Angela Wieland, PE~Brown & Caldwell* What is Stormwater? Why do we need to treat it and how? Why not send it all to the sanitary sewer? Hear the answers to these questions and learn about the development of stormwater regulations and programs. Find out what is happening in the field currently and what is on the horizon?
Wednesday, March 28, 2018		
#8	8:00-9:00	**Natural Treatment Systems - Creating Benefits Beyond Wastewater Treatment** *Carol Murdock~Clean Water Services & Joe Liebezeit~Portland Audubon* Audience will learn about the innovative Natural Treatment System (NTS/Habitat Enhancement) project at the Fernhill Wetlands site adjacent to the CWS Forest Grove WWTP and the work of Portland Audubon and its team of community scientists who are studying the bird response to the creation of 90 acres of wetland habitat.
#9	9:05-10:05	**VENDORS**
#10	10:15-11:15	**Erosion Control Products for Sewer CIP and Development Projects** *Kevin Jenison~ACF West, Inc.* Overview of erosion prevention and sediment control products for sanitary/storm sewer capital improvement projects and development projects. Details will be provided on the types of products available and the correct methods of installation and maintenance. Also, Low Impact Development product solutions will be presented for permeable pavement and modular stormwater retention/detention.
#11	11:20-12:20	**Clackamas River Enhancement Projects**

		Peter Guillozet & Brian Vaughn~METRO The Clackamas River is an important resource for habitat, drinking water and recreation. Metro has taken essential steps to protect multiple key areas along the river and bring them back to a properly functioning natural condition. The projects included eliminating ditches and roads, adding in-stream large wood material and native plantings. Learn about this multi-site enhancement program and the how it is just part of Metro's overall program for the region.
#12	1:20-2:20	**DEQ's NPDES 1200-C Permit Program** *Michael Kennedy~ Oregon Department of Environmental Quality* e NPDES 1200-C general permits apply to construction activities including clearing, grading, excavation, materials or equipment staging and stockpiling that will disturb one or more acres of land (including over multiple phases). This program is geared to prevent pollutants to stormwater systems and to the waters of the State. Learn about DEQ's implementation, education and enforcement aspects of this program.
#13	2:25-3:25	**DEQ's NPDES 1200-Z Permit Program** *Michael Kennedy~ Oregon Department of Environmental Quality* The NPDES 1200-Z permit is required for industrial facilities that discharge stormwater from their industrial areas to surface waters of the state, or to storm drains that discharge to surface waters. These discharges can affect our local public storm systems and waterways. Learn about DEQ's pollution prevention work with the operators of these sites.
#14	3:40-4:40	**A Case for Coordinated FOG Management** *Bob Patterson~Clark County Public Works* Opportunities examined to encourage coordination and partnerships between FOG and stormwater programs including the benefits seen in the collections system, and storm water infrastructure. ***Combined with Pretreatment in Gregory Forum B & C***
Thursday, March 29, 2018		
#15	8:00-9:00	**Stormwater Sampling Techniques** *Randy Belston~ Portland Bureau of Environmental Services* How BES Field Operations collects stormwater samples for permit compliance, contaminant source tracing, watershed health, and green infrastructure performance. Several types of grab sampling methods as well as flow-paced composite sampling will be described, as well as tools and equipment used and lessons learned.
#16	9:05-10:05	**Portland's Watershed Health Monitoring Overhaul** *Colin Kambak, Chris Prescott & Jason Law~ Portland Bureau of Environmental Services* The Portland Area Watershed Monitoring and Assessment Program (PAWMAP) is a coordinated long-term monitoring effort designed to measure the city's current and changing ecological resources. The program systematically measures changes in habitat, water quality and biological communities over time. Data collected at individual sites is generalized to be representative of the entire watershed. Details will include statistical design and programmatic shift, field implementation, lessons learned and what the data is telling us so far. This comprehensive citywide monitoring approach saves money by consolidating monitoring efforts, finds the source of environmental issues, and helps the city meet regulations that protect our rivers and streams.
#17	10:15-11:15	**No Session**
#18	11:20-12:20	**Oregon Water Toxics Monitoring & Reduction Opportunities** *Kevin Masterson~Oregon Department of Environmental Quality* An overview of toxic chemical monitoring data findings in Oregon surface and groundwater, with particular focus on pesticides. The chemicals of highest concern and existing data gaps will be highlighted. In addition, there will be a summary of current and possible future toxics reduction actions and plans that state and local governments are implementing (or could implement), intended to decrease toxic pollutants in water through "upstream" approaches.
#19	1:20-2:20	**Partnership for Surface Water Protection** *Bob Patterson~Clark County* Established in 2008, Washington State Department of Ecology's Local Source Control Program consists of a team of 22 local jurisdictions throughout the state to solve and prevent stormwater pollution problems through source control. On-site visits, inspections and assistance show businesses small and large how to properly manage materials, wastes and dangerous wastes and to prevent stormwater pollution through the use of structural and operational BMPs.

#20	2:25-3:25pm	**Lost Rivers** *Video* Nearly every major city was built near the convergence of many rivers. As cities grew with the Industrial Revolution, these rivers became conduits for disease and pollution. The 19th-century solution was to bury them underground and merge them with the sewer systems. These rivers still run through today's metropolises, but they do so out of sight. LOST RIVERS explores the problems of combining sewer/storm flows with these piped rivers and the efforts to separate them from utilities, reduce sewer overflows, and where possible "daylight" these waterways.
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#2	9:30-10:30	**How To Solve It** *Kristen Thomas~ City of Portland Water Pollution Control Laboratory &* *Ken Earle~EZ Kem, Inc.* There is an overarching approach to problem solving that can be used for situations from treatment plant operation to complex laboratory analyses. In the first part, learn how to FRAME problems so that solutions are easier to find. In the second part, see this approach used to solve REAL problems.
#3	10:35-11:35	**Modern Instrumental Methods in Wastewater Analyses** *Brady Miller~Astoria-Pacific* Learn about the latest instruments that can make your lab work easier and still keep you in compliance with 40 CFR 136 approved methods.
#4	12:35-1:35	**Fundamentals of Electrochemical Measurements** *Mark McElroy~ Thermo-Orion* The basics of the most important analyses: pH, Conductivity, Residual Chlorine, etc.
#5	1:40-2:40	**Fundamentals of Electrochemical Measurements** ***Continued***
#6	2:55-3:55	**Problem Solving for the Future: Strategic Planning in the Public Sector** *Kristen Thomas~ City of Portland Water Pollution Control Laboratory* How can public utilities tackle long-term, large-scale problems, like replacing aging infrastructure, creating resiliency against climate change, and building a diverse and competent workforce while enduring a wave of retirements? To address these issues, the City of Portland's Bureau of Environmental Services (BES) just developed a 10-year strategic plan after a lengthy and rigorous collaborative process. How the process worked and how what we've learned can help your utility plan for the future.
#7	4:00-5:00	**No Session**
Wednesday, March 28, 2018		
#8	8:00-9:00	**Sometimes You Just Have to Say No** *Chuck Lytle, City of Portland Water Pollution Control Laboratory* Sometimes the best intentions go awry. How increasing work loads caused operational problems and how those problems were solved.
#9	9:05-10:05	**Ethics In Wastewater and Laboratory Operations** *Gary Ward~Ward Associates* Ethics can often be just common sense, other times they can be subtle but very serious. Learn how to apply a sound ethical approach to all your work so you can drive home happy
#10	10:15-11:15	**Sixty Years of Problem Solving Experience In Wastewater Analyses** *Jennifer Shackelford, Mackenzie Zirk, & Kris Dennis~ City of Portland Water Pollution Control Laboratory* Tricks of the trade, common pitfalls, problems and their solutions. Brief presentations with lots of time for questions and discussion.
#11	11:20-12:20	***VENDOR'S DISPLAY***
#12	1:20-2:20	**Deciphering the Paperwork: How to Interpret your NPDES Permit & Read a Lab Report** Jennifer Shackelford & Amanda Haney~ *City of Portland Bureau of Environmental Services* Permits are packed with technical requirements for sampling and analyses. Lab reports typically contain much more than just a table of results. Learn how to better understand your permit and to decipher the jargon to intelligently talk to your lab and then understand your final lab report.
#13	2:25-3:25	**TKN Without Tears** *Paul Winkler~ Shimadzu USA* Shimadzu's Total Nitrogen Module Eliminates Cumbersome and Dangerous Methods and allows TKN analyses to be done rapidly and without the hazards of boiling sulfuric acid.
#14	3:40-4:40	**No Session**

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Tuesday, March 27, 2018		
#1	8:15-9:15	***Keynote:*** *Randall Gymnasium* ***Utilities of the Future*** *Bob Baumgartner—Clean Water Services* Presentation about the wastewater treatment utility, its history and intent, its evolution and finally future development.
#2 #3 #4 #5 #6	9:30-10:30 10:30-11:30 12:30-1:35 1:40-2:40 2:55-3:55	**Managing Your Confined Space Program** *Craig Hamelund~Oregon OSHA* Oregon Occupational Safety and Health Rules, OAR Chapter 437 Division 2/J, OA 5-2014, (OAR 437-002-0146) requires a written program and training for all employees for a Confined Space Program. When workers enter a confined space to inspect equipment, fix leaks, or do construction work, they can encounter toxic gases, corrosive chemicals, flammable solvents, or machines that start unexpectedly. If something goes wrong, a confined space can be difficult or impossible to exit. And would-be rescuers can die as quickly as those they are trying to rescue. General industry and construction industry employers confined space rule must be create a written program and train their employees to safely perform work in both confined space and permitted confined spaces. OAR 437-002-0146 This course will cover the rules and regulations for setting up a confined space program including definitions, identifying confined space and permit confined spaces and how to label permit spaces, how to make a space and employee safe for entry, training employees, documentation for both entries and training. Also included will the the rules governing hot work and the permitting process for work performed in confined spaces. Contractors for hire must also meet requirements covered in OAR 437-2/J AO 5-2014. Those attending this course will be awarded certificates of attendance for each module attended, General Awareness of a Confined Space Program, Hot Work Permits and how to perform Hot work safety, Attendant Training, Entry Supervisor Training, Entrant Training, and Understanding the Role of the Rescue Personnel. This course will not include competent person or rescue training.
#7	4:00-5:00	**Slips Trips and Falls** *Judy West~Clean Water Services* Falls continue to be one of the most common occupational accidents, costing employers money, time and lost production. Over 17% of Disabling work injuries were caused by falls. While 15% of accidental deaths are caused by falls, (both home and work related) second only to vehicle accidents. Slips, trips and falls were the leading cause of injuries in Oregon in 2012. This course will define slips, trips and falls and cover falls from level and elevation. The causes of falls including the human error of obstructed view, taking short cuts, being in a hurry inattentive walking, unsuitable footwear. slippery and uneven surfaces. Many more will be identified. Works spaces that include wet spills or contamination on surfaces and dry contamination so common in a wastewater plant. Plus poor lighting, using bulky and poor fitting PPE, fluctuations in temperature and precipitation. Covered will be how to mitigate poor work sites with engineering and management controls and the correct personal protective equipment such as the use of anti slip coatings and and matts. Installation of drainage gutters, improved lighting and painted surfaces for better visibility How to choose the right PPE for the condition such as slip resistant footwear and headlamps. The three point rule for ladders and stairs will be included. Plus the new training for walking in icy conditions 'Walk Like a Penguin' will be included. The cost of slips, trips and falls to both the employer and employee can run into the tens of thousands of dollars in medical bills, lost wages and quality of life. A wastewater plant is filled with potential hazards waiting to provide a slip, trip or fall to the operator, maintenance personnel or the field worker on the streets. After attending this class the attendee should be able to identify potential hazards and know how to avoid or mitigate them making the work site a safer place to be.
Wednesday, March 28, 2018		
#8 #9 #10	8:00-9:00 9:05-10:05 10:15-11:15	**First Aid, CPR & AED—*Preregistration Required*** *Toby Holborn~Holborn Safety* Comprehensive training in first aid, CPR, and AED's with mannequins provided for the CPR training. Completion card given at the end of the 3 hours.
#11	11:20-12:20	**VENDORS**

#12	1:20-2:20	***No Session***
#13 #14	2:25-3:25 3:40-4:40	**Safety At Heights -- Fall Protection Oregon OSHA OAR Division 2 1910.28 & 1910.140** *Greg McDonald~Ritz Safety* Fall protection is what you do to eliminate fall hazards, prevent falls, and ensure that those who do fall do not die. We need fall protection because even if we are experienced working at heights, we can lose our balance or grip. We can slip, trip, or misstep. We can fall at any time. We may think that our reflexes will protect us, but we are falling before we know it. And we do not have to fall far to get hurt. This course will cover the rules and regulations set out in OAR Division 2 1910.28 and 1910.140 for safety at heights fall protection. The attendee will have the information needed to understand when and what fall hazard control methods are required, anchor points, identifying and selection of equipment, building systems –work positions, restraint and personal fall arrest, understanding of suspension trauma and rescue requirements and required equipment inspections. The participant will also come away with the knowledge of the physics of a fall and how to calculate the fall distance for selecting the correct PPE to protect the worker in the event of a fall from heights. At the conclusion of the course you will be able to write or review the written fall protection program to ensure it is in compliance with Oregon OSHA's rules and regulations and that workers are being protected when working from heights.
Thursday, March 29, 2018		
#15 #16 #17 #18 #19 #20 #21	8:00-9:00 9:05-10:05 10:15-11:15 11:20-12:20 1:20-2:20 2:25-3:24 3:40-4:40	**Excavation Safety Competent Person** *Jim Johnson ~D2000 Safety* Cave-ins and other excavation hazards are one of the leading causes of deaths and injuries on construction sites. This course can help ensure the safety of anyone who works in or around excavations by ensuring that the competent person has the skills and knowledge needed to identify hazards and take corrective action. The exact skills and knowledge needed depend on the type of excavation activity being performed. This program reviews a wide range of common excavation types and looks at the hazards associated with each. The students also spend time reviewing excavation safety plans that can be adapted to the needs of their organizations. This course covers the latest industry practices and regulatory requirements. It generally requires two days but can be taught in one day as refresher training or as a basic skills class.