Water Environment School 2019

• Collection Systems • Basics & Beyond • Vendor Display • Wastewater Basics
• Operations & Maintenance MARCH 26-28 • Wastewater Pretreatment
• Biosolids Management • Safety • Stormwater • Technology • Laboratory Practices

Celebrating 43 years of Education

ORWEF Oregon Water Education Foundation

Clackamas Community College

# Session Schedule & Descriptions

## OESAC Approved #3871 for 2.1 Wastewater & 1.6 Drinking Water*

*Please see schedule for DW approved courses

# *2019 Vendor's Display*

This year's vendor's display will be on
**Wednesday, March 27, 2019**
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 3:30 pm at the vendor's display.
- The items selected and awarded throughout the day <u>are not</u> the largest or most valuable items.
- ***<u>Prizes not claimed by 3:30 pm are forfeited and raffled off to a new number from the jar. Numbers already drawn are not recycled into the raffle.</u>***
- From 3:35 to 3:50 pm **<u>all</u>** remaining items, including the most valuable, will be raffled off.
- The raffle will be completed by 3:50 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.

*Please plan to visit & participate in the raffle!*

*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.*


## *Tuesday*

*Creamy Garlic Caesar Salad*
*Penne Pasta with Marinara Sauce*
*Fusilli with Pesto Cream Sauce*
*Meatballs*
*Garlic Bread*

## *Wednesday*

*Assorted Sliced Breads*
*Roast Beef, Ham, Turkey*
*Cheddar, Provolone and Swiss Cheeses*
*Lettuce, Tomatoes and Red Onions*
*Mayonnaise and Whole-Grain Mustard*
*Fresh Green Salad, Vinaigrette*
*Potato Chips*

## *Thursday*

*Chicken Thighs, Boneless, with BBQ Sauce*
*Pulled Pork with Korean BBQ Sauce*
*Coleslaw*
*Baked Beans*
*Cornbread with Butter and Honey*
*Homemade Mac and Cheese*

| **Tuesday, March 26** | | | | |
|---|---|---|---|---|
| **Session** | **OPERATIONS & MAINTENANCE**<br>McLoughlin Auditorium | **WASTEWATER PRETREATMENT**<br>Pauling 101 | **COLLECTION SYSTEMS**<br>Gregory Forum A | **BASICS & BEYOND**<br>Pauling 131 |
| 7:00 – 8:00 | **REGISTRATION, COMMUNITY CENTER** | | | |
| 8:00-8:15 | **OPENING CEREMONY** | | | |
| 1<br>8:15-9:15 | *Keynote Speaker*<br>**Rich Ludlow**<br>**Operations Manager \| Clark Regional Wastewater District**<br>*Randall Gymnasium* | | | |
| 9:15AM-9:30AM | **MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center** | | | |
| 2<br>9:30-10:30 | **Emerging Trends for External Carbon for Wastewater**<br>*Rick Allen*<br>*BioLynceus* | **Regulatory & Compliance Pitfalls**<br>*Johnny Leavy*<br>*City of St. Helens* | **New Gravity Trunk Sewer though Wetland and Peat Bog**<br>*Brad Crement*<br>*Clean Water Services* | **Polymer for Wastewater Treatment Seminar**<br>*Jacob Cole and Rawlin Castro*<br>*SNF Polydyne* |
| 3<br>10:35-11:35 | **What's That Smell?**<br>*Rick Allen*<br>*BioLynceus* | **A Portland Story**<br>*Brittany Huls*<br>*City of Portland, BES* | **UV-Light Cured CIPP Lining for Pipeline Rehabilitation**<br>*Jeff Maier*<br>*C&L Water Solutions, Inc.* | **The Weakest Link: Chain of Custody and its Role in the Wastewater Industry**<br>*Chris Desiderati*<br>*Clackamas Co. Water Environment Services* |
| 11:35-12:35 | **LUNCH for Attendees – CAFETERIA** | | | |
| 4<br>12:35-1:35 | **Waste Water Plant Restart and Start up**<br>*Rick Allen*<br>*BioLynceus* | **Wipes Issues in Sewer Systems**<br>*Frank Dick, P.E.*<br>*City of Vancouver, WA* | **Flow Monitoring**<br>*Simon Cartwright*<br>*Xylem* | **Condition Assessment Program at the Bureau of Environmental Services City of Portland**<br>*Mia Sabanovic (Dzemila)*<br>*City of Portland BES* |
| 5<br>1:40-2:40 | **Lagoon Management**<br>*Rick Allen*<br>*BioLynceus* | **Industrial Pretreatment Lagoon for Food Industries**<br>*Dade Pettinger*<br>*City of Vancouver, WA Pretreatment Program* | **Practical Considerations for Force Main Inspection in the Pacific Northwest**<br>*Daniel Buonadonna*<br>*Jacobs* | **Wastewater MBR Basics & Tour (1 of 3)--Classroom**<br>*Blake Raines*<br>*Clackamas Co. Water Environment Services* |
| 2:40-2:55 | **AFTERNOON BREAK – Cafeteria** | | | |
| 6<br>2:55-3:55 | **Sludge Liquid Gas**<br>*Kevin Dunlap*<br>*Orege* | **The Dreaded Flushables – Are They Really Flushable? Really?**<br>*Rick Allen*<br>*Biolynceus* *Joint Session with Collections in Gregory Forum A* | **The Dreaded Flushables – Are They Really Flushable? Really?**<br>*Rick Allen*<br>*Biolynceus* | **Wastewater MBR Basics & Tour (2 of 3)-- Tour**<br>*Blake Raines*<br>*Clackamas Co. Water Environment Services* |
| 7<br>4:00-5:00 | **Chemical Handling**<br>*Darren Hergert*<br>*North Star* | **FOG: Managing Your FOG Producers**<br>*Rick Allen*<br>*Biolynceus*<br>*Joint Session with Collections in Gregory Forum A* | **FOG: Managing Your FOG Producers**<br>*Rick Allen*<br>*Biolynceus* | **Wastewater MBR Basics & Tour (3 of 3) -- Tour**<br>*Blake Raines*<br>*Clackamas Co. Water Environment Services* |

| Tuesday, March 26 | | | | | |
|---|---|---|---|---|---|
| **Session** | **BIOSOLIDS MANAGEMENT**<br>P102 | **STORMWATER**<br>Gregory Forum B&C | **LABORATORY PRACTICES**<br>P103 | **SAFETY**<br>P132 | **TECHNOLOGY**<br>P164 |
| 7:00 – 8:00 | **REGISTRATION, COMMUNITY CENTER** | | | | |
| 8:00-8:15 | **OPENING CEREMONY** | | | | |
| 1<br>8:15-9:15 | *Keynote Speaker*<br>**Rich Ludlow**<br>**Operations Manager \| Clark Regional Wastewater District**<br>*Randall Gymnasium* | | | | |
| 9:15AM-9:30AM | **MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center** | | | | |
| 2<br>9:30-10:30 | **Biosolids Primer**<br>*Kyle Heffron & Skyler Edmison*<br>*Clean Water Services* | **Stormwater for Aquifer Storage and Recovery (ASR)**<br>*Jadene Stenslund*<br>*Clean Water Services* | **Fundamentals of Electrochemical Measurements**<br>*Mark McElroy*<br>*Thermo-Orion* | **Effective Hazard Recognition and Control***<br>*Leigh Manning*<br>*SAIF Corporation* | **Reducing Pump TCO Using New Variable Speed Drive Functions**<br>*Nathan Schiavo*<br>*Automation Specialist*<br>*Graybar* |
| 3<br>10:35-11:35 | **Biosolids Primer**<br>*Continued* | **Stormwater Planter Installation: Lessons Learned**<br>*Jadene Stenslund*<br>*Clean Water Services* | **Fundamentals of Electrochemical Measurements**<br>*Continued* | **Effective Hazard Recognition and Control***<br>*Continued* | **Standardizing Condition Data Using NASSCO PACP/MACP/LACP**<br>*Marilyn Shepard, NASSCO Master Trainer*<br>*International Training & Rehab Tech., Inc.* |
| 11:35-12:35 | **LUNCH for Attendees – CAFETERIA** | | | | |
| 4<br>12:35-1:35 | **Biosolids Regulatory Issues**<br>*Paul Kennedy*<br>*DEQ* | **Private SW Facility Inspection and Rehab**<br>*Cary Armstrong / Rich Wanke*<br>*Clark County Public Works - Clean Water Division* | **How To Solve It**<br>*Ken Earle, President*<br>*EZ Kem, Inc.* | **Elements of a Lock Out/Tag Out Program***<br>*Brett Phillips*<br>*BSI Compliance* | **The Cost of Asset Replacement: Making the Invisible Visible**<br>*Doug Gabbard, Project Manager*<br>*FCS Group* |
| 5<br>1:40-2:40 | **Site Authorization/Soils NRCS**<br>*Paul Kennedy*<br>*DEQ* | **AcrGIS Applicatons for Stormwater Inspections: Facilities, Businesses and IDDE Investigation**<br>*Samantha Nakata - GIS Analyst*<br>*Clark County GIS* | **You Can't Be "Safe Enough"**<br>*Charles Lytle*<br>*City of Portland Water Pollution Control Lab* | **Elements of a Lock Out/Tag Out Program***<br>*Continued* | **Instantaneous Information - How an Electronic O&M Manual Benefits Pump Stations**<br>*Jeff Hart and Joel Borchers*<br>*Clean Water Services* |
| 2:40-2:55 | **AFTERNOON BREAK – Cafeteria** | | | | |
| 6<br>2:55-3:55 | **Agronomic Rate for Biosolids Application to Cropland**<br>*Dan Sullivan*<br>*OSU* | **Stormwater Protection Through Spill Response**<br>*Curt Piesch*<br>*Washington State Department of Ecology* | **No Session** | **Safety Culture: Evaluate & Improve***<br>*Aubrey Sakaguch*<br>*SAIF* | **Drones, 3D Scanners, and GPS - How Clean Water Services uses Technology as Tools**<br>*Jeff Hart and Vince Eggleston*<br>*Clean Water Services* |
| 7<br>4:00-5:00 | **Fertilizing with Biosolids**<br>*Dan Sullivan*<br>*OSU* | **No Session** | **No Session** | **Safety Culture: Evaluate & Improve***<br>*Continued* | **No Session** |

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| **Session** | **OPERATIONS & MAINTENANCE**<br>McLoughlin Auditorium | **WASTEWATER PRETREATMENT**<br>Pauling 101 | **COLLECTION SYSTEMS**<br>Gregory Forum A | **BASICS & BEYOND**<br>Pauling 131 |
| 8<br>8:00-9:00 | **Developing a Computerized Maintenance Management System (CMMS) for your Treatment Plant**<br>*Mark Walter*<br>*WaterDude Solutions* | **FOG Inspection Basics**<br>*Clayton Brown, Western States Alliance* | **Nozzle Selection for Every Job**<br>*Eric Lundy*<br>*Owen Equipment* | **DEQ Wastewater Operator Certification Basics**<br>*Kimi Grzyb*<br>*Oregon DEQ* |
| 9<br>9:05-10:05 | VENDOR DISPLAY | **FOG Best Management Practices**<br>*Clayton Brown, Western States Alliance* | **Rehabilitation Methods for Small and Large Diameter Sewers**<br>*Michelle Beason*<br>*National Plant Services* | **Hydraulics and Pump Fundamentals for Wastewater Treatment**<br>*Ryan Carney*<br>*Kennedy/Jenks Consultants* |
| 10:05-10:20 | **MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center** | | | |
| 10<br>10:20-11:20 | **Practical Tools for Operational Improvement**<br>*Mark Walter*<br>*WaterDude Solutions* | VENDOR DISPLAY | **Rehabilitation Methods for Small and Large Diameter Sewers**<br>*continued* | **Understanding and Maintaining Wastewater Plant Control Systems**<br>*Carl Serpa*<br>*Portland Engineering Inc.* |
| 11<br>11:25am-12:25pm | **PLC Basics, from an Operator's Point of View**<br>*Skye Franyutti and Patrick Clasen*<br>*Clackamas County Water Environment Services* | **Ask the Regulator: Pretreatment Program Q&A**<br>*Jeff Navaro*<br>*Oregon DEQ* | **Lean a Little Bit Closer: Twin Falls Grandview Sewer**<br>*Mark Cummings, Dennis Galinato, Craig Anderson*<br>*Murraysmith* | **Hands-On Basic Excel within Wastewater**<br>*Charo Miller*<br>*Water Environment Services*<br>***Held in Streeter Hall Room M132*** |
| 12:25-1:25PM | **LUNCH for Attendees – CAFETERIA** | | | |
| 12<br>1:25-2:25pm | **Tri-City Solids Handling Improvements Project Update**<br>*Lynn Chicoin*<br>*Clackamas County Water Environment Services* | **Local Limits: The Basics**<br>*Steve Anderson*<br>*Clean Water Services* | VENDOR DISPLAY | VENDOR DISPLAY |
| 13<br>2:30-3:30pm | **How to Read a P&ID**<br>*Joel Borchers*<br>*Clean Water Services* | **Local Limits: Navigating the New DEQ Workbook**<br>*Steve Anderson*<br>*Clean Water Services* | **Asset Management - "You Don't Know What You Don't Know"**<br>*Barry Buchanan, P.E. Buchanan & Associates; Infrastructure Planning* | **Chemistry in Wastewater Applications**<br>*Jeff Zachman*<br>*Cascade Columbia Distribution* |
| 3:30-4:00 pm | **AFTERNOON BREAK – Refreshments in Cafeteria—Raffle in Gymnasium** | | | |
| 14<br>4:00-5:00 | **Gas Detection and Confined Space**<br>*Greg McDonald*<br>*Ritz Safety* | **Engineering Drawing Review**<br>*Jason Oster*<br>*Clark Regional Wastewater District, Vancouver WA* | **Asset Management - "You Don't Know What You Don't Know"**<br>*Continued* | **Comparison of Automated Nutrient Analysis in Waters and Soils: Flow versus Discrete Analysis**<br>*Patrick Leach*<br>*Clackamas Co. Water Environment Services* |

| Wednesday, March 27 | | | | | |
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| **Session** | **BIOSOLIDS MANAGEMENT** P102 | **STORMWATER** Gregory Forum B&C | **LABORATORY PRACTICES** P103 | **SAFETY** P132 | **TECHNOLOGY** P164 |
| 8<br>8:00-9:00 | **Evaluation of Short Term Biosolids Management Options in Response to a Settlement Agreement**<br>*Bill Fasth*<br>*Brown and Caldwell* | **The Stormy Side of Sanitary I&I Abatement: Godfrey Park**<br>*Brendan O'Sullivan; Sue Nelson*<br>*Murraysmith; City of St. Helens, OR* | **Laboratory Ethics**<br>*Keith Chapman*<br>*City of Salem - Retired* | **Oregon's Fall Protection Options for General Industry***<br>*Byron Snapp*<br>*Oregon OSHA* | **NASSCO PACP Recertification (7 hour course)**<br>*Marilyn Shepard*<br>*International Training & Rehab Tech., Inc.*<br>*Preregistration required* |
| 9<br>9:05-10:05 | **Scientific Nutrient Management**<br>*Dennis O'Neill*<br>*O'Neill Sustainable AG* | VENDOR DISPLAY | **QA/QC for the Small Municipal Lab**<br>*Jan Wilson*<br>*Cammia Environmental* | **Oregon's Fall Protection Options for General Industry***<br>*Continued* | **NASSCO PACP Recertification**<br>*Continued* |
| 10:05-10:20 | **MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center** | | | | |
| 10<br>10:20-11:20 | **Biosolids Hauling**<br>*Garret Behrman*<br>*Tribeca Transport* | **Wetland Mitigation Banking**<br>*David Gorman*<br>*Ecological Engineering, LLC* | **Essential Instrumentation For The Small Wastewater Laboratory**<br>*Brady Miller*<br>*Astoria-Pacific* | VENDOR DISPLAY | **NASSCO PACP Recertification**<br>*Continued* |
| 11<br>11:25am-12:25pm | **No Session** | **Stormwater Management on Agricultural Lands: How the ODA Works to Meet Nonpoint Source Water Quality Requirements**<br>*Mike Powers*<br>*Oregon Dept of Agriculture* | VENDOR DISPLAY | **Safety at Heights***<br>*Greg McDonald*<br>*Ritz Safety* | **NASSCO PACP Recertification**<br>*Continued* |
| 12:25-1:25PM | **LUNCH for Attendees – CAFETERIA** | | | | |
| 12<br>1:25-2:25pm | **How we Removed 14K Dry Tons Of Biosolids**<br>*Auburn Mills*<br>*Bureau of Environmental Services* | **Stormwater System Maintenance**<br>*Richard Born*<br>*River City Environmental* | **The ORELAP (Oregon Environmental Laboratory Program)**<br>*Alia Servin*<br>*Oregon Health Authority* | **Confined Space Entrant, Attendance, Entry Supervisor***<br>*Greg McDonald*<br>*Ritz Safety* | **NASSCO PACP Recertification**<br>*Continued* |
| 13<br>2:30-3:30pm | VENDOR DISPLAY | **Floodplain Restoration: A Multi-Benefit Approach**<br>*Marie Walkiewicz*<br>*City of Portland BES* | **No Session** | **Confined Space Entrant, Attendance, Entry Supervisor***<br>*Continued* | **NASSCO PACP Recertification**<br>*Continued* |
| 3:30-4:00 pm | **AFTERNOON BREAK – Refreshments in Cafeteria—Raffle in Gymnasium** | | | | |
| 14<br>4:00-5:00PM | **Unplanned Release of Ferric Chloride**<br>*Chris Selker*<br>*City of Portland* | **How Beaver and Pavement are Cleaning Stormwater in Gresham**<br>*Katie Holzer*<br>*City of Gresham* | **No Session** | **OSHA Recordkeeping Update: How Oregon's Adoption of the Federal Rules Affects Your Organziation**<br>*Patti McGuire*<br>*SAIF Corporation* | **NASSCO PACP Recertification**<br>*Continued* |

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| **Thursday, March 28** | | | |
|---|---|---|---|
| **Session** | **OPERATIONS & MAINTENANCE**<br>McLoughlin Auditorium | **COLLECTION SYSTEMS**<br>Gregory Forum A | **BASICS & BEYOND**<br>Pauling 131 |
| 15<br>8:00-9:00 | **Sewers**<br>*Film* | **Work Zone Traffic Control Safety (5 hours)**<br>*Tony Jobanek*<br>*ODOT Technology Transfer Center* | **Best Practices in Wastewater Asset Management-Flow, Failures, and Corrosion**<br>*Dan Tedrow*<br>*Plan B Consultancy* |
| 16<br>9:05-10:05 | **Reduce Operating Costs with Energy Efficient Improvements**<br>*Lisa Green*<br>*Working with Energy Trust of Oregon* | **Work Zone Traffic Control Safety**<br>*Continued* | **Wastewater Source Tracking Adventures in the Field**<br>*Christopher Desiderati*<br>*Clackamas Co. Water Environment Services* |
| 10:05-10:20am | **MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center** | | |
| 17<br>10:20-11:20am | **Resilience Planning**<br>*Greg Eyerly*<br>*Clackamas Co. Water Environment Services* | **Work Zone Traffic Control Safety**<br>*Continued* | **Optimizing Excel Reports for Wastewater Operations**<br>*Chanin Bays*<br>*Clackamas Co. Water Environment Services* |
| 18<br>11:25am-12:25pm | **When **It hits the Fan**<br>*Greg Eyerly*<br>*Clackamas Co. Water Environment Services* | **Work Zone Traffic Control Safety**<br>*Continued* | **On-Site Hypochlorite Generation for Wastewater Treatment**<br>*Jason Morse*<br>*Whitney Equipment* |
| 12:25-1:25pm | **LUNCH for Attendees – CAFETERIA** | | |
| 19<br>1:25-2:25pm | **Operational Considerations for DBP Control Using Different Disinfection Methods**<br>*Rachel Golda*<br>*Clean Water Services* | **Work Zone Traffic Control Safety**<br>*Continued* | **Basic Process Control for CAS and Anaerobic Digestion**<br>*Dan Strong*<br>*Clackamas Co. Water Environment Services* |
| 20<br>2:30-3:30pm | **Do You Know Where Your Forcemain Is? How We Perform Locating In-house**<br>*Jeff Hart & Noah Braukman*<br>*Clean Water Services* | **CIPP Lining of Sanitary Sewers for I/I Reduction and Asset Renewal**<br>*Bob Jacobsen*<br>*Brown and Caldwell* | **Ammonia Based Aeration Control & Turning Data Into Knowledge**<br>*Paul Schuitt & Brian Rhoades*<br>*Hach* |
| 3:30-3:45pm | **AFTERNOON BREAK – Cafeteria** | | |
| 21<br>3:45-4:45pm | **Pollution in Paradise**<br>*Film with Tom McCall* | **Above-ground versus Underground Air Release Valves**<br>*Jeff Hart*<br>*Clean Water Services* | **Advancements in Wastewater Technology**<br>*G. Paul Schuitt*<br>*Hach* |

| Thursday, March 28 | | | |
|---|---|---|---|
| **Session** | **BIOSOLIDS MANAGEMENT**<br>P102 | **STORMWATER**<br>Gregory Forum B&C | **SAFETY**<br>P132 |
| 15<br>8:00-9:00 | **Common Dewatering Technologies**<br>*Matt Sprick*<br>*Carrolo* | **Use of Large Wood in Habitat Restoration Project**<br>*Bill Norris*<br>*Ecosystem Restoration Services, Inc* | **Distracted and Fatigued Driving**<br>*Patti McGuire*<br>*SAIF Corporation* |
| 16<br>9:05-10:05 | **Polymer Optimization**<br>*Matt Sprick*<br>*Carrolo* | **Protecting Water Quality Through Sustainable Nursery Practices**<br>*Sam Doane*<br>*J Frank Schmidt Nursery* | **Evacavation Safety and the Role of the Competent Person***<br>*Eric Fullan*<br>*City of Hillsboro* |
| 10:05-10:20am | **MORNING BREAK — COFFEE, TEA, ETC. DONUTS/BAGELS/FRUIT – Comm. Center** | | |
| 17<br>10:20-11:20am | **ATAD Process & Problems/Solutions**<br>*Tim Munro*<br>*City of McMinnville Wastewater Services* | **Source Control for Phase II Communities**<br>*Bob Patterson*<br>*Clark County Public Works - Clean Water Division* | **Evacavation Safety and the Role of the Competent Person***<br>*Continued* |
| 18<br>11:25am-<br>12:25pm | **Dewatering Optimization**<br>*Dillon Myers*<br>*Clean Water Services* | **Resilient Actions for Climate Change-Affected Storm & WW Utilities**<br>*Matt Glazewski*<br>*Water Environment Services* | **Evacavation Safety and the Role of the Competent Person***<br>*Continued* |
| 12:25-1:25pm | **LUNCH for Attendees – CAFETERIA** | | |
| 19<br>1:25-2:25pm | **Nuisance Struvite**<br>*Brett Laney*<br>*Clean Water Services* | **Stormwater Quality Retrofits Made Practical: Design, Construction & Maintenance**<br>*Doug Singer, PE*<br>*City of Eugene* | **Effective Quarterly Walkthrough Inspections**<br>*Eric Fullan*<br>*City of Hillsboro* |
| 20<br>2:30-3:30pm | **Phosphorus for Beneficial Reuse**<br>*Brett Laney*<br>*Clean Water Services* | **Liquid Assets**<br>*Movie--Part 1* | **Effective Quarterly Walkthrough Inspections**<br>*Continued* |
| 3:30-3:45pm | **AFTERNOON BREAK – Cafeteria** | | |
| 21<br>3:45-4:45pm | **Biosolids Jeopardy**<br>*Gerald Stensland*<br>*Clean Water Services* | **Liquid Assets**<br>*Movie--Part 2* | **Chemicals/SDS's**<br>*Brittany Chaufty*<br>*SAIF* |

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# Operations & Maintenance — McLoughlin Auditorium

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|---|---|
| **Tuesday, March 26, 2019** | |
| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager*<br>*Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Emerging Trends for External Carbon for Wastewater**<br>*Rick Allen ~BioLynceus*<br>Rick will discuss many of the reasons external carbon may be used to optimize wastewater treatment processes. The class will include how and when these beneficial programs are to be used. Rick will discuss some of the accepted, well-known and marketed products. He will also cover more obscure but very beneficial carbon sources available today. |
| #3<br>10:35-11:35am | **What's That Smell?**<br>*Rick Allen ~BioLynceus*<br>Mr. Allen presents a compelling look at how H2S is a growing concern for plant operations and conclusive solutions on ways the "problem" can be handled. This session is a look at the underlying issues of managing H2S in collection systems and wastewater plants. |
| #4<br>12:35-1:35pm | **Waste Water Plant Restart and Start up**<br>*Rick Allen ~BioLynceus*<br>This class will discuss your options for resurrecting your plant or stopping a complete die off. Mr. Allen will cover the time lines required of the many options available to you. Real life observations and different methods of successful and unsuccessful attempts to Restart an existing plant or the Startup of any type of new wastewater plant will be discussed. |
| #5<br>1:40-2:40pm | **Lagoon Management**<br>*Rick Allen ~BioLynceus*<br>Lagoon management covers the need to properly manage wastewater lagoons for optimal efficiency. Topics include using traditional methods of design & technologies to meet NPDES permits. Discussion about problems with meeting permits including ways to improve the overall efficiency of the lagoon for improved DO, TSS, BOD, AN, pH and Phosphorous are covered. |
| #6<br>2:55-3:55pm | **Sludge Liquid Gas**<br>*Kevin Dunlap ~ Orege*<br>Proprietary technology using compressed air to modify sludge structure prior to thickening/dewatering to enhance performance. |
| #7<br>4:00-5:00pm | **Chemical Handling**<br>*Darren Hergert ~North Star*<br>How to properly handle, store and label the chemicals found in the processes of wastewater treatment safely. |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **Developing a Computerized Maintenance Management System (CMMS) for your Treatment Plant**<br>*Mark Walter ~ WaterDude Solutions*<br>Overview of the steps needed to develop a CMMS for a treatment plant. Detailed description of each of the steps using reference facility. Learn what types of source information are most useful in getting started |
| #9<br>9:05-10:05am | **VENDOR DISPLAY** |
| #10<br>10:20-11:20am | **Practical Tools for Operational Improvement**<br>*Mark Walter ~ WaterDude Solutions*<br>Attendees will learn how to develop and implement process management tools. The use of a Process Memo, Duty Matrix and Work Plan have shown to provide operations staff with effective tools to guide daily activities and measure performance. Program assessment and asset condition assessment provide valuable insight to aid with planning and cost forecasting. This presentation will discuss development and implementation of these tools to improve the operation, maintenance and management of treatment facilities. |
| #11<br>11:25am-12:25pm | **PLC Basics, from an Operator's Point of View.**<br>*Patrick Clasen & SkyFranyutti ~Clackamas County Water Environment Services*<br>In the most basic of terms, a PLC is a computer that one can fully program to execute whatever taks is needed to accomplish an automated process that meets the customer's demands. We will discuss how PLC's are used in the field of wastewater operations. |
| #12<br>1:25-2:25pm | **Tri-City Solids Handling Improvements Project Update**<br>*Lynn Chicoin*<br>*Clackamas County Water Environment Services*<br>The presentation will give an overview of the Tri-City Solids Handling Improvements project which is currently under construction. The project includes thickened sludge blending, a 1.3 MG anaerobic digester, digested sludge storage, dewatering, dewatered sludge storage, upgrades to the existing digesters and a biogas utilization process including gas storage, cleaning and cogeneration. Discussion of the design phase of the project will include an emphasis on reliability and redundancy highlighting how engineers and operations and maintenance staff view redundancy and how we worked to meet the needs of team members with differing perspectives. The presentation will also provide an overview of the first 8 months of construction and a look forward to training and start up. Construction is expected to be complete in early 2021. |

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| #13<br>2:30-3:30pm | **How to Read a P&ID**<br>*Joel Borchers ~Clean Water Services*<br>Process and Instrumentation Drawings (P&IDs) are many times the first construction drawings that a treatment facility will see during design of a new process. P&IDs are a common method that different engineering disciplines use to communicate with each other.<br><br>This presentation will walk through the common areas that pertains to design drawings in general and concentrate on areas that pertain to processes specifically, identify process flow paths and how these paths can cover more than a single drawing, learn to decode acronyms such as PIT, FIT, LIT, and many others, identify inputs and outputs and learn about the companion piece, Control Loop Descriptions |
| #14<br>4:00-5:00pm | **Gas Detection and Confined Space**<br>*Greg McDonald ~ Ritz Safety*<br>Maintenance, use and care of gas monitoring equipment, Bump Testing and calibration requirements, sensor response, checking peak readings and OSHA compliance. |
| **Thursday, March 28, 2019** | |
| #15<br>8:00-9:00am | **Sewers**<br>*Film*<br>This film discusses the history of the first attempts at wastewater treatment all the way to the new technologies of today. |
| #16<br>9:05-10:05am | **Reduce Operating Costs with Energy Efficient Improvements**<br>*Lisa Green ~ Working with Energy Trust of Oregon*<br>Electricity alone can constitute 25% to 40% of a wastewater treatment plant's annual operating budget and make up a significant portion of a municipality's total energy bill (reference: US DOE). A common misconception is that energy is a fixed cost. This presentation will highlight the biggest energy users common in wastewater treatment plants and present ideas to help reduce operating costs. |
| #17<br>10:20-11:20am | **Resilience Planning**<br>*Greg Eyerly ~ Clackamas County Water Environment Services*<br>When planning and designing water & wastewater infrastructure; there are many factors to consider beyond capacity, treatment and efficiency. Resilience planning is a necessary step to consider when you are looking at your organization, job and treatment facilities |
| #18<br>11:25am-12:25pm | **When **It Hits the Fan**<br>*Greg Eyerly ~ Clackamas County Water Environment Services*<br>After 25 years of doing something wrong in an emergency, I have come up with some basic approaches that will help ease the pain and solve the problem more efficiently. Inevitability things are going to wrong at your plant, pump stations and collection systems. Power failure, blower failure, disinfection failure. Some basic steps that can be taken in every emergency that will make your next response when things go wrong better than no planning. The class will help you attack your problem rather than feeling overwhelmed and powerless |
| #19<br>1:25-2:25pm | **Operational Considerations for DBP Control Using Different Disinfection Methods**<br>*Rachel Golda ~ Clean Water Services*<br>Disinfection byproducts (DBPs) are substances with high carcinogenic potential that result from the interaction of free chlorine with dissolved organic carbon. This talk presents operational considerations for using free chlorine, chloramines, or UV as the principal disinfection method for a wastewater treatment facility balancing DBP control with stringent ammonia permit limits during summer months. |
| #20<br>2:30-3:30pm | **Do You Know Where Your Forcemain Is? How We Perform Locating In-house**<br>*Jeff Hart & Noah Braukman ~ Clean Water Services*<br>After years of relying on 3rd parties for locating our forcemain when 811 is called, Clean Water Services (CWS) has taken on locating ourselves. Self-performing this services has pros and cons, which will be discussed during the presentation. Other aspects presented are designing the forcemain to be easily locatable prior to installation, CWS responsibilities during construction, tips/tricks/tools used for locating when 811 is called. |
| #21<br>3:45-4:45pm | **Pollution in Paradise**<br>*Film with Tom McCall*<br>The birth of enlightened Oregon is marked to the exact minute: 9 pm on Nov. 21, 1962, when local television station KGW first aired the documentary *Pollution in Paradise*. For decades, industry in Oregon acted as if it had divine privilege to pollute in the name of jobs and profits. This Documentary looks at the impact that industry pollution had on the Portland metro area and mainly the Willamette River pertaining to the dumping of raw sewage and the need for waste water treatment. |

| **Tuesday**, **March 26, 2019** | |
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| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager ~Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Regulatory & Compliance Pitfalls**<br>*Johnny Leavy, WWTP Operator III/Pretreatment Coordinator ~ City of St. Helens*<br>Presentation covers often overlooked areas of environmental regulatory compliance issues found in and around the wastewater treatment industry. |
| #3<br>10:35-11:35am | **A Portland Story**<br>*Brittany Huls ~ City of Portland*<br>Summary of a 2018 enforcement case: Findings led to the termination of a metal finisher's Industrial Wastewater discharge permit. |
| #4<br>12:35-1:35pm | **Wipes Issues in Sewer Systems**<br>*Frank Dick, P.E. ~ City of Vancouver, WA*<br>The issues, impacts and characterization of non-dispersibles and clogging in sewer and wastewater systems, and the world wide efforts to mitigate these impacts and establish standards for flushability. |
| #5<br>1:40-2:40pm | **Industrial Pretreatment Lagoon for Food Industries**<br>*Dade Pettinger ~ City of Vancouver, WA Pretreatment Program*<br>Operation and maintenance of 3.2 MGD Industrial Pretreatment Lagoon |
| #6<br>2:55-3:55pm | **The Dreaded Flushables – Are They Really Flushable? Really?**<br>*Rick Allen ~ Biolynceus*<br>*Joint Session with Collection-Gregory Forum A*<br>In The Dreaded Flushables, Rick Allen will discuss one of the new emerging trends in wastewater operations. Today, municipalities large and small are being inundated with materials that should never be "Flushed."<br><br>Probably, the most challenging and costly plague affecting wastewater operations everywhere are products promoted as "Flushable" that are not bio-degradable. These materials are advertised in ways that negatively impact wastewater operations. Massive amounts of materials are causing problems in our collection systems, or are causing unnecessary challenges with lift stations, pumps and equipment in wastewater treatment operations. Rick looks forward to leading a lively debate and conversation on creating awareness within operations and communities to engage in "Non-Flushable Behaviors" around products that should never be in our sewers and sewer plants.<br><br>The challenges of these materials being disposed of in wastewater systems are numerous and costly. In the Dreaded Flushables, Rick will discuss the challenges and costs of these materials in operations nationally. Additionally, there are opportunities to discuss the educational opportunities to provide training and education to operational staff, managers and the public. In a national and international debate, there are opportunities to engage the public with this growing concern that is causing municipalities around the world expensive and challenging operational difficulties. |
| #7<br>4:00-5:00pm | **FOG: Managing Your FOG Producers**<br>*Rick Allen ~ Biolynceus*<br>*Joint Session with Collection-Gregory Forum A*<br>Fats, Oils, and Grease hits municipalities operational and maintenance budgets. Working directly with the producers can help off-set some of these expenses. In Managing Your FOG Producers, Rick Allen brings forth educational information on ways attendees can address this critical issue in their system.<br><br>Rick Allen will discuss; why FOG happens, why it is more prevalent in wastewater systems today and many cost-effective methods of removal. During this presentation attendees will learn about conventional methods of removal and control, along with new and innovative solutions to mitigate the problem. This program will address ways to work with your FOG Producers to implement Best Management Practices. Within these operational challenges, Rick will discuss some of the new emerging technologies to address FOG and what your organization needs to know. Educational case studies and long-term Operational and Maintenance information will be discussed to provide ways to get your FOG Producers helping to eliminate what they are releasing into systems. |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **FOG Inspection Basics**<br>*Clayton Brown ~ Western States Alliance*<br>An overview of FOG inspection considerations and practices. Inspections are vital for a successful FOG program. Learn how to conduct inspections, and discuss complications that might happen during a routine inspection. |
| #9<br>9:05-10:05am | **FOG Best Management Practices**<br>*Andria Swann ~Swann Environmental Education*<br>Best Management Practices (BMP) are a good resource for a Food Service Establishment (FSE) in their journey to become compliant with local sewer regulations. When an FSE is a major FOG producer the collection system and treatment process can be impacted. Learn how to support an FSE in BMP implementation. |
| #10<br>10:20-11:20am | **VENDOR'S DISPLAY** |

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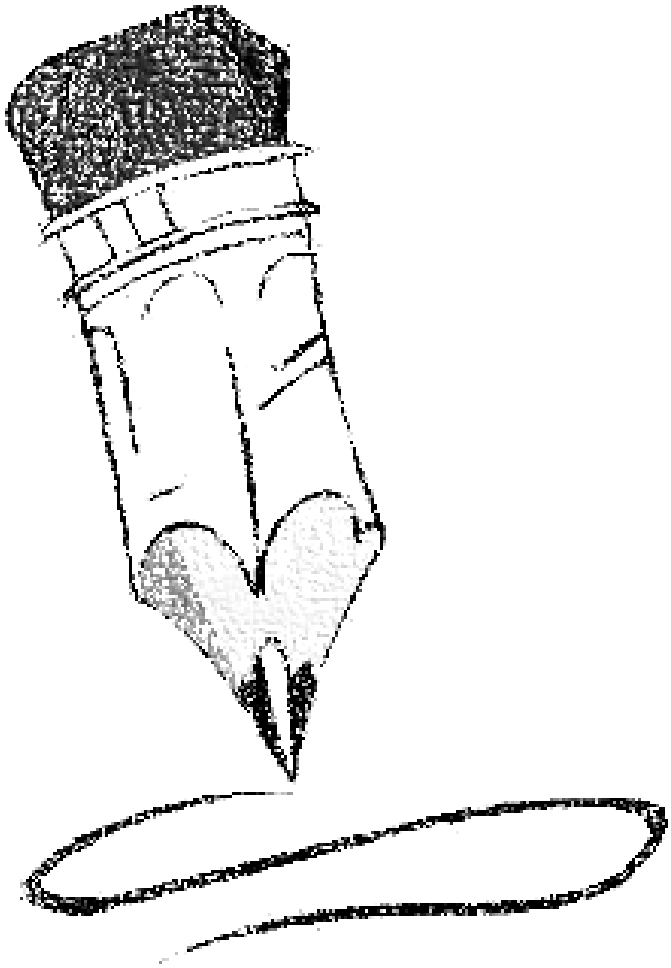
| #11<br>11:25am-12:25pm | **Ask the Regulator: Pretreatment Program Q&A**<br>*Jeff Navaro ~ Oregon DEQ*<br>Bring your burning questions and issues about all things pretreatment for a conversation with the regulating authority. |
| #12<br>1:25-2:25pm | **Local Limits: The Basics**<br>*Steve Anderson ~ Clean Water Services*<br>Local limits are developed to meet the pretreatment program objectives and site-specific needs of the local POTW and the receiving stream. Learn more about the purpose and development of these limits. |
| #13<br>2:30-3:30pm | **Local Limits: Considerations for Copper**<br>*Steve Anderson ~ Clean Water Services*<br>How to consider water quality criteria for copper into the local limits development process. |
| #14<br>4:00-5:00pm | **Engineering Drawing Review**<br>*Jason Oster, Senior Engineering Technician ~ Clark Regional Wastewater District, Vancouver WA*<br>A review of floor plumbing plans that route sewage to the wastewater treatment plant, through the collection system. Learn the basics of reading engineering drawings. |



# Collection Systems — *Gregory Forum A*

| Tuesday, March 26, 2019 | |
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| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager*<br>*Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **New Gravity Trunk Sewer though Wetland and Peat Bog**<br>*Brad Crement ~ Clean Water Services*<br>The Onion Flat Trunk, constructed in 1982, was parallel to Rock Creek through a peat bog and serves the eastern portion of Sherwood Oregon. It is currently in part of the Tualatin River Wildlife Refuge owned by the USFW with plans to restore the peat bog back to its natural state.<br>The original construction encountered significant problems with groundwater and maintaining the flat slope of 0.30%. After construction approximately 1,500 feet of the sewer settled 6 to 18 inches due to the long-term consolidation/degradation of the peat. This hindered the hydraulic capacity and created a vapor lock trapping harmful gasses which resulted in accelerated concrete degradation.<br>An extensive alternatives analysis was conducted to determine the preferred means to mitigate the structural and maintenance issues associated with the existing sewer line. The solution was to replace 5,500-foot of 18-inch concrete pipe with a new 27-inch pvc pipe. This solution was reached because rehabilitation would not help the reduced hydraulic capacity or ease maintenance concerns being experienced by the settlement. Extensive geotechnical, permitting, hydraulic studies, and negotiations with the Wildlife Refuge were conducted to select the right alignment and depth to avoid peat soil, minimize environmental impacts, and reduce the construction challenges (such as, deep excavation and dewatering needs).<br>During construction, groundwater was found to be within a couple feet of the surface. Combined with sand lenses this resulted in flowing sand conditions with unstable trench sidewalls. Extensive well points dewatering system was installed every 5-10 feet along the trench and bore pits.<br>Another significant project challenge was the crossing of Hwy 99 West. The existing trunk was located on the bank of Rock Creek, which was spanned by two bridges. The preferred solution was to relocate the trunk away from Rock Creek and auger-bore under the highway embankment with a 42-inch oversized casing and steering head to facilitate the very flat grade carrier pipe installation.<br>The project was completed within budget and only 2 weeks behind schedule, despite the major challenges encountered during trenchless construction, significant dewatering required, and an early fall. |
| #3<br>10:35-11:35am | **UV-Light Cured CIPP Lining for Pipeline Rehabilitation**<br>*Jeff Maier ~ C&L Water Solutions, Inc.*<br>A technical overview of the cured in place pipe (CIPP) lining process, the most common method for trenchless rehabilitation of sewer pipelines, is presented. In particular, advantages of using ultra-violet light cured, glass reinforced CIPP lining (UV-CIPP) for wastewater applications where infiltration and wet pipe conditions are present will be discussed. Higher strength materials, pre-inspection capabilities, thinner lining design, verifiable cure and no styrene release are all features of UV-CIPP that provide the customer with a high quality lining product. Design and specification considerations, installation procedures, quality assurance/ quality control measures, and inspection will be covered. Case studies in the Salt Lake City area where UV-CIPP is being utilized as the preferred lining solution will be presented, and will include discussion of the North Davis Sewer District's CIPP Lining Program, one of the largest UV-CIPP lining programs in North America to date. |
| #4<br>12:35-1:35pm | **Flow Monitoring**<br>*Simon Cartwright ~ Xylem*<br>Review types of open-channel and closed-channel flow monitoring applications. Discuss the different technologies and where to apply these technologies. |
| #5<br>1:40-2:40pm | **Practical Considerations for Force Main Inspection in the Pacific Northwest**<br>*Daniel Buonadonna ~ Jacobs*<br>Following the boom in municipal construction in the latter half of the 20th century, much of the buried infrastructure is approaching the end of its design life, including sewer force mains. Condition assessment of these pressure sewers has been an increasing priority for many municipalities, and the Pacific Northwest is no exception. In addition to selecting the appropriate inspection tool from suite of technologies available, taking into account local contextual information on the construction materials, methods, and longevity of force mains is important to properly characterize the infrastructure. This presentation will cover a variety of case studies on force main condition assessment in the Pacific Northwest, outline the methods used and results obtained from the inspections, and share practical considerations for utilities considering force main condition assessment in the region. |

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| #6<br>2:55-3:55pm | **The Dreaded Flushables – Are They Really Flushable? Really?**<br>*Rick Allen ~ Biolynceus*<br>In The Dreaded Flushables, Rick Allen will discuss one of the new emerging trends in wastewater operations. Today, municipalities large and small are being inundated with materials that should never be "Flushed."<br><br>Probably, the most challenging and costly plague affecting wastewater operations everywhere are products promoted as "Flushable" that are not bio-degradable. These materials are advertised in ways that negatively impact wastewater operations. Massive amounts of materials are causing problems in our collection systems, or are causing unnecessary challenges with lift stations, pumps and equipment in wastewater treatment operations. Rick looks forward to leading a lively debate and conversation on creating awareness within operations and communities to engage in "Non-Flushable Behaviors" around products that should never be in our sewers and sewer plants.<br><br>The challenges of these materials being disposed of in wastewater systems are numerous and costly. In the Dreaded Flushables, Rick will discuss the challenges and costs of these materials in operations nationally. Additionally, there are opportunities to discuss the educational opportunities to provide training and education to operational staff, managers and the public. In a national and international debate, there are opportunities to engage the public with this growing concern that is causing municipalities around the world expensive and challenging operational difficulties. |
| #7<br>4:00-5:00pm | **FOG: Managing Your FOG Producers**<br>*Rick Allen ~ Biolynceus*<br>Fats, Oils, and Grease hits municipalities operational and maintenance budgets. Working directly with the producers can help off-set some of these expenses. In Managing Your FOG Producers, Rick Allen brings forth educational information on ways attendees can address this critical issue in their system.<br><br>Rick Allen will discuss; why FOG happens, why it is more prevalent in wastewater systems today and many cost-effective methods of removal. During the presentation attendees will learn about conventional methods of removal and control, along with new and innovative solutions to mitigate the problem. This program will address ways to work with your FOG Producers to implement Best Management Practices. Within these operational challenges, Rick will discuss some of the new emerging technologies to address FOG and what your organization needs to know. Educational case studies and long-term Operational and Maintenance information will be discussed to provide ways to get your FOG Producers helping to eliminate what they are releasing into systems. |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **Nozzle Selection for Every Job**<br>*Eric Lundy ~ Owen Equipment*<br>In this class we will discuss proper nozzle selection based on application. We will also differentiate the relationship between RPM, GPM and PSI. We will review the different performance and efficiency technologies available in nozzles. In addition, we will talk about safety and proper operations of nozzles. |
| #9<br>9:05-10:05am | **Rehabilitation Methods for Small and Large Diameter Sewers**<br>*Michelle Beason ~ National Plant Services*<br>Typical failure methods of large and small diameter pipelines will be presented, along with rehabilitation methods used to restore level of service at the lowest cost. Injection grouting, CIPP point repairs, UV lining, and structural and protective coatings will be discussed, along with when to use each method. |
| #10<br>10:20-11:20am | **Rehabilitation Methods for Small and Large Diameter Sewers**<br>*Continued* |
| #11<br>11:25am-12:25pm | **Lean a Little Bit Closer: Twin Falls Grandview Sewer**<br>*Mark Cummings, Dennis Galinato, Craig Anderson ~ Murraysmith*<br>Murraysmith was contracted by the City of Twin Falls to evaluate and solve odor and corrosion issues associated with the large diameter Grandview Sewer Trunkline. All collections systems naturally create and contain odorous compounds. But, the Grandview Trunk is particularly odorous and has severe concrete structure (manhole) and pipe degradation.<br>The first step of the project was developing a liquid and air phase sampling program to understand both the odor compound generation areas and primary release mechanisms. This included vapor phase monitoring, liquid phase sampling, collecting odor complaint data, and interviewing City staff. The results were then summarized in a memorandum. The City plans to continue the project through the summer with system evaluation, treatment system piloting, life cycle cost assessment calculations, selected system design and construction.<br>Murraysmith also designed a replacement sewer along the trunkline approximately 1,300 LF long with new 48-inch diameter gravity sewer pipe and three corrosion resistant manholes: Lined concrete manhole, bacterial inhibited manhole, and polymer concrete manhole. The corrosion resistant manholes were utilized as a pilot project to aid the City in determining which system is preferred for manhole replacement in areas of the City with existing corrosion or high corrosion potential. In the future the City will make decisions for replacement manholes that will best serve the City. The condition of the pilot manholes will be tracked and documented through the year and included in the presentation.<br>This presentation will:<br>1. Define mechanisms of sewer collection system odor generation and corrosion.<br>2. Identify odor detection and monitoring techniques.<br>3. Explain odor monitoring data analysis.<br>4. Summarize important analysis and results of the study.<br>5. Collection system odor treatment overview and process selection.<br>6. Outline corrosion resistant sewer technologies.<br>7. Provide project conclusions, recommendations and results.<br>8. Outline the project next steps. |

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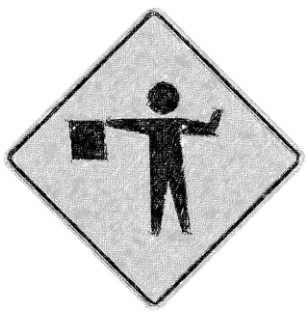
| #12<br>1:25-2:25pm | **VENDOR'S DISPLAY** |
| #13<br>2:30-3:30pm | **Asset Management - "You Don't Know What You Don't Know"**<br>*Barry Buchanan, P.E. ~ Buchanan & Associates; Infrastructure Planning*<br>What is AM to the Organization?<br>What do you know:<br>1) About your Assets?<br>2) About the service they should provide?<br>3) About their issues?<br>4) About the urgency?<br>5) About life cycle solution; the needs?<br>6) About the implementation options?<br>7) About the funding, CapEx & OpEx strategies?<br>8) About who should be involved? |
| #14<br>4:00-5:00pm | **Asset Management - "You Don't Know What You Don't Know"**<br>*Continued* |
| **Thursday, March 28, 2019** | |
| #15<br>8:00-9:00am | **Work Zone Traffic Control Safety (5 hours)**<br>*Tony Jobanek ~ ODOT Technology Transfer Center*<br>At the completion of this five-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 3 years. |
| #16<br>9:05-10:05am | **Work Zone Traffic Control Safety**<br>*Continued* |
| #17<br>10:20-11:20am | **Work Zone Traffic Control Safety**<br>*Continued* |
| #18<br>11:25am-12:25pm | **Work Zone Traffic Control Safety**<br>*Continued* |
| #19<br>1:25-2:25pm | **Work Zone Traffic Control Safety**<br>*Continued* |
| #20<br>2:30-3:30pm | **CIPP Lining of Sanitary Sewers for I/I Reduction and Asset Renewal**<br>*Bob Jacobsen ~ Brown and Caldwell*<br>The Lakehaven Water and Sewer District (LWSD) has been experiencing issues with significant flow increases during wet weather, causing basement backups and overflows, and approaching the treatment plant's capacity. To pinpoint the source of the wet weather flows to the separated sanitary sewer system, LWSD began a 2-year flow monitoring program, followed by detailed hydraulic modeling. This work concluded that the sewer basin flowing to Pump Station 5 had the most severe inflow and infiltration (I/I).<br>Following closed-circuit television (CCTV) inspection and refined flow monitoring of the Pump Station 5 basin (single-family homes), the team concluded that the major source of wet weather flow was infiltration, not inflow. The CCTV inspection indicated that most infiltration was on private property at leaking joints from the 1960s-vintage concrete pipes.<br>LWSD decided to complete cured-in-place-pipe (CIPP) lining of the sanitary sewers to reduce wet weather flows and to help begin efforts to renew sewer assets. A 21-acre pilot project area (86 houses) was developed to determine the cost and effectiveness of CIPP lining LWSD-owned mainlines and privately held laterals (from the main to the house, at no cost to owners). A public outreach campaign obtained voluntary approval for 84 of the 86 houses.<br>CIPP lining efforts started in late October 2017 and ended in February 2018. Ultraviolet-cured lining was used to rehabilitate the mainline pipes. Traditional steam-cured and ambient-cured lining was used for the lateral lining. Where laterals connected to the mainlines, T-liners were used to provide a full seal. Cleanouts where installed with the VAC-A-TEE method on all laterals to facilitate lateral lining. The project was completed on schedule and on budget (approximately $1.3 million). Flow monitoring and modeling is continuing and will be evaluated after the next wet weather season. Pending its effectiveness, LWSD will expand this program to jointly reduce wet weather flows and to renew the sewer assets. |
| #21<br>3:45-4:45pm | **Above-ground versus Underground Air Release Valves**<br>*Jeff Hart ~ Clean Water Services*<br>Clean Water Services has standardized on using Above-Ground Air Release Valves. This presentation will discuss the basic science and engineering behind using air release valves (ARV) on pump station forcemains. Following the general ARV discussion, pros and cons for using above-ground versus underground ARVs will be presented. The pros/cons will dive into capital costs, maintenance, safety, aesthetics, odors, and design details of the two ARV locations. |



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| **Tuesday, March 26, 2019** | |
| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager ~ Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Polymer for Wastewater Treatment Seminar**<br>*Jacob Cole and Rawlin Castro ~ SNF Polydyne*<br>Coagulation/flocculation theory and application for water and wastewater treatment. Reviewing ways in which treatment facilities can optimize their current process and potentially improve desired results. |
| #3<br>10:35-11:35am | **The Weakest Link: Chain of Custody and its Role in the Wastewater Industry**<br>*Chris Desiderati ~ Clackamas County Water Environment Services*<br>Overview of good practices using Chain of Custodies in a regulated wastewater setting. This will include field sample collection in rivers and streams to industrial pretreatment sampling. Case studies will be explored and how sample integrity is maintained through sample custody and good documentation. |
| #4<br>12:35-1:35pm | **Condition Assessment Program at the Bureau of Environmental Services City of Portland**<br>*Mia Sabanovic (Dzemila) ~ City of Portland BES*<br>Creating and implementing strategic real-time condition assessment program that enables wastewater utility to make educated decisions regarding replacement and rehabilitation of infrastructure in accordance with industry best asset management practices. |
| #5<br>1:40-2:40pm | **Wastewater MBR Basics -Classroom (Part 1 of 3)**<br>*Blake Raines ~ Water Environment Services*<br>This is the 'classroom portion of the presentation'. This will explain the basics of wastewater membrane bio-reactors. It will include what they are made of, how they function and important plant design ideas to keep in mind. It will also include my own challenges and benefits of operating a wastewater MBR plant and lessons learned. |
| #6<br>2:55-3:55pm | **Tour of Tri-City's MBR and CAS Plant (Wastewater MBR Basics & Part 2 of 3)**<br>*Blake Raines ~ Water Environment Services*<br>This is the 'tour' section of the Wastewater MBR Basics discussion. The tour will be located at 15941 S Agnes Ave, Oregon City, OR 97045. Participants must drive to the treatment plant. **THE TOUR WILL BEGIN AT 3:00.** |
| #7<br>4:00-5:00pm | **Tour of Tri-City's MBR and CAS Plant (Wastewater MBR Basics & Part 3 of 3)**<br>*Blake Raines ~ Water Environment Services*<br>This is the 'tour section' of the Wastewater MBR Basics discussion. Participants must be present during the start of session 6 to participate. **Only one tour will occur- which will start at 3:00.** |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **DEQ Wastewater Operator Certification Basics**<br>*Kimi Grzyb ~ Oregon DEQ*<br>The application and certification process for wastewater operators with tips to avoid mistakes, an overview of where to find the information you need on DEQ's website, and an opportunity for program feedback. |
| #9<br>9:05-10:05am | **Hydraulics and Pump Fundamentals for Wastewater Treatment**<br>*Ryan Carney ~ Kennedy/Jenks Consultants*<br>Hydraulic systems, basic consideration in design and operation along with an introduction to pumps and pump design. |
| #10<br>10:20-11:20am | **Understanding and Maintaining Wastewater Plant Control Systems**<br>*Carl Serpa ~ Portland Engineering Inc.*<br>Introduction to control and instrumentation systems. It will cover important topics related to maintaining and operating these systems. |
| #11<br>11:25am-12:25pm | **Hands on Basic Excel within Wastewater**<br>*Charo Miller ~ Water Environment Services*<br>**Held in Streeter Hall ~ Room M132**<br>Participants learn hands-on excel skills related to wastewater. It will focus on user specific Excel skills that include how to create spreadsheets and how to edit others. It will also include shortcuts and advice on where to find the best help. |
| #12<br>1:25-2:25pm | **VENDOR'S DISPLAY** |
| #13<br>2:30-3:30pm | **Chemistry in Wastewater Applications**<br>*Jeff Zachman ~ Cascade Columbia Distribution*<br>Explore various chemical options in wastewater treatment. |
| #14<br>4:00-5:00pm | **Comparison of Automated Nutrient Analysis in Waters and Soils: Flow versus Discrete Analysis**<br>*Patrick Leach ~ Water Environment Services*<br>Benefits and deficiencies in the two primary modes of automated nutrient analysis available: segmented flow and discrete analyzers. Discussion of the mode of analysis will be in terms of primary nutrients of wastewater, drinking water, and soil samples. |

| Thursday, March 28, 2019 | |
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| #15<br>8:00-9:00am | **Best Practices in Wastewater Asset Management- Flow, Failures, and Corrosion**<br>*Dan Tedrow ~ Plan B Consultancy*<br>Look at case studies of wastewater asset management integrating best practices, lessons learned, and a specific case study from King County's West Point Treatment Plant. Lesions will convey best practices in plant operations looking a t project development, asset data collection, and failure mode analysis integrated with project experience. |
| #16<br>9:05-10:05am | **Wastewater Source Tracking Adventures in the Field**<br>*Christopher Desidertai ~ Clackamas County Water Environment Services*<br>Case study involving the discovery, source tracking, and resolution of one-time batch and low-level background discharge of a dye from an industry. Goals will be to discuss importance of maintaining open lines of communication between work groups and the public, tips for tracing dyes, and lessons learned. |
| #17<br>10:20-11:20am | **Optimizing Excel Reports for Wastewater Operations**<br>*Chanin Bays ~ Clackamas County Water Environment Services*<br>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. |
| #18<br>11:25am-12:25pm | **On-Site Hypochlorite Generation for Wastewater Treatment**<br>*Jason Morse ~ Whitney Equipment*<br>Step-by-step description of making .8% bleach out of salt, water, and electricity. Design recommendations, requirements of safe system, redundancy considerations, and case study of an Oregon WWTP who retired their gas chlorine feed system. |
| #19<br>1:25-2:25pm | **Basic Process Control for CAS and Anaerobic Digestion**<br>*Dan Strong ~ Clackamas County Water Environment Services*<br>Review the collection of wastewater process control data and discuss how that data is analyzed to initiate process changes. We will focus on conventional activated sludge and anaerobic digestion. |
| #20<br>2:30-3:30pm | **Ammonia Based Aeration Control & Turning Data Into Knowledge**<br>*Paul Shuitt & Brian Rhoades ~ Hach*<br>Discuss Hach's ammonia based aeration control through dissolved oxygen. We will also discuss WIMS and its ability to turn data into knowledge. |
| #21<br>3:45-4:45pm | **Advancements in Wastewater Technology**<br>*G. Paul Schuitt ~ Hach*<br>Off the shelf wastewater optimization systems for consistent process control, ways to save money on chemicals and energy through process control systems. |

# Biosolids Management Pauling Center P102

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| **Tuesday, March 26, 2019** | |
| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager ~ Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Biosolids Primer Part 1**<br>*Kyle Heffron Skyler Edminson ~ Clean Water Services*<br>The world of biosolids and biosolids facts |
| #3<br>10:35-11:35am | **Biosolids Primer**<br>*Continued* |
| #4<br>12:35-1:35pm | **Biosolids Regulatory Issues**<br>*Paul Kennedy*<br>*DEQ*<br>Emphasis on the elements of a Biosolids Management Plan and the land application of Biosolids |
| #5<br>1:40-2:40pm | **Site Authorization/Soils NRCS**<br>*Paul Kennedy*<br>*DEQ*<br>Emphasis on NRCS soils Biosolids Land Application |
| #6<br>2:55-3:55pm | **Agronomic Rate for Biosolids Application to Cropland**<br>*Dan Sullivan*<br>*OSU*<br>Review method for calculating agronomic rate |
| **#7**<br>4:00-5:00pm | **Fertilizing with Biosolids**<br>*Dan Sullivan*<br>*OSU*<br>Introduce Extension publication:<br>1. Fertilizing with Biosolids(508)<br>2. Soil testing as a "value-added" service of your biosolids program<br>3. What a soil test measures<br>4. Choosing a lab and requesting testing methods<br>5. Guide to soil sample collection |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **Evaluation of Short Term Biosolids Management Options in Response to a Settlement Agreement**<br>*Bill Fasth ~Brown and Caldwell*<br>The Timpanogos Special Service District (TSSD) in American Fork, Utah operates a 17 MGD wastewater treatment plant. Waste activated solids, generated from eight oxidation ditches, are stabilized in aerated solids holding basins. The stabilized solids are dewatered with belt filter presses to 14 percent total solids concentration. Approximately 4,000 dry tons of dewatered solids are produced annually. Class A biosolids compost is produced onsite by composting the solids with green waste received from TSSD residents. Bulk quantities of the finished compost sell out each year for a fee of approximately $25 per wet ton (WT). |
| #9<br>9:05-10:05am | **Scientific Nutrient Management**<br>*Dennis O'Neill ~ O'Neill Sustainable AG*<br>Optimizing land application programs based on soils analysis. |
| #10<br>10:20-11:20am | **Biosolids Hauling**<br>*Garret Behrman ~ Tribeca Transport*<br>Covers the hauling of biosolids to application sites |
| #11<br>11:25am-12:25pm | **Biosolids Application**<br>*Garret Behrman ~ Tribeca Transport*<br>Covers the techniques used in the application of biosolids |
| #12<br>1:25-2:25pm | **How We Removed 14K Dry Tons Of Biosolids**<br>*Auburn Mills/Operations Specialist ~ Bureau of Environmental Services*<br>The City of Portland Columbia Boulevard Wastewater Treatment Plant went through an emergency contract process to have 14,000 dry tons of biosolids removed from their onsite facultative lagoons in the fall of 2018. The operations, maintenance and engineering staff worked together to procure the contract, maximize internal dewatering operations, set-up temporary dewatering operations with the selected contractor and maintain continuous solids removal. This presentation discusses lessons learned and process experience gained during this project. |
| #13<br>2:30-3:30pm | **VENDOR'S DISPLAY** |

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| #14<br>4:00-5:00pm | **Unplanned Release of Ferric Chloride**<br>*Chris Selker ~ City of Portland*<br>The City of Portland Columbia Boulevard Wastewater Treatment Plant uses ferric chloride for chemically enhanced primary treatment of wet weather flow. In April 2018, the plant had an unplanned release of ferric chloride. Piping and electrical equipment in the secondary containment are were destroyed, approximately 34,000 gallons of hazardous liquid had to be disposed of safely, a temporary system had to be put in place, and the permanent system had to be designed and constructed. The team of operations, maintenance, condition assessment, and engineering staff addressed the urgent situation and got the system back into operation before the next wet season. |
| **Thursday, March 28, 2019** | |
| #15<br>8:00-9:00am | **Common Dewatering Technologies**<br>*Matt Sprick, PE ~ Carollo Engineers*<br>Dewatering technologies used that produce biosolids |
| #16<br>9:05-10:05am | **Polymer Optimization**<br>*Matt Sprick ~ Carollo*<br>Optimization of dewatering polymer is crucial in keeping cost down |
| #17<br>10:20-11:20am | **ATAD Process & Problems/Solutions**<br>*Tim Munro ~ City of McMinnville*<br>Description of the Class A ATAD process, how it was developed, and its operation in McMinnville. Experiences with a liquid Class A biosolids product. |
| #18<br>11:25am-12:25pm | **Dewatering Optimization**<br>*Dillon Myers ~ Clean Water Services*<br>What are we optimizing for? |
| #19<br>1:25-2:25pm | **Nuisance Struvite**<br>*Brett Laney ~ Clean Water Services*<br>Basic of formation, prevention and removal |
| #20<br>2:30-3:30pm | **Phosphorus for Beneficial Reuse**<br>*Brett Laney ~ Clean Water Services*<br>Basics of the Pearl Process and daily operations |
| #21<br>3:45-4:45pm | **Biosolids Jeopardy**<br>*Gerald Stenland ~ Clean Water Services*<br>Interactive Game with Biosolids topics |

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| **Tuesday, March 26, 2019** | |
| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager*<br>*Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Stormwater for Aquifer Storage and Recovery (ASR)**<br>*Jadene Stenslund ~ Clean Water Services*<br>Runoff from impervious urban areas reduces natural groundwater recharge and cool base flow, which in turn can impair summertime instream flows. The site-specific study is designed to evaluate the feasibility of using stormwater as a resource (i.e., source water) for an aquifer storage and recovery (ASR) pilot study. |
| #3<br>10:35-11:35am | **Stormwater Planter Installation: Lessons Learned**<br>*Jadene Stenslund ~ Clean Water Services*<br>LIDA (green stormwater) infrastructure are facilities that manage stormwater through infiltration, reuse, and evapotranspiration. In this study, six street-side LIDA planters were tested regarding distribution, capacity, infiltration, and overall condition. Lessons learned about site selection, design, construction and maintenance will be discussed. |
| #4<br>12:35-1:35pm | **Private SW Facility Inspection and Rehab**<br>*Cary Armstrong ~ Clark County Public Works & Rich Wanke ~ Clean Water Division*<br>Private Stormwater Facility Inspection detail for Clark County showcasing failed facility rehabilitations. |
| #5<br>1:40-2:40pm | **AcrGIS Applicatons for Stormwater Inspections: Facilities, Businesses and IDDE Investigation**<br>*Samantha Nakata - GIS Analyst ~ Clark County GIS*<br>Clark County GIS has developed new tools for inspection and record keeping using ArcGIS Applications. Facility Inspections, Source Control and IDDE applications. |
| #6<br>2:55-3:55pm | **Stormwater Protection Through Spill Response**<br>*Curt Piesch, Spill Responder and Hazmat Specialist ~ Washington State Department of Ecology*<br>Overview of Ecology's Spill Response program. Emphasis on Stormwater protection with a historic overview of responses from typical to catastrophic. |
| #7<br>4:00-5:00pm | **No Session** |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **The Stormy Side of Sanitary I&I Abatement: Godfrey Park**<br>*Brendan O'Sullivan; Sue Nelson*<br>*Murraysmith; City of St. Helens, OR*<br>The City of St. Helens, Oregon, recently completed a multi-year Inflow and Infiltration (I&I) Abatement Program to reduce sanitary sewer overflows during wet weather events and reduce treatment plant costs. The program took a holistic approach to addressing I&I reduction and rehabilitated or installed approximately 65,000 lineal feet of sanitary sewer mainline pipe, 50 manholes, over 800 sanitary sewer service lateral connections, and installed approximately 10,000 lineal feet of storm sewer pipe to handle the increase in stormwater flows and mitigate known constrictions within the storm sewer system. The final phase of the program, the Godfrey Park Storm Sewer Replacement project, included the replacement of two undersized and structurally deficient storm sewer, storm water conveyance improvements, and a new outfall on the Columbia River. Running beneath a 45-foot tall roadway embankment, an inhabited RV park, and at the bottom of two ravines, the alignment of the existing sewers were extremely difficult to access and required numerous permits to facilitate construction. Design considerations for the proposed sewer included geotechnical conditions, geographic location, topography and site access, design storm, evaluation and selection of installation techniques (both conventional and trenchless), stakeholder/public impacts, and risk assessment. Trenchless installation techniques considered for pipeline installation included, but were not limited to, microtunneling, auger-boring, and pipe ramming. Challenges during construction included in water work constraints, abnormal wet weather, and differing site conditions related to the geotechnical conditions. This presentation will discuss the various elements of the project that lead to the successful installation of the new 66-inch diameter storm sewer; preliminary design, funding sources, permitting, construction challenges, risk sharing, and risk mitigation strategies the City implemented. |
| #9<br>9:05-10:05am | **VENDOR'S DISPLAY** |
| #10<br>10:20-11:20am | **Wetland Mitigation Banking**<br>*David Gorman ~ Ecological Engineering, LLC*<br>Development and sanitary sewer/storm sewer utility construction can result in wetland impacts that need mitigation. The presentation will provide an overview of wetland mitigation banking, with an emphasis on banking in Oregon and a focus on the process and progress of the establishment of the Foster Creek Wetland Mitigation Bank in Clackamas County, Oregon. |

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| #11<br>11:25am-<br>12:25pm | **Stormwater Management on Agricultural Lands: How the ODA Works to Meet Nonpoint Source Water Quality Requirements**<br>*Mike Powers, Water Quality Specialist ~ Oregon Dept of Agriculture*<br>Michael Powers will introduce the Agricultural Water Quality Program at the Oregon Department of Agriculture. He will summarize the basics the state's water quality management area plans and the associated regulations that impact most of Oregon's 30,000 + farms. He will also cover the latest approaches the Program is taking to focus work, use proactive compliance, and measure progress to prevent and control water pollution. |
| #12<br>1:25-2:25pm | **Stormwater System Maintenance**<br>*Jonathan Sheckard ~ River City Environmental*<br>The wide variety of stormwater structures and facilities poses significant challenges for cleaning and maintenance. This presentation will share River City's experiences in these efforts as well as show examples of the services River City provides. |
| #13<br>2:30-3:30pm | **Floodplain Restoration: A Multi-Benefit Approach to Infrastructure Resilience and Watershed Health**<br>*Marie Walkiewicz ~ City of Portland Bureau of Environmental Services*<br>Water quality problems, endangered species, and urban flooding – these are a few of the issues that sewer agencies in the Pacific northwest must grapple with. This presentation will explore how Portland Bureau of Environmental Services addresses these issues through floodplain restoration. The presentation will provide an overview of restoration efforts to date, feature a case study of the Foster Floodplain Natural Area and look ahead to the future of restoration efforts along Johnson Creek. |
| #14<br>4:00-5:00pm | **How Beaver and Pavement are Cleaning Stormwater in Gresham**<br>*Katie Holzer ~ City of Gresham*<br>How do beavers affect water quality when they move into a stormwater facility? Why would you use pervious pavement in areas where water can't work into the ground? Come learn about the results of exciting applied research from the City of Gresham where we are embracing creative ways to clean stormwater. |
| **Thursday, March 28, 2019** | |
| #15<br>8:00-9:00am | **Use of Large Wood in Habitat Restoration Projects**<br>*Bill Norris ~ Ecosystem Restoration Services, Inc.*<br>Pacific salmon evolved with large wood in their natal waters. Sediment dynamics associated with large wood provide scour and deposition that is essential to supporting critical life stages of salmonids. Large wood was systematically removed from rivers in the Northwest for over a century. Large wood is being reintroduced to rivers in an effort to recover Pacific salmon species. This requires a delicate balance when it occurs near infrastructure. |
| #16<br>9:05-10:05am | **Protecting Water Quality through Sustainable Nursery Practices**<br>*Sam Doane ~ J Frank Schmidt Nursery*<br>An overview of sustainable nursery practices used in the production of shade and flowering trees at J Frank Schmidt & Son nursery. These innovative practices protect surface water by reducing erosion, the use of fertilizers, and the transport of pollutants through runoff. |
| #17<br>10:20-11:20am | **Source Control for Phase II Communities**<br>*Bob Patterson, Senior Environmental Operations Specialist ~Clark County Public Work - Clean Water Division*<br>Discussion of NPDES Phase I Source Control Compliance and developing requirements for Source Control for WA and OR Phase II communities. |
| #18<br>11:25am-<br>12:25pm | **Resilient Actions for Climate Change-Affected Storm & WW Utilities**<br>*Matt Glazewski ~ Water Environment Services*<br>Building on last year's presentation on projected climate change impacts in the Pacific Northwest, this presentation will focus on and discuss mitigation and adaptation resilience actions pertaining to stormwater and wastewater utility management in the Pacific Northwest. |
| #19<br>1:25-2:25pm | **Stormwater Quality Retrofits Made Practical: Design, Construction & Maintenance**<br>*Doug Singer, PE ~ City of Eugene*<br>The City of Eugene has constructed vegetated rain gardens and swales as water quality retrofits for arterial and collector streets, and fully developed residential neighborhoods. The presentation will cover design, construction, maintenance requirements and lessons learned for vegetated facilities. |
| #20<br>2:30-3:30pm | **Liquid Assets, Part 1**<br>*Movie*<br>Water infrastructure plays a critical role in protecting public health, promoting economic prosperity, and ensuring quality of life across the United States. Though largely out of sight and out of mind, many of these complex systems are aging, neglected and in need of immediate national and local attention. This movie seeks to facilitate local discussions about the urgent challenges facing our water infrastructure. |
| #21<br>3:45-4:45pm | **Liquid Assets, Part 2** |

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| **Tuesday, March 26, 2019** | |
| #1<br>8:15-9:15 AM | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager ~ Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30 AM | **Fundamentals of Electrochemical Measurements**<br>*Mark McElroy, Technical Sales Representative, Environmental Instruments ~ Thermo-Orion*<br>The basics of the most important analyses: pH, Conductivity, Residual Chlorine, etc. |
| #3<br>10:35-11:35 AM | **Fundamentals of Electrochemical Measurements**<br>*Continued* |
| #4<br>12:35-1:35 PM | **How To Solve It**<br>*Ken Earle, President ~ EZ Kem, Inc.*<br>The root cause/corrective action process is an extremely important part of producing high quality data, yet it continues to confound many. Adopting a general, systematic approach will help you through the process no matter what the analysis. |
| #5<br>1:40-2:40 PM | **You Can't Be "Safe Enough"**<br>*Charles Lytle ~ City of Portland Water Pollution Control Lab*<br>Often, meeting the OSHA standard just isn't enough. Learn the why and how a grass roots effort led to a complete overhaul of a large lab's eyewash system. |
| #6<br>2:55-3:55 PM | **No Session** |
| #7<br>4:00-5:00 PM | **No Session** |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00 AM | **Laboratory Ethics**<br>*Keith Chapman ~ City of Salem (ret.)*<br>There are many reasons for ethical lapses in the laboratory. Discover some of the **hidden** reasons why people sometimes let the drive for production outweigh their inner moral compass. |
| #9<br>9:05-10:05 AM | **QA/QC for the Small Municipal Lab**<br>*Jan Wilson ~ Cammia Environmental*<br>QA/QC is an **essential** component of **all** wastewater laboratory analyses. It's not as hard as you may think. This talk will pare away the fog and give a clear and straightforward path for producing high quality data. |
| #10<br>10:20-11:20 AM | **Essential Instrumentation For The Small Wastewater Laboratory**<br>*Brady Miller, Director of Sales & Marketing ~ Astoria-Pacific*<br>If you're an operator who's also stuck doing lab analyses, Astoria Pacific may have the answer for you: small, inexpensive instruments that will lighten your workload and keep you in compliance with 40 CFR 136. |
| #11<br>11:25 AM-12:25 PM | **VENDOR'S DISPLAY** |
| #12<br>12:25 AM-12:25 PM | **The ORELAP (Oregon Environmental Laboratory Program)**<br>*Alia Servin ~ Oregon Health Authority*<br>The mission of the ORELAP is to be an active leader in the generation of environmental laboratory data of known and documented quality through the application of national performance standards for environmental laboratories and other entities involved in the environmental field measurement and sampling process. In carrying out this mission, ORELAP staff act out of a vision of all Oregonians working cooperatively to preserve, protect and promote the health of all of its people through the creation of a healthy, sustainable environment |

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| **Tuesday, March 26, 2019** | |
| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager ~ Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Effective Hazard Recognition and Control**<br>*Leigh Manning ~ SAIF Corporation*<br>This is a comprehensive training on hazard recognition and control and includes instruction on conducting workplace inspections, finding hazards, and addressing hazards to improve safety within an organization. |
| #3<br>10:35-11:35am | **Effective Hazard Recognition and Control**<br>*Continued* |
| #4<br>12:35-1:35pm | **Elements of a Lock Out/Tag Out Program**<br>*Brett Phillips ~ BSI Compliance*<br>This training will cover the basic elements of a Lockout/Tagout (LOTO) program. The elements covered will include written program requirements, energy control procedures, training/retraining, LOTO equipment, and periodic inspections. Group LOTO and Normal Production Operations will also be covered time permitting. Participants will understand various types of hazardous energy and the hazards of each; learned effective methods for locking out common energized systems, and conduct an in-class exercise to apply this knowledge to a workplace scenario in which hazardous energy is often encountered. |
| #5<br>1:40-2:40pm | **Elements of a Lock Out/Tag Out Program**<br>*Continued* |
| #6<br>2:55-3:55pm | **Safety Culture: Evaluate & Improve**<br>*Aubrey Sakaguchi, ASP, MEHS ~ SAIF*<br>The session will walk participants through safety culture assessments to identify greatest need for improvements. After identifying the entity's existing safety culture, the group will focus on ways to improve safety programs, injury prevention, process improvements, employee engagement and leading indicator analysis. Participants will leave with assessment tools and a clear direction on how to influence their safety culture in a positive way. |
| #7<br>4:00-5:00pm | **Safety Culture: Evaluate & Improve**<br>*Continued* |
| **Wednesday, March 27, 2019** | |
| #8<br>8:00-9:00am | **Oregon's Fall Protection Options for General Industry**<br>*Byron Snapp ~ Oregon OSHA*<br>On November 1, 2017, Oregon OSHA's revised Walking-Working Surface and Personal Protective Equipment (Fall Protection Systems) rules became effective for employers regulated by the Division 2 (General Industry) regulations. With these new rules, employers have a duty to provide fall protection in certain workplace situations. This presentation covers when fall protection is required and the systems permissible in rule to protect employees from falls. |
| #9<br>9:05-10:05am | **Oregon's Fall Protection Options for General Industry**<br>*Continued* |
| #10<br>10:20-11:20am | **VENDOR'S DISPLAY** |
| #11<br>11:25am-12:25pm | **Safety at Heights**<br>*Greg McDonald ~ Ritz Safety*<br>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. |
| #12<br>1:25-2:25pm | **Confined Space Entrant, Attendance, Entry Supervisor**<br>*Greg McDonald ~ Ritz Safety*<br>Class provides an extensive overview of OAR 437-002-0146 Oregon's Confined Space Rule, Responsibilities of Entrants, Attendants & Entry Supervisors, making safe entries, testing & monitoring atmospheres, hand-on use of rescue and monitoring equipment and requirements for maintenance, use and care of the equipment. |
| #13<br>2:30-3:30pm | **Confined Space Entrant, Attendance, Entry Supervisor**<br>*Continued* |

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| #14<br>4:00-5:00pm | **OSHA Recordkeeping Update: How Oregon's Adoption of the Federal Rule Affects Your Organization**<br>*Patti McGuire ~ SAIF Corporation*<br>Oregon OSHA recently announced changes to OSHA recordkeeping requirements, including electronic submission and new anti-retaliation provisions. This training covers these changes, as well as the rules for OSHA recordkeeping and reporting. You'll learn OSHA's definitions of work-related injuries and illnesses, medical treatment, and first aid; the five-step process to determine if injuries and illnesses are recordable; and how to record injuries and illnesses on the OSHA 300 log. |
| **Thursday, March 28, 2019** | |
| #15<br>8:00-9:00am | **Distracted and Fatigued Driving**<br>*Patti McGuire ~ SAIF Corporation*<br>Motor vehicle accidents are the leading cause of death in the workplace in Oregon. This presentation will provide information on the leading causes of distraction and fatigue while driving and practical strategies to influence change in driving behaviors. |
| #16<br>9:05-10:05am | **Exacavation Safety and the Role of the Competent Person**<br>*Eric Fullan ~ City of Hillsboro*<br>Recent trench collapses illustrate the importance of the proper use of protective systems. This class will focus on OSHA's Excavation Standard including proper safe work practices while working in and around excavations, proper soils analysis and classifications and protective systems with added emphasis on the role and responsibilities of the Competent Person requirements.<br><br>Training Objectives include:<br>• Understanding key definitions and terms<br>• Understanding soils classifications and compositions<br>• Protective systems<br>• OSHA's Tables and Charts and the use of Tabulated Data<br>• Safe work practices in and around open excavations<br>• Understanding the role and responsibility as the Competent Person |
| #17<br>10:20-11:20am | **Excavation Safety and the Role of the Competent Person**<br>*Continued* |
| #18<br>11:25am-12:25pm | **Excavation Safety and the Role of the Competent Person**<br>*Continued* |
| #19<br>1:25-2:25pm | **Effective Quarterly Walkthrough Inspections**<br>*Eric Fullan ~ City of Hillboro*<br>Quarterly Walkthrough Inspections are not only required by OSHA, but if performed effectively, are a critical component of controlling or eliminating hazard in the workplace. This presentation will focus on what is required for inspections; the role of the safety committee, supervisors, and managers in the inspection process; how to perform inspections, including an overview of hazards, how to record and document the inspections as well as how to make effective recommendations. |
| #20<br>2:30-3:30pm | **Effective Quarterly Walkthrough Inspections**<br>*Continued* |
| #21<br>3:45-4:45pm | **Chemicals/SDS's**<br>*Brittany Chaufty ~ SAIF*<br>Chemical hazards in the workplace require identification and communication of hazards for their safe use by employees. The OSHA Hazard Communication/GHS rule provides a foundation for chemical safety and exposure prevention.<br><br>Recognize chemicals and chemical hazards covered under the OSHA Hazard Communication/GHS rule; Understand how to develop and implement a written hazard communication program;<br><br>Gain knowledge to communicate chemical hazards and safe chemical use to employees. |

# Technology & Asset Management Pauling Center P164

| **Tuesday, March 26, 2019** | |
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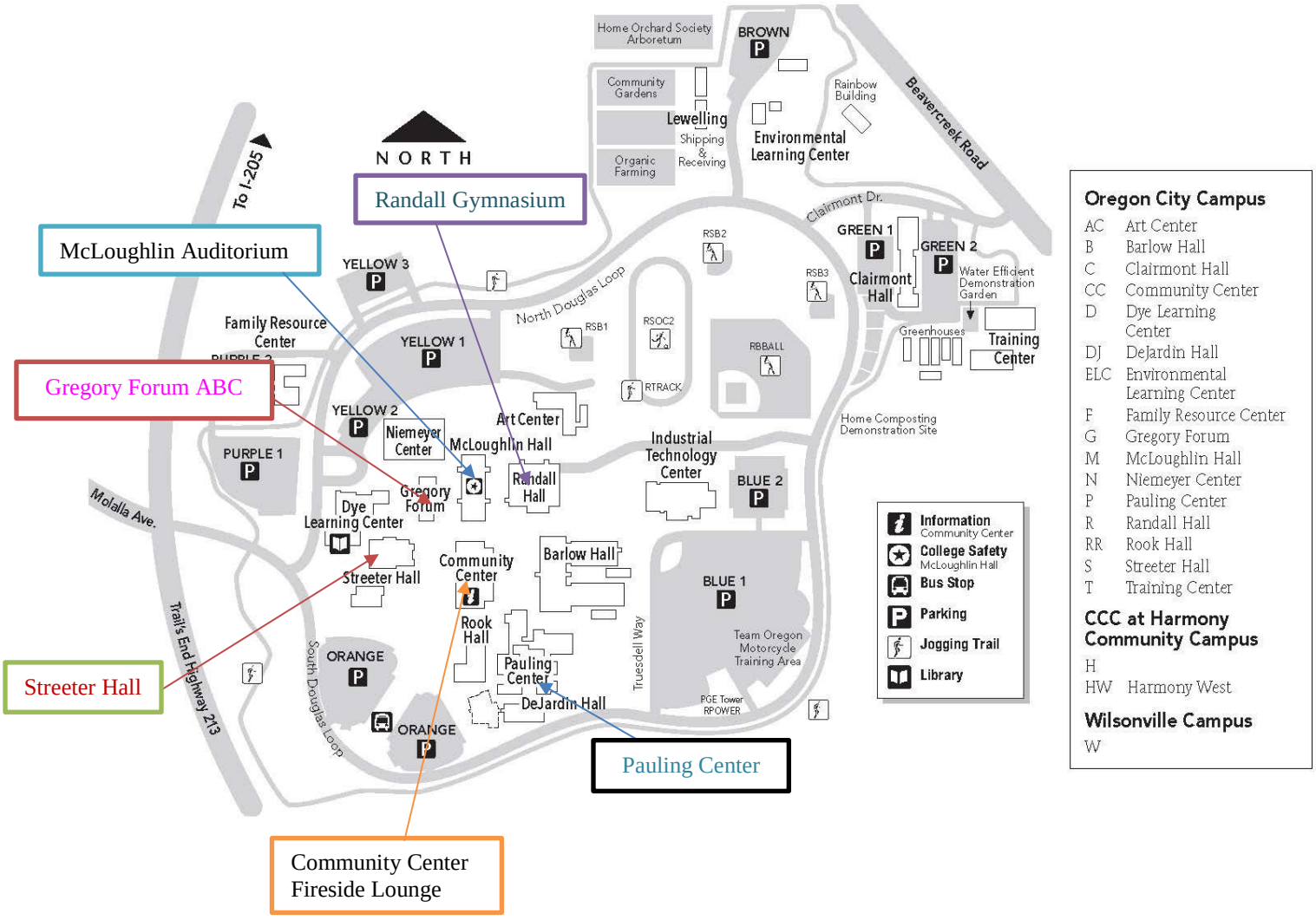
| #1<br>8:15-9:15am | *Keynote – Randall Gymnasium*<br>**An Industry Full of Opportunity**<br>*Rich Ludlow~Operations Manager ~ Clark Regional Wastewater District*<br>The Wastewater industry is young and full of opportunity. As the world culture becomes more environmentally aware, our work becomes more valuable by protecting the environment within our communities. The keys to finding a successful career in our industry lie in education and networking. This talk is a summary of my career path so far, how opportunities presented themselves resulting in building a portfolio of experiences, and how building a professional network of wastewater professionals leads to future opportunities. |
| #2<br>9:30-10:30am | **Reducing Pump TCO Using New Variable Speed Drive Functions**<br>*Nathan Schiavo, Automation Specialist ~ Graybar*<br>Review drive pump curves and new features in VFDs that operate pumps at their highest efficiency point. Review drive features and functions around pump applications, what they mean and how to implement them. The examples will use the new Altivar630 drive as an example |
| #3<br>10:35-11:35am | **Standardizing Condition Data Using NASSCO PACP/MACP/LACP**<br>*Marilyn Shepard, NASSCO Master Trainer ~ International Training & Rehab Tech., Inc.*<br>Introduction to NASSCO PACP/MAPC/LACP. Standardized methods and processes to define buried infrastructure asset condition and assure collection and user of condition info consistent from one inspection to the next and throughout the inspection/reporting process. |
| #4<br>12:35-1:35pm | **The Cost of Asset Replacement: Making the Invisible Visible**<br>*Doug Gabbard, Project Manager ~ FCS Group*<br>The need to replace assets is usually an invisible problem when it comes to financial planning. Simulated infrastructure rent is a technique to annualize the cost of asset replacement and thereby make it visible in the annual budget process. |
| #5<br>1:40-2:40pm | **Instantaneous Information - How an Electronic O&M Manual Benefits Pump Stations**<br>*Jeff Hart and Joel Borchers ~ Clean Water Services*<br>An up-to-date Electronic Operations & Maintenance Manual (eO&M) is a valuable resource for training, trouble-shooting, and emergency response. Using the electronic platform allows users to gain valuable information no matter their location (as long as there is Wifi or 4G). The presentation will consist of a real-time review of the EOM and examples of how each piece of information is useful for engineers, operators, maintenance staff, and emergency responders. |
| #6<br>2:55-3:55pm | **Drones, 3D Scanners, and GPS - How Clean Water Services uses technology as tools**<br>*Jeff Hart and Vince Eggleston ~ Clean Water Services*<br>In recent years, Clean Water Services (CWS) has purchased various forms of technology to improve efficiency in delivering projects, operations, and maintenance. A few of those tools are drones, 3D scanners, and GPS. This presentation will discuss each of the three technologies and what they are; how they work; how they benefit CWS; and provide examples. |
| #7<br>4:00-5:00pm | **No Session** |
| **Wednesday**, **March 27, 2019** | |
| #8<br>8:00-9:00am<br>#9<br>9:05-10:05am<br>#10<br>10:20-11:20am<br>#11<br>11:25am-12:25pm<br>#12<br>1:25-2:25pm<br>#13<br>2:30-3:30pm<br>#14<br>4:00-5:00pm | **NASSCO PACP Recertification (1 day recertification—*PREREGISTRATION <u>REQUIRED</u>***<br>*Marilyn Shepard, NASSCO Master Trainer ~ International Training & Rehab Tech., Inc.*<br>Additional fee of $425 for Recertification must be paid with the Infrastructure Condition Assessment and Certification Programs for Instruction in Application of Standard Methods and Procedures for Evaluation of Pipelines (PACP), and for Re-Certification of NASSCO's PACP program in a one day course of study |

# Notes:

# Clackamas Community College
# Campus Map




**Oregon City Campus**

| | |
|---|---|
| AC | Art Center |
| B | Barlow Hall |
| C | Clairmont Hall |
| CC | Community Center |
| D | Dye Learning Center |
| DJ | DeJardin Hall |
| ELC | Environmental Learning Center |
| F | Family Resource Center |
| G | Gregory Forum |
| M | McLoughlin Hall |
| N | Niemeyer Center |
| P | Pauling Center |
| R | Randall Hall |
| RR | Rook Hall |
| S | Streeter Hall |
| T | Training Center |

**CCC at Harmony Community Campus**

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|---|---|
| H | |
| HW | Harmony West |

**Wilsonville Campus**

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|---|---|
| W | |