CELEBRATING 40 YEARS OF EDUCATION

Water Environment School 2016

ORWEF
Oregon Water Education Foundation

Laboratory Biosolids Management
Operations & Maintenance Wastewater Basics
Technology & Asset Management
Source Control Collections

40th Annual

ORWEF Vendor Display

March 22-24

Clackamas Community College | Oregon Water Education Foundation

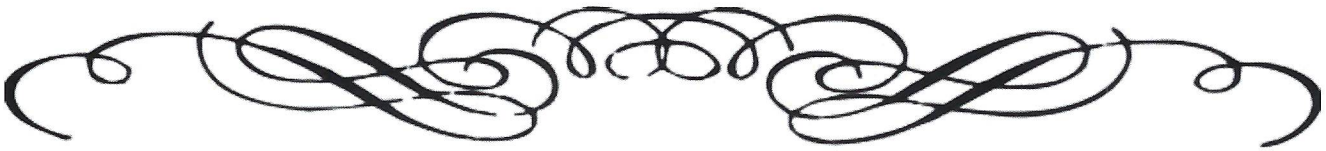
OESAC Approved #3190 for 2.1 Wastewater CEUs

Session Descriptions

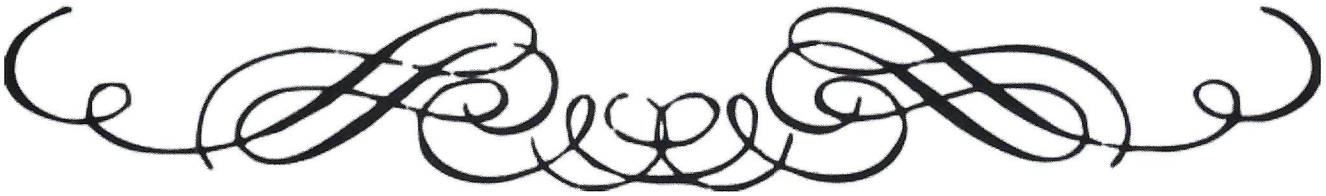
Thank you Water Environment School Committee

Chair: Luke Bushman

Registration & Treasurers: Pam Flynn & Anya Relleve



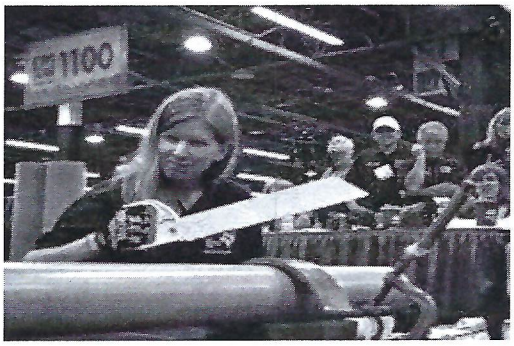
Jeannie Andersen
John Armour
Tony Bisson
Ken Black
Erin Duffy
Paul Eckley
Brian Hemphill
Kay Hust
Matt Jenkins
Matt LaForce
John Lewis
Charles Lytle
John Nagy
Jim Nurmi
Tim Owen
Daryl Payne
Craig Prosser
Naomi Sether
Monica Stone
Andria Swann
Kristen Thomas
Mark Walter
Judy West
Amy Willman
Katie Wilson
Matt Young



Monsters of Water

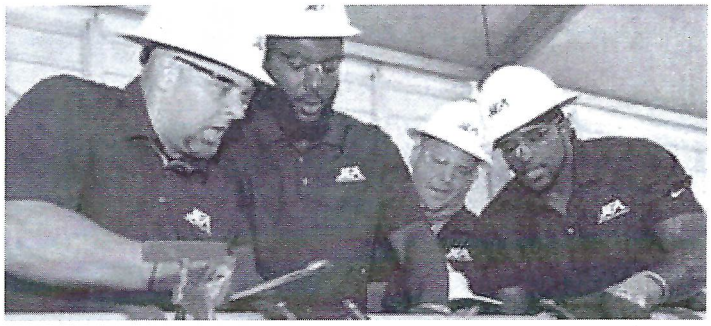
OP's Challenge

Water Environment School 2017



It's that time of year when operators and maintenance workers alike come together to learn and enjoy the brotherhood/sisterhood of Water and Wastewater. Every year we hear the conversations of "who's who" and "what's what" at every plant. Who is the best operator/maintenance worker. Which plant is the best, etc, etc. Now you will have a chance to show the PNW who REALLY is the best.

Yes, the OP's challenge has finally made its way to the Water Environment Short School. There will 4 people per team doing a variety of tasks that most of us do every day. Remember that this is a competition that emphasizes "team work".



The competition will consist of 5 events. **(collection systems, laboratory, process control, maintenance and safety)** This will be scored on total points from all events. The competition will take place in the gymnasium during the scheduled vendor times. So, being on time and ready to compete will be a must.

And if being able to complete in the OP's Challenge isn't enough, you will have this beautiful trophy to display at your plant. That should make any plant manager beam with pride.

SO, DO YOU THINK YOU HAVE WHAT IT TAKES?

For more information go to: http://www.clackamas.edu/WET/WES/ or http://www.orwef.com/

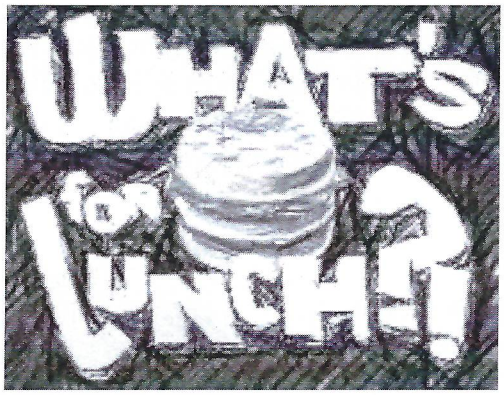
Please give us your feedback on the 2016 Water Environment School at

http://www.clackamas.edu/wet/wes/

Click on SURVEY—Water Environment School 2016

(it may take a minute for the survey to load)

If you'd like this link emailed to you, include your email address on your CEU Card.
Thank you so much for taking the time to complete the survey!



Lunch Menu

Tuesday	*Wednesday*	*Thursday*
Pasta Buffet • creamy garlic caesar salad • penne pasta with marinara sauce • fusilli with pesto cream sauce • meatballs • garlic bread	**Deli Buffet** • assorted sliced breads • roast beef • ham • turkey • cheddar, provolone & swiss cheeses • lettuce, tomatoes & red onions • fresh green salad, vinaigrette • potato chips	**Southwest Buffet** • fajita chicken • black beans • diced red onions • saffron rice • shredded cheese blend • salsa & sour cream • tortilla chips • southwest Caesar, cilantro cream dressing

2016 Vendor's Display

This year's vendor's display will be on
Wednesday, March 23, 2016
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!

Tuesday, March 22

Water Environment School 2016

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	SOURCE CONTROL Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 103	BIOSOLIDS MGMT P102	LABORATORY PRACTICES P131	TECHNOLOGY and ASSET MGMT P164
7:00 – 8:00	**REGISTRATION, COMMUNITY CENTER**						
8:00-8:15	**OPENING CEREMONY**						
1 8:15-9:15	*Keynote Speaker:* **What Do Wastewater Professionals Really Need to Know for a Career?** *John Lewis, Retired CCC Water & Environmental Technology Instructor* *Randall Gymnasium*						
9:45	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**						
2 9:30-10:30	**Emergency Response – ORWARN 101** *Ken Schlegel* *Clean Water Services*	**No Session**	**No Session**	**The Fundamentals of Electrochemistry, PART 1** Combined w/Laboratory: Room P-131 *Mark McElroy, Thermo Orion*	**Biosolids Jeopardy** *Dave Arguello* *Clean Water Services*	**The Fundamentals of Electrochemistry, Part 1** *Mark McElroy* *Thermo Orion*	**Screw Press Pilot Project** *Dale Richwine P.E., President Richwine Environmental*
3 10:35-11:35	**Emergency Response – ORWARN Ops Plan** *Ken Schlegel* *Clean Water Services*	**No Session**	**No Session**	**The Fundamentals of Electrochemistry, PART 2** *Mark McElroy, Thermo Orion*	**Biosolids Regulatory Issues** *Paul Kennedy* *DEQ*	**The Fundamentals of Electrochemistry, Part 2**	**Peracetic Acid Solution** *Dale Richwine P.E., President Richwine Environmental*
12::00-1:00	**LUNCH for Attendees – CAFETERIA**						
4 12:35-1:35	**No Session**	**No Session**	**WW Collection System Management** *Rick Allen, CEO* *BioLynceus*	**MBR Fundamentals** *Dale Richwine P.E.* *Richwine Environ.*	**Site Authorizations/NRCS** *Paul Kennedy* *DEQ*	**TBA** *Garret Lawson* *HACH*	**Peracetic Acid Pilot Project** *Michael Dunigan Sr Commercial Dev Manager PerossChem*
5 1:40-2:40	**PGE's Energy Partner Program** *Eric Bakken* *Enernoc*	**No Session**	**WW Collection System Management—** *Continued*	**Clackamas Co. Cleargreen Annamox Pilot Project** *Dale Richwine P.E.* *Richwine Environ.*	**Biosolids Management Plans** *Paul Kennedy* *DEQ*	**Annual Laboratory Ethics Training** *Keith Chapman, Retired* *City of Salem*	**Leveraging your CMMS for Data Capturing and Reporting** *Richard Ludlow* *Oak Lodge Sanitary Dist.*
2:50 – 3:10	**AFTERNOON BREAK – Cafeteria**						
6 2:55-3:55	**Mixing Zone Study – Why They are Important** *Dave Wilson* *CH2M*	**No Session**	**WW Collection System Management--** *Continued*	**Chlorination/Dechlorination – How It Works Brief Description:** *Darren Hergert* *Northstar Chemical*	**Clean Water Services Biosolids Program** *Dave Arguello* *Clean Water Services*	**No Session**	**Applying the 80/20 Rule to Asset Management** *Robin Krause* *Clark Region Water Dist.*
7 4:00-5:00	**No Session**	**No Session**	**WW Collection System Management--** *Continued*	**Safe Handling Corrosives and Oxidizers Safely** *Darren Hergert, Northstar Chemical*	**2012 Lagoon Biosolids Removal Project in Washougal, WA** *Bill Fasth* *Brown & Caldwell*	**No Session**	**No Session**

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	SOURCE CONTROL Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 103	BIOSOLIDS MGMT P102	LABORATORY PRACTICES P131	TECHNOLOGY and ASSET MGMT Pauling 164
8 8:00-9:00	**SCADA Optimization** *Justin Colton* *OCD Automation*	**Community Based Pretreatment** *Clayton Brow Clean Water Services*	**The New PACP Asset Management Module** *Michelle Beason, P.E., National Plant Services*	**Intro to Microbiology; E.Coli and Fecal Coliform** *Gil Dichter* *IDEXX Labs*	**Agronomic Considerations for Biosolids Application** *Dennis O'Neill, Sustainable Agriculture*	**Laboratory Networking Session** *Kristen Thomas* *City of Portland*	**No Session**
9 9:05-10:05	VENDOR'S DISPLAY	VENDOR'S DISPLAY	**New Technologies for Maintenance** *Michelle Beason, P.E.* *National Plant Services*	**MBR microBLOX Technology** *Chris McCalib and Jens Nielsen* *Tec Treatment Equipment Company*	**Biosolids Application from a Hauler/Applicator Perspective** *Eric Thwaites, Tribeca Transport*	**The National Environmental Field Accreditation Program** *Jan Wilson* *Cammia Environmental*	**No Session**
10:05-10:15	**MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center**						
10 10:15-11:15	**No Session**	**Conducting an Industrial User Survey** *Genet Belete* *Oregon DEQ*	VENDOR'S DISPLAY	**Vertical Flow Systems** *Jeff Hart P.E.* *Kennedy and Jenks*	**Solids Thickening and Dewatering Methods** *John Lewis, Huber Technology*	**The Oregon Environment Lab Accreditation Program**	**Utilizing Real Time Remote Monitoring in your Collections System** *Brogan Quist* *Regional Sales Manager* *SmartCover Systems*
11 11:20-12:20	**No Session**	**Hauled Waste Acceptance Plan** *Genet Belete* *Oregon DEQ*	**No Session**	VENDOR'S DISPLAY	**Solids Thickening in the Pacific Northwest** *Luke Werner* *Kennedy/Jenks Consultants*	**QA/QC for the Small Wastewater Laboratory** *Scott Hoatson* *Oregon DEQ*	**Totally Integrated Automation – Integrating a PLC HMI and Drive Together in 1 Project** *Nathan Schiavo* *Wesco*
12:20-1:20	**LUNCH for Attendees – CAFETERIA**						
12 1:20-2:20	**No Session**	**Industrial Pretreatment Sampling Procedures** *Will Romanelli* *City of Portland*	**Excavation Safety** *Eric Fullan, Safety Officer* *City of Hillsboro*	**Sewer Rehabilitation – City of Portland BES** *Ryan Carney P.E. Kennedy and Jenks*	VENDOR'S DISPLAY	**Industrial Pretreatment Sampling Procedures** *Will Romanelli* *City of Portland BES*	**No Session**
13 2:25-3:25	**No Session**	**An Idiot's Guide to Reading a Lab Report** *Matt Young & Erik Grimstad* *City of McMinnville*	**Excavation Safety—** *Continued*	**Mobile Computing for Asset Management** *Scott Wenger P.E. Digital Mentor, Inc.*	**How to Tell Your Biosolids Story** *Sheri Wantland, Clean Water Services*	VENDOR'S DISPLAY	VENDOR'S DISPLAY
3:25-3:40	**AFTERNOON BREAK – Cafeteria**						
14 3:40-4:40	**No Session**	**No Session**	**No Session**	**Process Optimization Utilizing ZAPS Liquid Monitoring Technology** *Jens Nielsen, Tec Treatment Equipment Co.*	**Autothermal Aerobic Digestion** *Tim Munro, City of McMinnville*	**Detection Limit Roulette** *Chuck Lytle, City of Portland*	**No Session**

Session	OPERATIONS & MAINTENANCE McLoughlin Auditorium	SOURCE CONTROL Pauling 101	COLLECTION SYSTEMS Gregory Forum A	BASICS & BEYOND Pauling 103	BIOSOLIDS MGMT P102	LABORATORY PRACTICES Pauling 131	TECHNOLOGY and ASSET MGMT Pauling 164
15 8:00- 9:00	**Sequencing Batch Reactors (SBRs) Operation** *Ken Norcross* *Evoqua*	**National and International Flushability Standards-Update** *Frank Dick* *City of Vancouver*	**Work Zone Traffic Safety** *Bill Kolzow* *T2 Trainer and Circuit Rider*	**Basic Pump Operations** *Pat Curran P.E.* *Curran McLeod and Associates*	**Biosolids Management at Clackamas WES** *Kathryn Spencer, Environmental Program Coordinator, WES*	**No Session**	**Surface Water – The Forgotten Disaster: The 2008 Floods in Cedar Rapids, Iowa** *Greg Eyerly* *Water Environment Services*
16 9:05- 10:05	**Collection System Odor Control Basics** *Mark Smith* *Brown & Caldwell*	**Preferred Pumper Program** *Ed Gilmore* *Water Environment Services*	**Work Zone Traffic Safety--***Continued*	**Peristaltic Pumps** *Bill Schiller, Western District Sales Manager, Watson Marlow Fluid Technology Group*	**Solids Processing Operations at Clackamas WES** *Michael Trent* *WES*	**No Session**	**Trenchless Technologies** *Dan Buonadonna* *CH2M*
10:05- 10:15	MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Community Center						
17 10:15- 11:15	**No Session**	**Sizing Grease Interceptors** *Ken Louks* *Schier Products Company*	**Work Zone Traffic Safety--***Continued*	**Process Control for Operators** *Adrienne Menniti* *Clean Water Services*	**Lessons Learned from Field Operations at Clackamas WES** *Robert Watson, Biosolids Application Technician WES of Clackamas County*	**No Session**	**Condition/Corrosion Assessment and Rehab for Wastewater Interceptors** *Dan Buonadonna* *CH2M*
18 11:20- 12:20	**ATP Testing for Wastewater Treatment** *Jeremy Duguay* *Luminultra*	**A Primer on Inspections** *Ken Louks* *Schier Products Company*	**Work Zone Traffic Safety--***Continued*	**Wastewater Treatment 101 and Beyond** *Don Diepenbroek* *Sylem/YSI Inc.*	**Analyzing Your System - Preparing a Mass Balance for Your Plant** *Brian Hemphill, Hemphill Water Engineering*	**No Session**	**Advancing Asset Management in the City of Gresham** *Chris Strong* *City of Gresham*
12:20- 1:20	LUNCH for Attendees – CAFETERIA						
19 1:20- 2:20	**Operations and Maintenance of Emergency Standby Generators** *Jim Stalnaker*	**No Session**	**No Session**	**Upgrading Manual Valves and Gates with Motor Operators** *Ken Black* *Beaver Equipment*	**Agronomic Rate Calculations** *Dr. Dan Sullivan, Oregon State University*	**No Session**	**No Session**
20 2:25- 3:25	**Operations Performance Measures – The Operations Scorecard** *Mark Walter* *Oak Lodge Sanitary District*	**No Session**	**No Session**	**Chemical and Biological Odor Control** *Ken Black, Beaver Equipment*	**Nutrient Management Tools** *Dr. Dan Sullivan, Oregon State University*	**No Session**	**No Session**
3:25- 3:40	AFTERNOON BREAK – Cafeteria						
21 3:40- 4:40	**Plant Optimization** *Karen Bill* *HDR*	**No Session**	**No Session**	**Rebuilding Clarifier Drives** *Terry A. Reyburn, Rebuild-it Services Group, LLC.*	**An Engineering Analysis of Solids Management Alternatives, a Case History** *Brian Hemphill, Hemphill Water Eng.*	**No Session**	**No Session**

Operations & Maintenance — McLoughlin Auditorium

Tuesday, March 22, 2016		
#1	8:15-9:15	**What Do Wastewater Professionals Really Need to Know For a Career?** *John C. Lewis, P.E., R.S., Retired, Clackamas Community College* Testimonials to Truth about Careers in Wastewater
#2	9:30-10:30	**Emergency Response – ORWARN 101** *Ken Schlegel, ORWARN Chairman, Clean Water Services* Basics of program development as it relates to emergency operations and maintenance.
#3	10:35-11:35	**Emergency Response – ORWARN Ops Plan** *Ken Schlegel, ORWARN Chairman, Clean Water Services* Implementation and deployment of your emergency operations and maintenance plan.
#4	12:35-1:35	**No Session**
#5	1:40-2:40	**PGE's Energy Partner Program** How the Energy Partner program works and how it is working with local agencies in the Northwest.
#6	2:55-3:55	**Topic: Mixing Zone Study – Why They Are Important** The hows and whys of outfall mixing zone studies. Including how the data is used and why it is important to your utility.
#7	4:00-5:00	**No Session**
Wednesday, March 23, 2016		
#8	8:00-9:00	**SCADA Optimization** Optimizing SCADA for operators. What are the features most requested, what are the things that get asked for that can't be done. What are the key things to know about owning and maintaining a system.
#9	9:05-10:05	***VENDOR'S DISPLAY***
#10 #11 #12 #13 #14	10:15-11:15 11:20-12:20 1:20-2:20 2:25-3:25 3:40-4:40	**No Sessions**
Thursday, March 24, 2016		
#15	8:00-9:00	**Sequencing Batch Reactors (SBRs) Operation** *Ken Norcross, Evoqua* How SBRs work in comparison to conventional activated sludge.
#16	9:05-10:05	**Collection System Odor Control Basics** *Mark Smith, Brown & Caldwell* This presentation will focus on the causes of, and solutions to, common collection system odor control problems. A brief theoretical background introduction will be followed by two case studies in which the specific problems and solutions will be discussed in detail and will be related back to the info presented in the theoretical discussion.
#17	10:15-11:15	**No Session**
#18	11:20-12:20	**ATP Testing for Wastewater Treatment** *Jeremy Duguay, Luminultra* Focus on the application of adenosine triphosphate testing (ATP) in activated sludge and solids digestion systems for enhanced process control.
#19	1:20-2:20	**Operations and Maintenance of Emergency Standby Generators** Operation and Maintenance of emergency stand by generators. What are the key things to check and maintain to ensure that your system is reliable.
#20	2:25-3:25	**Operations Performance Measures – The Operations Scorecard** Development and use of performance measures for plant operations. How they are developed, used and how they increase performance
#21	3:40-4:40	**Plant Optimization** Highlights of troubleshooting scenarios that can help you as an operator.

Tuesday, March 22, 2016—No Sessions		
Wednesday, March 23, 2016		
#8	8:00-9:00	**Community Based Pretreatment** *Clayton Brown, Clean Water Services* Offers assistance to Oregon municipalities that do not have a DEQ/EPA-approved pretreatment program to identify industrial users, develop local legal authority, and to provide the basic procedures and forms to assist in controlling commercial and industrial user discharges that may impact the treatment works and collection system.
#9	9:05-10:05	***VENDOR'S DISPLAY***
#10	10:15-11:15	**Conducting an Industrial User Survey** *Genet Belete, Pretreatment Program Coordinator* *Oregon Department of Environmental Quality* Guidance for POTWs on conducting an Industrial User Survey in their service area. Learn the objective, regulatory background and process of conducting the survey.
#11	11:20-12:20	**Hauled Waste Acceptance Plan** *Genet Belete, Pretreatment Program Coordinator* *Oregon Department of Environmental Quality* Basic information on how to prepare a hauled-waste plan for communities who accept or are considering accepting hauled-waste at their wastewater treatment facility.
#12	1:20-2:20	**Industrial Pretreatment Sampling Procedures—*Combined with Laboratory Section*** *Will Romanelli, City of Portland*
#13	2:25-3:25	**An Idiot's Guide to Reading a Lab Report** *Matt Young, City of McMinnville; Erik Grimstad, City of McMinnville* How to read a lab report for all its worth (and other things people assume you already know how to do). Explains arcane lab language such as: QA/QC, reporting limits vs. detection limits, matrix spikes, J-flags and much more. What to do about common lab analysis problems.
#14	3:40-4:40	**No Session**
Thursday, March 24, 2016		
#15	8:00-9:00	**National and International Flushability Standards-Update** *Frank Dick, Sewer and Wastewater Engineering Supervisor, City of Vancouver* Review of characterization of non-dispersible materials in sewer and recent efforts from wastewater professionals and wipes manufacturers to improve standards for the claim of flushability.
#16	9:05-10:05	**Preferred Pumper Program** *Ed Gilmore, Source Control Specialist, Water Environment Services* A brief history of the Preferred Pumper Program, the importance of working with pumping companies, difficulties with maintaining program priorities and a look at the future of the Preferred Pumper Program.
#17	10:15-11:15	**Sizing Grease Interceptors** *Ken Louks Regulatory, Compliance Manager, Schier Products Company* Mr. Loucks will explain and demonstrate several sizing tools for determining the size and capacity of grease interceptors and provide pros and cons of each tool.
#18	11:20-12:20	**A Primer on Inspections** *Ken Louks Regulatory, Compliance Manager, Schier Products Company* Food Service Establishments (FSEs) inspection by municipal inspectors is a challenge. Mr. Loucks will discuss the basics of FOG abatement inspections and provide issues that the inspector should be aware of both inside and outside of a FSE.
#19 #20 #21	1:20-2:20 2:25-3:25 3:40-4:40	**No Sessions**

Collection Systems — *Gregory Forum A*

Tuesday, March 22, 2016		
#1	8:15-9:15	**What Do Wastewater Professionals Really Need to Know For a Career?** *John C. Lewis, P.E., R.S., Retired, Clackamas Community College* Testimonials to Truth about Careers in Wastewater
#2 #3	9:30-10:30 10:35-11:35	**No Sessions**
#4 #5 #6 #7	12:35-1:35 1:40-2:40 2:55-3:55 4:00-5:00	**WW Collection System Management** *Rick Allen, CEO, BioLynceus* In Collection System Strategies, 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.
Wednesday, March 23, 2016		
#8	8:00-9:00	**The New PACP Asset Management Module** *Michelle Beason, P.E., National Plant Services* Presentation will include how to define asset risk using the PACP version 7.0 and the benefits of this version.
#9	9:05-10:05	**New Technologies for Maintenance** *Michelle Beason, P.E., National Plant Services* Presentation will include the steps necessary to create an asset management program, and then focus on new technologies that are now available to assist in our on-going asset management efforts.
#10	10:15-11:15	***VENDOR'S DISPLAY***
#11	11:20-12:20	**No Session**
#12 #13	1:20-2:20 2:25-3:25	**Excavation Safety** *Eric Fullan, Safety Officer, City of Hillsboro* Two hour class in excavation safety; including trenching and shoring.
#14	3:40-4:40	**No Session**
Thursday, March 24, 2016		
#15 #16 #17 #18	8:00-9:00 9:05-10:05 10:15-11:15 11:20-12:20	**Work Zone Traffic Safety** 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. *Bill Kolzow, T2 Trainer and Circuit Rider*
#19 #20 #21	1:20-2:20 2:25-3:25 3:40-4:40	**No Sessions**

Tuesday, March 22, 2016		
#1	8:15-9:15	**What Do Wastewater Professionals Really Need to Know For a Career?** *John C. Lewis, P.E., R.S., Retired, Clackamas Community College* Testimonials to Truth about Careers in Wastewater
#2 #3	9:30-10:30 10:35-11:35	**The Fundamentals of Electrochemistry, PART 1 & 2** ***Combined Session with Laboratory: Room P-131*** *Mark McElroy, Thermo Orion* A detailed look into the practical application of electrochemistry practices in today's lab. This will include an overview of pH meters and electrodes as well as a discussion about how to insure you achieve the best and most consistent results possible; and also a useful conversation about how the components parts work together which will help the user understand challenges and troubleshooting. Additionally we will be discussing Ion Selective Electrodes, conductivity, dissolved oxygen, spectrophotometry, turbidity and colorimetry. We will also be able to discuss these different parameter measurements in the lab as well as process applications.
#4	12:35-1:35	**MBR Fundamentals** *Dale Richwine P.E., Richwine Environmental* The basic concepts of operating an MBR facility
#5	1:40-2:40	**Clackamas Co. Cleargreen Annamox Pilot Project** *Dale Richwine P.E., Richwine Environmental*
#6	2:55-3:55	**Chlorination/Dechlorination – How It Works** *Colin Hildebrandt & Darren Hergert, Northstar Chemical*
#7	4:00-5:00	**Safe Handling Corrosives and Oxidizers Safely** *Darren Hergert, Northstar Chemical* This class will give an overview of how to handle oxidizers safely, appropriate personal protective equipment that should be used and safe offloading procedures.
Wednesday, March 23, 2016		
#8	8:00-9:00	**Intro to Microbiology; E.Coli and Fecal Coliform** *Gil Dichter, IDEXX Labs Worldwide Tech Mngr.* A presentation on how to test for E.Coli/Fecal in wastewater.
#9	9:05-10:05	**MBR microBLOX Technology** *Chris McCalib and Jens Nielsen, Tec Treatment Equipment Company* MBR process flow, project set-up, operation and maintenance
#10	10:15-11:15	**Vertical Flow Systems** *Jeff Hart P.E., Kennedy and Jenks*
#11	11:20-12:20	***VENDOR'S DISPLAY***
#12	1:20-2:20	**Sewer Rehabilitation – City of Portland BES** *Ryan Carney P.E., Kennedy and Jenks* Over one-third of Portland's 2,500 miles of sewer pipes are more than 80 years old. This presentation is about the projects to replace or repair aging sewers to protect water quality, public health, and the environment.
#13	2:25-3:25	**Mobile Computing for Asset Management** *Scott Wenger P.E. Digital Mentor, Inc* Learn 3 methods of using tablets for streamlining utility maintenance and operations.
#14	3:40-4:40	**Process Optimization Utilizing ZAPS Liquid Monitoring Technology** *Jens Nielsen, Tec Treatment Equipment Co.* Process optimization advantages that real-time data provided by ZAPS light based multi-parameter tracking can provide to an operator and how best to use the information to tailor a plant's operation based upon this information.
Thursday, March 24, 2016		
#15	8:00-9:00	**Basic Pump Operations** *Pat Curran P.E., Curran McLeod and Associates*
#16	9:05-10:05	**Peristaltic Pumps** *Bill Schiller, Western District Sales Manager, Watson Marlow Fluid Technology Group* New peristaltic pumping technology for chemical metering, abrasives, and transfer applications.

#17	10:15-11:15	**Process Control for Operators** *Adrienne Menniti, Clean Water Services* Basic concepts in controlling parameters and setting targets related to wastewater treatment.
#18	11:20-12:20	**Wastewater Treatment 101 and Beyond** *Don Diepenbroek, Sylem/YSI Inc.* Basic understanding of waste water treatment plant processes with an emphasis on nitrification and denitrification.
#19	1:20-2:20	**Upgrading Manual Valves and Gates with Motor Operators** *Ken Black, Beaver Equipment* • Overview of flow control equipment in a typical water and wastewater plant, valves, gates, stop logs, etc. and how often they need to be operated • Discuss types of actuators, motor operators as well as hydraulic and pneumatic operators • Plant controls and SCADA options • Emergency operation and power backup • Cost of operation and payback - other benefits
#20	2:25-3:25	**Chemical and Biological Odor Control** • Introduction to Odor • Odor at Waste Water Pumping Stations • Odor Abatement Alternatives • Introduction to Biological Technologies • Advanced Biological Techniques
#21	3:40-4:40	**Operating Clarifiers** *Terry A. Reyburn, Rebuild-it Services Group, LLC.*

Tuesday, March 22, 2016		
#1	8:15-9:15	**What Do Wastewater Professionals Really Need to Know For a Career?** *John C. Lewis, P.E., R.S., Retired, Clackamas Community College* Testimonials to Truth about Careers in Wastewater
#2	9:30-10:30	**Biosolids Jeopardy** *Dave Arguello, Clean Water Services* Introduction to key biosolids management concepts through a game format.
#3	10:35-11:35	**Biosolids Regulatory Issues** *Paul Kennedy, DEQ* Important regulatory concepts relating to biosolids programs in Oregon.
#4	12:35-1:35	**Site Authorizations/NRCS** *Paul Kennedy, DEQ* How to obtain a site authorization, including the use of NRCS on-line soils information
#5	1:40-2:40	**Biosolids Management Plans** *Paul Kennedy, DEQ* How to develop an approvable biosolids management plan.
#6	2:55-3:55	**Clean Water Services Biosolids Program** *Dave Arguello, Clean Water Services* A description of the successful biosolids program operated by one of Oregon's largest agencies.
#7	4:00-5:00	**2012 Lagoon Biosolids Removal Project in Washougal, WA** *Bill Fasth, Brown & Caldwell* Case history of a biosolids lagoon removal and disposal project.
Wednesday, March 23, 2016		
#8	8:00-9:00	**Agronomic Considerations for Biosolids Application** *Dennis O'Neill, Sustainable Agriculture* Scientific management of nutrients in biosolids applications.
#9	9:05-10:05	**Biosolids Application from a Hauler/Applicator Perspective** *Eric Thwaites, Tribeca Transport.* What you should know about working with your hauling contractor.
#10	10:15-11:15	**Solids Thickening and Dewatering Methods** *John Lewis, Huber Technology* Descriptions and comparisons between three mechanical thickening methods; gravity belt, rotary disc, and screw thickeners; and three mechanical dewatering methods; belt filter, centrifuges, and screw presses.
#11	11:20-12:20	**Solids Thickening in the Pacific Northwest** *Luke Werner, Kennedy/Jenks Consultants* Methods of sludge thickening ahead of digestion, through a case history evaluation.
#12	1:20-2:20	***VENDOR'S DISPLAY***
#13	2:25-3:25	**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
#14	3:40-4:40	**Autothermal Aerobic Digestion** *Tim Munro, City of McMinnville* Description of the Class A ATAD process, how it was developed, and its operation in McMinnville.
Thursday, March 24, 2016		
#15	8:00-9:00	**Biosolids Management at Clackamas WES** *Kathryn Spencer, Environmental Program Coordinator, WES* The current WES biosolids management program, along with considerations for long-range planning..
#16	9:05-10:05	**Solids Processing Operations at Clackamas WES** *Michael Trent, WES* How Clackamas processes and manages solids from three treatment facilities in the face of tight resources and other challenges.

#17	10:15-11:15	**Lessons Learned from Field Operations at Clackamas WES** *Robert Watson, Biosolids Application Technician, WES of Clackamas County* Methods employed in the field for application of liquid and cake biosolids, and in successfully working with property owners and neighbors.
#18	11:20-12:20	**Analyzing Your System - Preparing a Mass Balance for Your Plant** *Brian Hemphill, Hemphill Water Engineering* How to prepare a solids mass balance for a treatment plant using a simple spreadsheet.
#19	1:20-2:20	**Agronomic Rate Calculations** *Dr. Dan Sullivan, Oregon State University* How to use available tools for developing appropriate agronomic rates for your biosolids sites.
#20	2:25-3:25	**Nutrient Management Tools** *Dr. Dan Sullivan, Oregon State University* How to manage soils using appropriate sampling and analysis methods.
#21	3:40-4:40	**An Engineering Analysis of Solids Management Alternatives, a Case History** *Brian Hemphill, Hemphill Water Engineering* A review of the engineering analysis and decision-making approach for a biosolids management facilities planning study.

Laboratory — Pauling 131

Tuesday, March 22, 2016		
#1	8:15-9:15	**What Do Wastewater Professionals Really Need to Know For a Career?** *John C. Lewis, P.E., R.S., Retired, Clackamas Community College* Testimonials to Truth about Careers in Wastewater
#2	9:30-10:30	**The Fundamentals of Electrochemistry, PART 1 & 2** ***Combined Session with Laboratory: Room P-131*** *Mark McElroy, Thermo Orion* A detailed look into the practical application of electrochemistry practices in today's lab. This will include an overview of pH meters and electrodes as well as a discussion about how to insure you achieve the best and most consistent results possible; and also a useful conversation about how the components parts work together which will help the user understand challenges and troubleshooting. Additionally we will be discussing Ion Selective Electrodes, conductivity, dissolved oxygen, spectrophotometry, turbidity and colorimetry. We will also be able to discuss these different parameter measurements in the lab as well as process applications.
#3	10:35-11:35	*GARRET LAWSON, HACH*
#4	12:35-1:35	**Annual Laboratory Ethics Training** *Keith Chapman, Retired, City of Salem* For lab managers and lab analysts alike. This training satisfies the NELAP ethics requirement and can serve as a catalyst for initiating an ethics program at your own lab, large or small.
#5	1:40-2:40	**No Session**
#6	2:55-3:55	**Laboratory Networking Session** *Kristen Thomas, City of Portland* Come meet your fellow analysts and bring your questions about lab procedures, instruments, QA/QC, safety and anything else you can think of. Ask the experts!
#7	4:00-5:00	**No Session**
Wednesday, March 23, 2016		
#8	8:00-9:00	**The National Environmental Field Accreditation Program** *Jan Wilson, Cammia Environmental* The field sampling program of NELAP is now operational. Jan Wilson was the founding chair of the NEFAP board and was instrumental in developing this important program. Learn what it is, why it's important, and how to become NEFAP accredited.
#9	9:05-10:05	**The Oregon Environment Lab Accreditation Program**
#10	10:15-11:15	**QA/QC for the Small Wastewater Laboratory** *Scott Hoatson, Agency QA Officer, Oregon DEQ* Quality Control and documentation expectations for the traceability of lab testing of some common wastewater parameters: TSS, BOD, pH, E.coli, etc
#11	11:20-12:20	**Industrial Pretreatment Sampling Procedures** *Will Romanelli, City of Portland BES* The City of Portland's Field Operations crew has been refining their Industrial Wastewater field sampling QA/QC techniques over the decades to better protect sample integrity and enforceability. A few techniques and how they evolved will be presented.
#12	1:20-2:20	***VENDOR'S DISPLAY***
#13	2:25-3:25	**Detection Limit Roulette** *Chuck Lytle, City of Portland* New procedures will be codified at 40 CFR 136, will be coming out in the new TNI standard, and have just been updated in the SW-846 compendium. Who's on target, who's off base, **WHO CARES??** Attend and get a grip on your sanity, stay in compliance, and drive home happy.
#14	3:40-4:40	**No Session**
Thursday, March 24, 2016—No Sessions		

Tuesday, March 22, 2016		
#1	8:15-9:15	**What Do Wastewater Professionals Really Need to Know For a Career?** *John C. Lewis, P.E., R.S., Retired, Clackamas Community College* Testimonials to Truth about Careers in Wastewater
#2	9:30-10:30	**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.
#3	10:35-11:35	**Peracetic Acid Pilot Project** *Dale Richwine P.E., President Richwine Environmental* WES has been piloting the use of Peracetic Acid (PAA) as a replacement for chlorine disinfection of wastewater effluent. Phase I of the testing has been completed and following the installation of new feed equipment, Phase II performance testing will be performed to obtain DEQ approval for use of PAA at the Tri-City WPCP. This presentation will provide the results of the Phase I pilot and the resultant system improvements that will be implemented for Phase II performance testing
#4	12:35-1:35	**Peracetic Acid Solution** *Michael Dunigan, Sr. Commercial Development Manager, PeroxyChem* • What is PAA (Peracetic Acid Solution)? • Is it EPA approved for use as a WW disinfectant? • How is it made? • Is it safe to the operator? • Is it brand new and we do not understand a lot of important issues, yet? • Has my regulator already accepted this technology? • Share case studies
#5	1:40-2:40	**Leveraging your CMMS for Data Capturing and Reporting** *Richard Ludlow, Asset Maintenance Manager, Oak Lodge Sanitary District* Things that can be learned from setting production goals and measuring to them with a CMMS (Computerized Maintenance Management System).
#6	2:55-3:55	**Applying the 80/20 Rule to Asset Management** *Robin Krause, PE, District Engineer, Clark Region Water District* This presentation will detail the development and implementation of the District's R&R Program for gravity pipes including the technical aspects, buy-in by management, the Board of Commissioners and departmental staff.
#7	4:00-5:00	**No Session**
Wednesday, March 23, 2016		
#8 #9	8:00-9:00 9:05-10:05	**No Sessions**
#10	10:15-11:15	**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.

#11	11:20-12:20	**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
#12	1:20-2:20	**No Session**
#13	2:25-3:25	***VENDOR'S DISPLAY***
#14	3:40-4:40	**No Session**
Thursday, March 24, 2016		
#15	8:00-9:00	**The Forgotten Disaster: The 2008 Floods in Cedar Rapids, Iowa** *Greg Eyerly, Operations Manager, WES* The impact of a major flooding event on urban utilities and systems. What happened, what was the response and what were the lessons learned.
#16	9:05-10:05	**Trenchless Technologies** *Dan Buonadonna, CH2M* An introduction into the history, market, and range of trenchless technologies available for infrastructure rehabilitation. The presentation will be for all audiences and include an overview of specific select technologies related to water/sewer rehab, with design considerations, and lessons-learned.
#17	10:15-11:15	**Condition/Corrosion Assessment and Rehab for Wastewater Interceptors** *Dan Buonadonna, CH2M* A detailed review of the state of the industry for large diameter wastewater interceptor condition assessment and rehabilitation strategies and technologies. The presentation will focus on the approach to interceptor asset management, including inspection, analysis, corrosion mitigation, and rehabilitation, with a review of specific tools and technologies available in the marketplace.
#18	11:20-12:20	**Advancing Asset Management in the City of Gresham** *Chris Strong, City of Gresham* The City of Gresham contracted with a consultant to develop an asset management strategic road map for our public works-type assets. The City is following up on road map recommendations with the goal of starting to implement a new city-wide asset management software system later this year. This presentation will review our work to date, highlighting how we are moving ahead not merely with a software implementation, but are trying to advance the practice of asset management in our organization.
#19 #20 #21	1:20-2:20 2:25-3:25 3:40-4:40	**No Sessions**

Clackamas Community College
Oregon City Campus Map