

2023 WWETT Education Program Course Codes, Title, Day, Time

Code: MO01
Course Title: Update on NASSCO Codes for PACP Version 8
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

A discussion on the development and application of NASSCO Version 8 coding for PACP.

1. Review inspection technologies approved for providing PACP condition assessment deliverables
2. Explain improvements and their relation to O&M activities
3. Overview of pressure, storm water and new construction codes
4. Discuss PACP's advantages for use in asset management programs

Code: MO02
Course Title: Septic Sleuth – Evaluating Those Rarities Found During an OWTS Inspection
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

This session is designed to be interactive with the participants. Different scenarios will be presented to the participants with leading discussion on how to evaluate and/or remedy the situation with regard to the OWTS inspection. Participants will be encouraged to share their experiences with the group to allow for an exchange of ideas and methods of remedy. This guided approach will also help to refine their inspection protocol and evaluation skills as they are introduced to situations and scenarios that they may not have experienced to date. The sharing of experiences and networking provided to participants can be an invaluable resource to the participant in the future.

1. Discuss different and unique issues that can be found during an OWTS inspection
2. Share different situations they have run across and how they dealt with them with regard to an OWTS inspection
3. Discuss their perspectives and opinions of OWTS inspections
4. Define tools that have been used in other circumstances that may help them with future inspections they are involved in

Code: MO03
Course Title: Incorporating Pumps and Controls Into Design
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

This session will look at how using controlled dosing through pumps can offer many advantages to your onsite treatment system design. We will discuss dosing control, volume control, directional control, and flow equalization. We will also discuss operational data collection and system monitoring through control panels.

1. Identify the circumstances where controlled dosing through pumps offer advantages
2. Describe the control panel options in detail that can be incorporated into your designs
3. Explain how control panels can collect data for useful design and operational decision-making
4. Recognize how data collection and monitoring controls systems can save money in many systems

Code: MO04
Course Title: Top 10 Technology Driven Productivity Tools
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

Running field crews successfully is a challenge for most any business. Ensuring performance efficiency and profitability requires timely communication, crew accountability and quick data and information turn around. However, most companies continue to operate as they did twenty-five years ago. Today, immediate and accurate information is indispensable, billing turnaround is critical, crew accountability is indispensable, and

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timely quality control is vital. In short, time is money, and the more efficient we are, the better our bottom line looks. There are a number of emerging technological breakthroughs that provide powerful tools to help businesses perform more efficiently and effectively. Some of these tools include: Google Drive, UnEarth, Bluebeam, Scribble, Splashtop, fleet management and maintenance software, Online communication platforms, among others. In this session we will look at technology options that just may be what your company needs.

1. Become more effective communicating with crews and holding them accountable
2. Stay better informed on field operations and have timely access to project information
3. Have real-time quality control and swift feedback
4. Implement an efficient operations strategy with Immediate access and transfer of data and information

Code: MO05
Course Title: Introduction to Submersible Wastewater Pumps
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

This session focuses on understanding the differences between sump, effluent and sewage pump applications as well as the differences between sump, effluent, sewage and grinder pumps. Examples of typical installations for various applications will be provided. This presentation will also cover the information required to make the proper pump selection, where different pumps are interchangeable, and general best practices for installation.

1. Explain the difference between Sump, Effluent, Sewage & Grinder pumps
2. Discuss the different design considerations for sump, effluent & sewage applications
3. Know what equipment is typically provided for a complete installation
4. Review general best practices for installations

Code: MO06
Course Title: Water and Wastewater Operators Are Making a Difference by Helping Operators and Utilities in Developing Countries
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

Operators Without Borders is a Registered charity with two mandates. The first is to assist water and wastewater utilities in developing countries recover after disasters . The second is to build capacity in the utilities through training, mentoring and provision of advise. This panel discussion will be delivered by Founder and Chair Valerie Jenkinson, Greg Solecki and two of OWB's volunteers. Between them they will outline their experience in rebuilding utiliites post disaster and the type of training, mentoring and other projects in which operators and other water prfssionalds have volunteered. They will describe what they have done technically, what it meant to the citizens and utilities we have helped and how they personnaly feel about the experience. We will also discuss the Haitian project in which we partner with Rotary International to bring potable water to all Haitians.

1. Identify the purpose and mandate of OWB
2. Describe initiatives that OWB has completed
3. Explain what it has meant for country recipients and volunteers
4. Identify oppotunies for involvement

Code: MO07
Course Title: Take the Fear Out of Team Building
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

What is the first thing you think of when you hear (or read) "team building"? Why does team building, whether you spell it as one word or two, have such a negative connotation to so many? For those who are naturally active and/or outgoing, team building is often welcomed with open arms; however, for those who are introverted, and/or less athletically inclined, it's often a cause of hesitation, fear, and anxiety. By conducting a series of short

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surveys, Matt garnered the common opinions, and misconceptions, of what team building is, and he's sharing his findings, and solutions, with the world through his speaking engagements and his book, TAKE THE FEAR OUT OF TEAM BUILDING. Team building is more than zip lining, trust falls, and slide show presentations. Are you still feeling skeptical? It's time you participated in this interactive (yes, attendees will partake in some simple, communal activities), informative, and engaging presentation.

1. Discuss why "team building" is not a "bad word"
2. Explain what positive team building experiences entail and uncover a removal of fear and anxiety around both the words, and acts, of team building
3. Discover when and how to host a productive team building experience is beneficial to everyone on a team
4. Realize that team building can, and should, be FUN!

Code: MO08
Course Title: How to Succeed in the Wastewater Business
Date: Monday, 2/20/2023
Time: 9:00am-10:00am

It can be intimidating to try and break into a business as diverse as the water and wastewater industry, but it is very possible to excel with a little determination, hard work, personality, creativity, and volunteer efforts. The speaker will present her experiences over her 29-year career in the water and wastewater industry. She will present 11 steps on how to advance in the industry, with interesting, funny, and also frustrating stories that shaped her career and led her to achieve national leadership positions, and a reputation as a respected and dependable industry expert.

1. Review common fears of getting involved in our industry
2. Discover tips how to overcome those fears
3. Describe how to excel in your career
4. Discuss how to mentor others

Code: MO09
Course Title: NASSCO's Jetter Cleaning Education Program
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

Updates to NASSCO's jetter cleaning education program, including new learning modules, inspection standards and certification.

1. Review jetter cleaning technologies and certification requirements
2. Provide perspective of how to apply the updated standards to cleaning mains and drains
3. Provide resources to attendees for training and certification opportunities
4. Overview of NASSCO's certification program, and requirements for keeping certification up to date

Code: MO10
Course Title: Hydraulic Load Testing – Why, When & How
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

There are times during an OWTS inspection that questions arise about the viability of the STA. Under certain circumstances it may be beneficial to complete a Hydraulic Load Test. This test is different than the standard operations test. There are specific instances where it should and should not be used. And there is a specific protocol for the steps that must be taken to complete the test. This process can be a very useful tool in the toolbox for the OWTS Inspector. It would be considered an advance protocol and not part of the standard NAWT Inspection. Participants will gain the information and knowledge as to when this test is recommended and how to properly administer this process. They will understand how to evaluate the outcomes from the test and how to move forward with the appropriate recommendations once the test has been completed.

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1. Define what a hydraulic load test (HLT) is
2. Explain the necessary steps that must be taken to complete a HLT
3. Explain the differences between a HLT and an Operations Test
4. Describe when a HLT is contraindicated and when and what types of systems they should NOT be performed on

Code: MO11
Course Title: Safety Concerns During the Installation of Onsite Sewage Systems
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

Numerous safety hazards have been identified for workers in the On-Site Industry and have become well documented for OSS Installers. Specialty contractors and small business workers are often unnecessarily exposed to hazards and potential fatalities while performing their daily duties. These potential hazards come from tasks such as, trenching and excavation, confined space entries, exposure to the OSHA Focus 4 hazards and potential illness through contact with infectious diseases, unique to the on-site wastewater industry. This training is a strategic effort to reduce injuries and fatalities and raise awareness to workplace hazards and injuries related to minimum requirements. This training will discuss applicable rules, compliance, program development to mitigate exposures in existing small business and review workplace assessment tools that can be utilized in all OSS industry segments.

1. Recognize how trenching and excavation, confined space entries, exposure to the OSHA Focus 4 hazards and potential illness through contact with infectious diseases can cause safety and health exposures in the workplace
2. Identify potential safety hazards workers may be exposed to while on the jobsite
3. Discuss possible methods to mitigate safety hazards while performing work
4. Discuss tools employers and employees can use to help keep them safe while working, including both personal protective equipment and administrative controls

Code: MO12
Course Title: Portable Sanitation: Preparing for Extremes
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

This 90-minute course focuses on preparing you to deal effectively with the things nature can throw at your portable sanitation business. It will address the need for portable sanitation companies to prepare for extreme conditions wherever they do business. The PSAI has captured the most effective ways to prepare for numerous scenarios your company will face sooner or later – if not every day. This session will cover how to handle intense heat, cold, and wind effectively. If disaster strikes, the information provided during this session will help you plan and protect your company, while ensuring you can respond to the business opportunities that may arise. Whether you are experienced at preparing for extremes or relatively new to this aspect of the business, you should attend this session.

1. Explain key considerations and optimal tactics for placing and servicing units subject to cold temperatures (32F/0C or below)
2. Explain key considerations and best practices in placing and servicing units subject to hot temperatures (85F/29C or above)
3. Identify acceptable tactics for securing units in windy conditions
4. Discuss the fundamentals of planning, risk management, and responses for disasters in your service area

Code: MO13
Course Title: Trenchless Pipeline Rehabilitation
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

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Collection systems are the wastewater utilities largest asset more than the treatment plant. The US Environmental Protection Agency (EPA) estimates that there are over 800,000 miles of mainline sewer pipelines in the US and over 500,000 miles of private sewer service laterals. Each of these conveyance systems is susceptible to structural failure, blockages, and overflows. EPA estimate that \$271 billion is needed to maintain and improve the nation's wastewater infrastructure. Trenchless technologies have become a major alternative to traditional digging for replacement for pipelines and maintenance holes. This session will use understandable approach using photo's, videos, and case histories to cover the following:

1. Problems such as infiltration, exfiltration, roots, corrosion, and structural defects
 2. The new advanced technologies available to remove heavy deposits to prepare for pipes for lining
 3. Where trenchless technologies can be used
 4. Where trenchless technologies can be used.
 - a. Dig & Replace
 - b. Trenchless spot repairs
 - c. Slipliners including continuous, sectional, and spiral wound liners
 - d. Cured-in-Place pipe liners
 - e. Folded and Re-formed pipe liners.
1. Discuss the conditions that increase costs of maintenance and shorten the life of pipelines
 2. Identify applications that require dig and replace and which are candidates for trenchless technology
 3. Discover the trenchless technology options available for pipeline rehabilitation
 4. Discuss the unique equipment required for different trenchless rehabilitation methods

Code: MO14
Course Title: Pump Sizing 101 and Best Practices
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

This session focuses on submersible pump designs and differences including which pump to use for which application, pump sizing and best practices in the field. Other topics include: what questions to ask to accurately size a pump, why sizing is important, what a pump performance curve is and how to read it, pump capacity requirements and how flow is calculated for each application, the importance of velocity in pipe, how to calculate TDH. There will be an example of sizing a pump with appropriate charts and tables.

1. Discover what questions to ask
2. Discuss a pump performance curve
3. Explain how to size a pump
4. Review best practices for pump installation and performance

Code: MO15
Course Title: Commercial On-site & Decentralized Wastewater Treatment & Dispersal Systems
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

Commercial on-site systems require specialized designs and installations. The wastewater chemistry, volumes, and generation patterns can be very different to domestic on-site installations. This presentation will use a variety of case studies to demonstrate the different design principles used for commercial on-site systems. The case studies will include Recreational Vehicle Parks, Taverns, Wineries, Eco-Villages, Sports Grounds, and Music Festival sites.

Different types of treatment units will be examined, and their advantages and disadvantages will be discussed. Dispersal techniques will also be scrutinized. The maintenance requirements of the various treatment and dispersal systems will be discussed.

The complications of intermittent wastewater generation will be examined. The importance of odor control and minimizing risks to members of the general public will be explained.

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Some sites are very difficult to install an on-site wastewater system on due to environmental set-back regulations and local constraints. The available land for a dispersal area may be very close to a drinking water supply, or an aquifer or recreational lake, or the site may have very unsuitable soils or only a small land area available.

Quite often designers are left with no viable options on these types of sites other than holding tanks where the wastewater is all trucked off-site.

No-Release systems don't discharge treated water into the soil and groundwater environment. They use the evapotranspiration from plants grown in containers or lined beds to disperse the treated water into the atmosphere. There are a number of different types of No-Release systems used across the world. The cost of no-release systems means that are most often installed at commercial sites. The aim of this presentation is to show how commercial on-site systems differ from domestic installations.

1. Identify how commercial on-site wastewater systems differ to domestic installations
2. Identify the key criteria required to design a commercial on-site and/or decentralized wastewater treatment system
3. Explain the advantages and disadvantages of different types of commercial on-site treatment and dispersal techniques
4. Assess the benefits of a passive and/or low input treatment system being used in comparison to package treatment plants

Code: MO16
Course Title: Why You're Losing Your Best People - How to Avoid the Great Resignation
Date: Monday, 2/20/2023
Time: 10:30am-12:00pm

"The Great Resignation" is real. Depending on your industry the unrelenting churn in 2021 ranged from 30% – to even 100% in some manufacturing plants. And recent research shows the trend is not going away any time soon. But the tide can be slowed if you understand what is causing it and what employees are really looking for post-pandemic. This engaging and interactive session will give you the concepts and tangibles you can use to retain your best employees and attract new ones to fill the currently empty trucks and desks.

1. Analyze what is causing most of the churn in the first place
2. Discuss the four key things employees are looking for from their working environment
3. Review the vital role communication plays in retention
4. Create a plan to meet the needs of a post-pandemic workforce

Code: MO17
Course Title: Cleaning and Assessment of Large Diameter Gravity Pipes
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

Review of NASSCO's updated large diameter gravity pipe cleaning standard and a case study with supporting practical examples for bidding and execution of the project.

1. Review cleaning technologies appropriate for large diameter gravity pipes
2. Provide perspective on how to apply the updated standards for these cleaning applications vs smaller diameter cleaning programs
3. Provide example of large diameter cleaning standards in action and lessons learned
4. Context to fairness within measurement and payment, and quality of work objectives for a project

Code: MO18
Course Title: Important Points for Inspecting Drip Irrigation
Date: Monday, 2/20/2023

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Time: 1:00pm-2:30pm

The drip irrigation system for wastewater treatment is becoming a more utilized system. It has been found to be a very versatile system for complex sites. As we see more and more of these systems being installed, it is becoming more crucial that the OWTS Inspector gain training and education for these systems. This session will discuss how they are designed, why this type of system would be installed. The installation methods that are used and the need for ongoing operations and maintenance of these complex, multi component systems. Because of the complexity of these systems there is a need for the advanced training for OWTS Inspections. The OWTS Inspector needs to understand how to evaluate each component and what to recommend if there are items that need to be addressed. This course is from the "PSAM Drip Irrigation Inspection during a real-estate transaction". It covers how to test the manual and the automatic functions of the system and report back to the customer any malfunctions and probably causes they can determine. A valuable training for those in the inspection sector of the OWTS industry.

1. Discuss the finer points of a drip irrigation system
2. Define the important components of a drip system as they relate to the inspection process
3. Explain the proper inspection protocol for drip irrigation systems
4. Express why these systems should have regular operations and maintenance service to ensure the longevity of the system

Code: MO19
Course Title: Benefits of Decentralized Wastewater Treatment
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

Centralized Wastewater Treatment Systems, often called 'big pipe' systems, collect and treat wastewater from a large geographic area with diverse inputs and generally discharge treated wastewater to a surface water. These are the systems that most people are familiar with when they think of wastewater treatment. Centralized systems benefited from the passage of the Clean Water Act (CWA) in 1972 and the accompanying grant funding that built, repaired, and upgraded thousands of treatment systems around the United States in the 1970's and 1980's. Since then communities have grown, treatment standards have increased, and the CWA funds to repair, upgrade and/or expand those WWTPs have become increasingly limited.

"Decentralized system" has become a commonly-used term to describe a wastewater treatment system that treats and disperses wastewater from individual homes or a cluster of homes at or near the source of the wastewater discharge. These systems take advantage of the vast capacity of soil to remove or transform pollutants that are in the effluent as it percolates through the soil thereby avoiding point discharges to surface waters and maintaining the quality and quantity of our groundwater.

By definition, decentralized onsite wastewater treatment systems are a 'green technology' because treated effluent recharges local aquifers. A new innovation in decentralized wastewater management is the reuse or recycling of treated effluent. With appropriate safeguards, local regulations or bylaws may allow the treated water to be used for irrigation, toilet and urinal flushing or make-up water for commercial boilers. These applications reduce the demand for potable water and aid in the protection and preservation of the available water sources.

As society demands more efficient use of financial resources and sustainable environmental wastewater management, the use of managed decentralized wastewater treatment systems is a key support structure for wastewater reuse. This presentation will explore the pros and cons of centralized and decentralized systems and how they can be used to complement each other in an overall wastewater strategy.

1. Discuss the differences between the centralized and decentralized models
2. Identify the benefits of decentralized systems
3. Recognize the components of a decentralized system
4. Identify areas/situations where a decentralized system can be used for reuse

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Code: MO20
Course Title: Portable Sanitation and Special Events
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

This 90-minute course is relevant to everyone working at a portable sanitation company. Service technicians, sales staff, dispatchers and office assistants will all benefit from this session. It will address the unique opportunities and challenges of providing portable sanitation at special events of all types and sizes. The PSAI has captured the latest thinking on key success areas and organized it so that you can follow the process from start to finish. You can congratulate yourself if you're already meeting or exceeding best practice standards, and note areas where you might want to rethink your approach. The session will also cover how to communicate with your customers, prepare your bids, succeed on site and troubleshoot problems. Whether you are an old hand at special events or relatively new to this aspect of the business, you should attend this session.

1. Discuss the fundamentals of how to communicate with customers throughout the bidding process, during the event, and at the post-event meeting
2. Identify key considerations for determining the optimal number and types of portable units required
3. Recognize ideal and acceptable placement configuration options at various special events
4. Identify specific behaviors they should employ and those they should avoid when placing, servicing, and picking up special event units
5. Discuss the most likely areas in which problems may develop and identify the steps they can take, both proactively and reactively, to minimize their impact on a successful event

Code: MO21
Course Title: Analyzing CCTV Inspections of Rigid and Flexible Pipe Materials
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

Recent studies have concluded that a majority of pipe failures stem not from the pipe material or manufacturing of the pipe itself but rather how the pipe was installed. Faulty sewer pipe installation practices can and have resulted in expensive and unnecessary "repair" projects.

This presentation will cover the history, design, manufacturing, installation, and characteristics of rigid and flexible pipe materials to better understand why pipes fail. The presentation will also discuss pipe damage and how to determine the cause thru the examination of cracks, voids, joints, and fractures. CCTV videos and stills will also be utilized in this interactive session.

CCTV is an important reason for many agencies requiring CCTV inspection as a part of the final acceptance testing on newly installed pipelines and asset evaluation of existing pipes. As an investigative tool, CCTV systems are unmatched and recognizing installation defects are very important in drafting the final CCTV report. Session attendance will also include a NCPI operations manual "Analyzing CCTV Inspection of Vitrified Clay Pipe".

1. History of pipe manufacturing and recognizing different types of pipe materials
2. Provide an overview of pipe jointing and installation, and recognize pipe anomalies
3. Discuss how Lighting and camera views effect assessment
4. Realize how ASTM pipe standards define pipe assessments

Code: MO22
Course Title: Onsite Electronics Troubleshooting and Best Practices
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

Overview of onsite electronics for wastewater treatment systems. We will identify components for standard controls in onsite applications, discuss operation of the controls, common installation issues, and troubleshooting problems in the field. We will also look at proper and improper installations.

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1. Discuss Components - what they are and how they work, physically and electrically
2. Explain theory of operation for residential & light commercial onsite control panels
3. Read schematics and wiring diagrams to give a basic understanding of installation and troubleshooting and care of residential and light commercial onsite control panels
4. Demonstrate basic knowledge and understanding of electrical terms
5. Learn the correct way to install controls in different applications

Code: MO23
Course Title: The Risk Management Approach Used for On-site Wastewater System Accreditation in Australia
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

The Australian Regulators have developed a Country-wide standard (AS 1546.3:2017) used by all States & Territories for the approval of domestic on-site wastewater treatment systems. This is similar to the NSF process used in the USA.

Once a treatment system is approved it can be used anywhere in Australia. Arris has constructed and is operating a state-of-the-art compliance testing facility at the Hahndorf wastewater treatment plant in South Australia for undertaking AS 1546.3:2017 compliance testing according of on-site domestic wastewater treatment Secondary Treatment Systems (STSs) with design hydraulic treatment capacities of between 300 and 1320 gallon/day.

Compliance testing according to AS 1546.3:2017 comprises a 42 week long combined commissioning and testing period (minimum testing period 34 weeks) conducted under specified conditions in order to demonstrate the performance and reliability of under normal 'steady-state' design operations and also challenge 'stress testing' conditions. Units are supplied with macerated raw sewage from a 1320 gallon balance tank which receives unscreened sewage from the Hahndorf sewer main at the head of the wastewater treatment plant. A suite of parameter data are monitored and logged by control shed instrumentation, including STS sewage dosing volumes and flow rates; feed pipeline pressure; water and ambient air temperature; electricity consumption; system alarms etc.

The standard AS 1546.3:2017 has been developed using risk management techniques. As it is a new Standard the Regulators have undertaken a feedback process about the new approval process involving all industry stakeholders. This presentation will outline the feedback received from the 1st rounds of testing and how it has impacted on the new Standard. The aim of this presentation is to see how a risk management approach can be used to develop approvals and regulations for the domestic on-site industry.

1. Identify the risks used to formulate on-site wastewater regulations (both national & international)
2. Explain the differences between the Australian accreditation system and the North American NSF process
3. Discuss how the accreditation systems address risks and how the testing processes ensure performance of on-site wastewater treatment systems
4. Be aware of the feedback from the practical application of the accreditation process and how changes to the regulations are negotiated

Code: MO24
Course Title: The Employment Audit: Ensuring Your Organization is 2023 Compliant from A to Z
Date: Monday, 2/20/2023
Time: 1:00pm-2:30pm

During this high-energy, interactive presentation, major areas where employers are most frequently non-compliant will be covered, such as the Employment Application, Background Checks, Drug Testing, Offer Letters, Employment Contracts, Orientation, Handbooks, I-9 Immigration, Job Descriptions, Compensation Agreements, Wage & Hour/FLSA, Employee Benefits, Paid Time Off, FMLA, ADA/Reasonable Accommodations, Restrictive Covenants, Intellectual Property, Personnel Files/Recordkeeping, EEO-1, Employment Law Postings/Notices, OSHA/Safety/Workers' Compensation, Performance Reviews/Discipline

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Forms, Terminations, Independent Contractors, Management Training, and Miscellaneous. Together, we will self-audit attendees' organizations as we move through the "Checklist" to identify any HR weaknesses that may need to be addressed to ensure our organizations are as resilient as possible throughout 2023 and beyond.

1. Self-audit your organization in the major areas where employers are most frequently non-compliant
2. Identify and address any areas of concern
3. Highlight recent changes and updates in employment law
4. Be aware of the most recent laws and trends and incorporate them into your organizational operations and policies

Code: MO25
Course Title: Health and Safety for Cleaning an Inspection
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

With COVID protocols as the working example, recommendations for ensuring worker safety from pathogen infection and other best practices when cleaning sanitary sewers.

1. Lessons learned from COVID-19 worker exposure examples
2. Business case for worker safety protective measures against pathogen infection
3. Recommendations for sensible worker protective measures
4. Review of cost implications for recommended protective measures

Code: MO26
Course Title: Inspecting Advanced Technologies/Things to Know From the Manufacturer
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

As an OWTS inspector you will run across many types of systems some with very complex advanced proprietary units as part of the system. This session will be facilitated by some of the units that are encountered across the country. The representative from the manufacturer will discuss the finer points of their unit with regard to completing an inspection and ensuring that their unit within the system is functioning as intended. While many of the units output goals are similar the method to get there can be drastically different. That is to say that just because the unit is an Advanced Treatment Unit, does not mean that the inspection protocol will be the same across the board. This advanced discussion is to educate the inspectors on the finer points of the specific units included in this discussion.

1. Identify the different types of proprietary advanced treatment units
2. Describe the different function and purpose of each unit
3. Explain the inspection protocol for the different units presented
4. Expound on the importance of having a complete understanding of the proprietary unit for the purposes of completing a thorough OWTS inspection

Code: MO27
Course Title: Mound Design
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

Onsite wastewater treatment utilizing sand mounds (sometimes referred to as raised bed systems) have become a popular upgrade from the normal below ground soil dispersal systems in many states. Mound systems combine treatment with improved dispersal in situations where it is needed. Mounds can be used to overcome shallow groundwater conditions, a shallow soil mantle, insufficient depth to limiting layers, and slowly permeable native soil conditions. When combined with equal distribution of the septic tank effluent and careful construction practices, experience has shown that mounds are a very robust combined treatment and dispersal component for both residential and commercial applications.

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1. Recognize sites that are suitable for the use of an elevated sand mound for wastewater treatment and dispersal
2. Properly place a mound system on a site for maximum success
3. Recognize the benefits and limitations of mound treatment systems
4. Discuss the process of designing a wastewater system to utilize the treatment and dispersal of wastewater using a mound system

Code: MO28
Course Title: The Answer to Sustainable, Effective Wastewater Treatment Is Under Our Feet
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

The wastewater industry as a whole has now been given an opportunity to take another look at bioaugmentation from a different perspective and mindset. The term is not new but due to its inconsistent results, it has lost favor, however it isn't bioaugmentation's fault, we simply weren't using the best way. This presentation will reveal how bioaugmentation is still one of the best and most viable solutions to some of wastewater's biggest pain points when the right microbiology and methods of application are utilized. We will be discussing how microbiology in wastewater treatment really works and the types of microbes that are best suited to deliver the desired results and why. The answer is truly under our feet – soil microbes. Together we will explore soil biology or genus bacillus, and how mother nature has provided us with the optimum wastewater super-hero bacteria, why it works so well and how it can be applied effectively into collection systems, septic tertiary treatment facilities and municipal treatment plants to create a natural, sustainable method of treatment that lowers the carbon footprint and operational overhead.

1. Discuss bioaugmentation, why forms of it have failed and how it is still the future of wastewater treatment
2. Explain the differences in microbiology that can be used for wastewater treatment and their pros and cons
3. Discover why soil bacteria is so effective at breaking down effluent material than anything we've ever tried before
4. Contrast and compare things that have been used in the past, long-term effects and how adopting a natural approach is more effective and sustainable
5. Discuss how using bioaugmentation with soil microbes benefits collection systems, mechanical treatment plants, lagoon facilities, onsite and industrial facilities

Code: MO29
Course Title: Wastewater Level Controls and Remote Monitoring
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

More and more we are seeing communication and system monitoring being a factor in new system designs. Whether this be via an internet connection, cloud based, or cellular based technology, the installer's options are opening up for more extensive system monitoring. This helps them to react faster to problems that are occurring, in real time, and adds value to their customer base. This session reviews and explains the related processes as well as their implementation and impact.

1. Demonstrate a general understanding of current water and wastewater liquid level pump controls
2. Identify the advantages and disadvantages of each different level control
3. Discuss how the alternative liquid level control operates specific to pump control
4. Reference and understand basic and advanced levels of remote monitoring

Code: MO30
Course Title: Industrial Treatment Systems - Case Studies Using Constructed Wetlands
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

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The proposed approach in this session is a holistic assessment of water resources management starting from the identification of the various available non-conventional water sources (e.g., municipal-industrial wastewater, runoff, etc.) till the proper onsite reuse strategies. The session studies and proposes sustainable practices and concepts to deal with the increasing impact of climate change on water resources degradation and availability, groundwater contamination, soil erosion and biodiversity loss. This brings a holistic approach to these interrelated problems (water, energy, biodiversity, soil) by investigating different technologies for wastewater treatment, reusing valuable “waste” by-products and optimizing effluent reuse for irrigation, aquifer recharge etc. Even high strength industrial waste water can be reclaimed as I will demonstrate in the case studies. As many US regions are already experiencing transformations into drylands due to climate change and face water-scarcity problems, high water demand, urbanization, industrialization, and a growing agricultural sector result in an unsustainable use of water resources and, thus, to reduced aquifer levels and sea water intrusion. The utilization of non-conventional water sources through sustainable technologies and methods as proposed in this project could support the limited natural replenishment rate.

It is also crucial that innovative technologies such as nature-based solutions will be investigated in the future. Such systems are appropriate for onsite and small/medium- scale decentralized applications, especially in rural and remote areas and islands. The advantages of these systems are their ecological character since mostly natural materials and processes are used, the minimum or even zero energy demand and their cost-effectiveness, especially during the operation phase. As these systems are usually built with locally available materials, an objective of the project is to identify such materials in the local context to also achieve an economy of scale. It is important to highlight the project objective to analyze and assess the treatment performance and health-related risks of available technological solutions, with focus on the sanitation efficiency (pathogen removal) and the fate of emerging micropollutants.

These aspects are significant parameters that will be studied in deep detail to develop an integrated strategy for water reuse applications, that will include wastewater characterization, technological innovation, best practices from international experiences, institutional barriers mapping and demo facilities. As engineers we must form integrated solutions that address the pressing problem of water quality and availability.

1. identify the benefits of constructed wetland treatment for environmental justice benefits
2. Discuss Economical; environmental; societal and institutional purposes
3. Review water conservation, reuse and recharge purposes

Code: MO31
Course Title: Stop the Blame Game! Creating Real Accountability
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

Your team is only as strong as its weakest link. If any member of the team is not accountable, and fails to follow through on commitments, the entire team suffers. Accountability is not just a popular buzzword. It's a mind-set and a skill set that can be learned and practiced until it becomes a discipline and then a character trait. This engaging program shines a light on the most common causes of poor accountability that, when resolved, can improve the entire functionality of the organization.

1. Analyze how we sometimes sabotage our own accountability as well as others
2. Discuss the crucial role that communication plays in creating an atmosphere of trust and accountability
3. Recognize the connection between accountability, goal achievement, and employee retention
4. Create a personal plan for implementation

Code: MO32
Course Title: Elevating Your Team – Cultivating A Diverse & Inclusive Workforce That Thrives & Succeeds
Date: Monday, 2/20/2023
Time: 3:00pm-4:00pm

A diverse and inclusive workforce is essential to thriving in the current competitive marketplace, including to maximize innovation and creativity, diversify workforce skillsets, increase business and productivity, improve

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company culture, boost employee morale, create more authentic customer relationships, drive revenues, and maximize talent. Despite these benefits, many employers do not intentionally diversify their hiring practices. Across many professional industries, females and minorities are overlooked for leadership, management and ownership positions. Many factors contribute to this phenomenon, including explicit and implicit bias; that many organizations have exclusively had white, male leadership, creating a disconnect between management and the needs of female and minority workers; and a failure to educate women and minorities on how to succeed and thrive in the face of these adversities. This energetic presentation will explore strategies for recruiting and maintaining top talent and build your toolkit for helping such talent succeed and thrive in the workplace.

1. Understand the differences between how men and women most frequently communicate and adopt a more effective communication style;
2. Build inner-confidence, by identifying and believing in unique strengths and leveraging them to your advantage
3. Consistently act with intention to intentionally elevate professional women and minorities
4. Effectively handle conflict, lead authentically, and assume important organizational roles
5. Recruit, support and maintain a diverse and inclusive workforce to advance professional women and minorities over the years to come

Code: MO33
Course Title: Pressure Pipe Cleaning and Inspection
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

Overview of inspection technologies and associated logistics, including cleaning to mitigate risk for pressure mains.

1. Understanding the differences between gravity and pressure main inspection and goals
2. Review of inspection technologies for different pipe materials and sizes
3. Application of PACP™ codes to future inspections, and recommendations for normalizing data on a 1 to 5 grade scale
4. Relative costs for the inspection technologies and risks

Code: MO34
Course Title: How to Work with Regulatory Agencies to Promote OWTS Inspections
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

This session will be a panel discussion of the different steps that have been taken to help regulators adopt rules regarding title transfer/use permit inspections in different areas across the county. The participant will gain knowledge on the different tactics that were used and are being used to help move forward the concept of requiring OWTS inspections as the time of sale and/or when a property changes "use". The discussion will include some of the pitfalls and lessons learned about introducing this concept to regulatory authorities to help move this type of program forward. There will be some interaction with the participants where questions from the audience can be addressed.

1. Define specific steps to encourage local and state regulatory support for OWTS inspections at the time of sale or any change of use to an OWTS
2. Justify the importance of an OWTS Inspection program for their local area

Code: MO35
Course Title: Introduction to Nitrogen Removal
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

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While nitrogen is an essential nutrient for living organisms, too much nitrogen in the environment can impact environmental and public health. When nitrogen leaches into water supplies, especially ground water, nitrate-nitrogen can lead to methemoglobinemia. This is a condition where the blood is unable to carry oxygen properly and the term 'blue baby syndrome' is often used to describe children affected. In water environments, excess nitrogen leads to excess algal growth with die-off resulting in low dissolved oxygen levels in surface waters. The nitrogen cycle is complex and the form of nitrogen changes as it moves through plants, animals, and the environment. Understanding the factors that influence changes in the nitrogen form, allow us to develop treatment systems that capitalize on those natural processes to optimize the removal of nitrogen to the atmosphere.

The nitrogen cycle and the environmental conditions that go with each phase will be presented. Various wastewater treatment processes will be explained that capitalize on the biological reduction of nitrogen. Key control points such as aeration and alkalinity will be examined.

1. Discuss the fundamentals of the nitrogen cycle and the importance of nitrogen in the environment
2. Explain the difference between nitrification and denitrification
3. Describe at least two types of wastewater treatment systems that are used for biological nitrogen reduction
4. Recognize key troubleshooting options for a wastewater treatment system using biological nitrogen reduction

Code: MO36
Course Title: Maintenance Hole Lining Options
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

Collection systems are the wastewater utilities largest asset more than the treatment plant. The US Environmental Protection Agency (EPA) estimates that there are over 20 million sewer manholes in the US. Each of these structures are susceptible to structural failure. EPA estimate that \$271 billion is needed to maintain and improve the nation's wastewater infrastructure. Trenchless technologies have become a major alternative to traditional digging for replacement for pipelines and maintenance holes. This session will use understandable approach using photo's, videos, and case histories to cover the following:

1. Problems such as inflow, infiltration, exfiltration, roots, corrosion, and structural defects.
2. Where trenchless technologies can be used.
3. The 4 basic styles of technologies used for rehabilitation of maintenance holes, pump stations and WWTP.
 - a. Dig & Replace.
 - b. Spray on barrier coatings.
 - c. Trowel on calcium aluminate lining systems.
 - d. Cured-in-Place Maintenance Hole liners.
4. Replacing MH rings covers with fiberglass reinforced composite.
5. Learn how to build better manholes

1. Discuss the conditions that increase costs of maintenance and shorten the life of pipelines
2. Review the applications that require dig and replace and which are candidates for trenchless technology
3. Discover the trenchless technology options available for manhole & pump station, & WWTP rehabilitation
4. Identify how to build better manholes

Code: MO37
Course Title: Trouble in Paradise - The Ongoing Struggle to Address Cesspool Systems in Hawaii
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

Hawaii has some 88,000 cesspools across the state. Half of the state's cesspools — 49,300 — are on Rep. Kahele's (since declared he is leaving Congress to run as HI Governor) home island, Hawaii island. Kauai has 13,700, Maui County has 13,640 and Oahu has 11,300. As Kahele notes, "The county of Hawaii has been in violation of the Safe Drinking Water Act and EPA federal rules and regulations since 2010 when the county took over responsibility of the large capacity cesspools at Pahala and Naalehu." In the face of these federal

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regulations, what should the counties do — go with the old, expensive sewer systems or find a new and cheaper technology?

According to Rep. Kahele: “When Sen. Chris Lee and I attended the Bill & Melinda Gates Foundation’s Reinvented Toilet Expo in 2018, we began to realize that our current sewer system is not the answer. These systems served a purpose once, but now they are the definition of a vicious cycle: We use clean drinking water to flush our toilets, then expend massive amounts of energy and miles of sewer lines to pump that waste across the Island to municipal wastewater treatment plants, which require even more energy to separate the liquids from the solids; and in the end, we pump the clean water out to sea and truck the sludge waste to landfills that are already full.” Source: <https://www.civilbeat.org/2021/06/the-work-to-convert-hawaiis-cesspools-continues/>

1. Identify the issues of the 2017 legislation mandating the conversion of all cesspools by 2050 by passing Act 125
2. Discuss the conversion of all cesspools in the state within the next 30 years
3. Identify cost efficient options
4. Reimagine the whole sanitation system

Code: MO38
Course Title: Understanding the First Page of Google and How to Use the Search Engines to Grow Your Business
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

Ever wonder if what you are being told by your marketing company is true? Are you concerned with how your competition shows up on the first page of Google above you? And finally, do you pay money to a company for help with digital marketing, but have no idea what that money is really for or where it is going? This hour long session will clearly take apart the three areas on the first page of Google where your business could show up, and help you understand the pros and cons of how these three spots on the first page of Google can affect your business' bottom line in a simple and easy to understand way. This class is taught so you can take knowledge back to your business that will help you better understand what you should look for when you are striving to make your website help grow your gross revenue using Google and the Internet. Finally, we will leave room at the end of the session for an open question and answer period. Bring all those questions that are driving you crazy about trying to understand how Google and the search engines affect your business!

1. Discuss the three areas of the first page of Google and how you can use these areas to drive revenue to your business
2. Explore the pros AND the cons to using Google and the search engines to grow your business
3. Discover what you should look for in a digital marketing vendor and how to hold them accountable for ROI
4. Bring clarity to nagging questions and existing struggles business owners have with Google and the search engines

Code: MO39
Course Title: Women in the Industry Mixer
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

Stop by to mingle with the women in the industry. Enjoy an adult beverage while visiting with old friends or to make some valuable new connections!

Code: MO40
Course Title: New to the Industry Mixer
Date: Monday, 2/20/2023
Time: 4:30pm-5:30pm

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A networking event for those who are new to the industry. Stop by to make some valuable new connections while unwinding at the end of the day with an adult beverage!

Code: TU01
Course Title: They're Managers, Now What?
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

If you are an executive or business owner making the decision to promote a blue-collar worker to supervisor/management, are you preparing them for their new responsibilities? Or are you making the mistake of promoting a "good worker" only because they have proven themselves at their current job? A management position comes with a whole new set of responsibilities – so being good at your job doesn't necessarily translate into becoming a good manager, because past performance is no guarantee of future results.

Research and professional observations show that 60% of managers fail within 24 months. The replacement cost to businesses runs between 3 and 15 times the manager's salary. As a business leader you can take steps to alleviate the failure and turnover rate, which ultimately affects the business's profitability and success. We will discuss successful promotion and support strategies, and help you make sure your new managers are capable and comfortable becoming managers.

1. Prepare your workers for leadership promotions
2. Discuss steps to alleviate the failure turnover rate
3. Ensure your new managers are capable and comfortable becoming managers

Code: TU02
Course Title: Fostering Diversity and Inclusion in the Workplace
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

Diversity in the workplace statistics show that most companies need to desperately consider aspects of being inclusive to create a more diverse workforce. Many companies embrace policies, initiatives, and tools designed to increase levels of diversity among employees. A diverse workforce, however, is just the first step. Diversity in the workplace does not necessarily mean just being inclusive in the workplace. Making diversity a priority is important; but so is the next logical step: creating a culture where people from all backgrounds feel included. Being inclusive is the key to actually maintaining (not just creating) diversity in the workplace. This session will share the process to be more inclusive in a diverse workplace environment.

1. Explain the proper techniques of active listening to effectively communicate to a diverse workplace where every voice is welcomed, heard, and respected
2. Define how the importance of diverse thinking leads to higher engagement through empathy and kindness rather than pleasing and enabling others
3. Explain the proper techniques to build, modify, and enhance a diverse multi-generational workforce and scale to the next level
4. Recognize that productivity can be increased when we are proactive for diagnosing and applying effective ways to resolve conflict

Code: TU03
Course Title: The Environment Beneath the Skid-Steer - Soil Engineering Basics for Onsite System Installers
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

Geotechnical engineering is the branch of civil engineering concerned with the behavior of earth materials, involving soil mechanics, geology, hydrology, and geophysics. Onsite wastewater treatment system installers operate equipment above and near underground structures, sloped ground, and potentially unstable soil. Construction equipment creates a sphere of influence in the underground environment that extends both

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horizontally and vertically, resulting in a variety of concerns during onsite system installation. While geotechnical engineering is an important aspect of onsite wastewater treatment system construction, the below-ground, out-of-sight aspect should not make it a lesser concern. The objective of this seminar is to increase installers' awareness of the conditions that exist in the subsurface environment during onsite system construction. The discussion covers geotechnical engineering fundamentals as related to onsite system construction, including soil unit weight, earth pressure, stress on buried structures, and slope stability. Soil stress with depth and the lateral extent of stress in soil will be addressed, as well as the effect of static and dynamic stress on buried structures. Publicly available construction videos will be used as case studies to tie the geotechnical engineering concepts to real-life situations.

1. Explain geotechnical engineering fundamentals as related to onsite system construction, including soil unit weight, earth pressure, stress on buried structures, and slope stability
2. Relate the principles of geotechnical engineering to onsite wastewater system installation practices
3. Increase awareness and understanding of subsurface conditions and how they affect onsite system construction
4. Create a heightened awareness for construction safety and system installation for field practitioners

Code: TU04
Course Title: Service Plumbing: Moving from Reactive to Proactive
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

If you're like me and have been in the industry as long as I have been, you quickly realize how reactive of a service plumbing business can be. A few examples may be, 24 hour emergency service, everybody's plumbing issue is a 911, frantic customers, the faucets been leaking for 2 months but needs to be fixed today and your best employee gives you their 2 week notice. These things can be long, hard and exhausting. I know many plumber owners who've wanted to quit after a few years of experiencing these things. If you've felt like this, you're definitely not alone. In this session we will take an honest look at why the industry is so reactive and the toll it takes on us and our employees. We will then explore what it looks like to change that tide, to learn how to have peace again and take back control of our lives. We will use the principles of proactivity and apply them in practical ways to our industry. I'm confident you'll find renewed strength and hope that things can be better and success awaits you.

1. Discuss why the industry so reactive
2. Realize the toll this plays on owners & employees
3. Determine what it means to be proactive
4. Apply practical proactive principles to our industry

Code: TU05
Course Title: Right People, Right Seats – Leadership Methods to Improve your Team and PRO Business
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

Learn practical leadership methods to build a dynamic, sustainable team to boost performance and increase retention. These easy-to-understand tips will positively change your outlook on portable restroom business management enough to impact your revenue and market share for the long haul.

1. Explain the theory of Right People, Right Seats as a leadership method
2. Explain the process for evaluating job duties and accountabilities to match with human strengths and passions
3. Explain management strategies and programs to create sustainability in your own business
4. Discuss the specific types of questions and responses you should use to determine Right People, Right Seats

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Code: TU06
Course Title: Are We In a Septic System Crisis?
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

2019 was just the beginning of an unimaginable historical time in our life and industry. Many thought we were doomed. But contrary to those thoughts, our industry boomed like it never had before. Fast forward to 2023 and beyond. Did we create a Septic System Crisis? Are systems stressed with so many people locked up at home and afraid to leave, causing higher failure rates. What has this done to our industry? Ongoing shortages, sky rocketing dumping fees, poisoned systems, worker shortages, and much higher operating costs. How do we go forward? Will the crisis include more Big Brother? Have we crossed the No Turning Back Point and could it get worse? Are there any solutions? Find out all the answers as our industry navigates forward in these precarious times.

1. Look over the past 4 years and look forward to where we are headed
2. Discuss the potential dangers of the continual crisis
3. Analyze how this has affected our septic systems
4. Talk about potential solutions that could move us forward

Code: TU07
Course Title: Beyond the Raked Bar Screen: A Summary of Septage Screening Methods
Date: Tuesday, 2/21/2023
Time: 11:30pm-12:30pm

The manually raked bar screen has been used for over 90 years to screen trash from hauled waste and wastewater. Simplicity and low cost is the main advantage of a manually cleared bar screen but many options are available for equipment that automates the screen clearing process. Automating the screen clearing process saves much labor and eliminates a job that few want. The purpose of this presentation is to provide a review of the different types of screening equipment available on the market and its advantages including labor savings.

1. Review septage screening challenges
2. Review potential labor savings by automation
3. Create awareness of lifecycle cost
4. Review various options for screening and compaction equipment in the market and discuss methods for evaluating options

Code: TU08
Course Title: Water Crisis in Jackson, Mississippi
Date: Tuesday, 2/21/2023
Time: 1:00pm-2:00pm

This class is still being developed so I don't have an exact description. The content will consist of one or more of the following:

- An infrastructure conversation with the EPA and/or other government bodies. How do we get ahead of problems like this to alleviate a repeat in the future?
- Similarities with Flint, Michigan. Lessons learned from Flint that can be applied to Jackson and lessons that can be shared with other cities to alleviate a critical breakdown of water services in the future.
- The perspective of this water crisis from Jackson business owners. How to navigate the lack of water to keep your business open and how is it affecting them and their customers? Is there help/relief available from any government bodies? Is there a way to take advantage of this situation or is there a type of business that could take advantage of this crisis? Safety measures they must follow to keep their business up and running.

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Code: TU09
Course Title: Big Ideas...Little Tiny Space!! Design and Install Challenges
Date: Tuesday, 2/21/2023
Time: 1:00pm-2:30pm

Often your client has "big ideas" for that small piece of property. Our panel will share insight on how to overcome challenges when designing and installing an OSTDS in space limited locations. Real-life examples of design and installations on both residential and commercial properties in various locations in the US will be discussed. The panel will host an open presentation with the attendees to create opportunities to add "tools to your toolbox" and grow your business while protecting public and environmental health.

1. Add new "tools" to overcome challenges in space limited sites
2. Think of challenging sites as new opportunities
3. Provide real-life examples to assist in creative solutions
4. Learn and share with your peers

Code: TU10
Course Title: Methods for Solving Hard Blockages & CIPP Installation Failures in 3-8" Pipes
Date: Tuesday, 2/21/2023
Time: 1:00pm-2:00pm

Historically contractors chose to clean pipes using Rodding, Electro mechanical Machines/Snakes, and High Pressure Water Jetting. We will cover the pros and cons of each including water consumption, rotational speeds, and safety. Then we will compare it to the newest high speed / high torque options that are on the market today. We will cover the the benefits of high-speed drain cleaning compared to other methods including cleaning speed, versatility, site footprint, and tooling options. Depending on the pipe size and problem, there are a plethora of tooling options available to clean the pipes, remove cement/grout, overshot liners, failed liners, FOGS and much more, and we will show some of the leading edge examples of current tooling options. We will also discuss some of the key operational differences users should be aware of when switching from traditional to high-speed drain cleaning methods. Several difficult customer projects will be reviewed. These projects were often ones that were attempted with traditional methods that were unsuccessful. We will see how high-speed cleaning machines and tooling were able to successfully complete the projects including situations requiring the removal of cementitious materials and collapsed CIPP liners.

1. Analyze the strengths and weaknesses of traditional drain cleaning equipment and methods
2. Discuss the advantages of high-speed pipe cleaning equipment over more traditional methods (jetting, rodding, elector mechanical units)
3. Discuss the key operational differences users should be aware of if when switching from traditional to high-speed drain cleaning methods
4. Review several difficult projects where high speed drain cleaning was able to turn a failed project into a successful outcome

Code: TU11
Course Title: Cleaning & CCTV Project Tips and Tricks
Date: Tuesday, 2/21/2023
Time: 1:00pm-2:00pm

Do you work for a company or municipality and wonder how other organizations complete certain tasks or assignments? Each person in this panel has been in the industry more than 15+ years, and is prepared to help you improve your processes. David Hamberlin will lead a panel that will include Kris Cook of ACE Pipe Cleaning, Steve Williams of Key Equipment and JT Burden of Hydromax USA. The class will start as a presentation going through some common issues or questions that people in this industry face, then will turn into an open mic panel where these professionals will field questions from the audience. Our industry is one that depends on relationships and knowledge sharing, and this group is prepared to share the information they have. Please bring your questions on anything from cleaning and CCTV processes, equipment repairs, software, equipment purchases, or anything else in the industry you may be curious about.

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1. Provide insight into industry standards
2. Allow fellowship and knowledge sharing in the industry
3. Answer questions and insight thought to push the industry forward

Code: TU12
Course Title: Leveraging Your Pump Truck by Collecting Yellow and Brown Gold
Date: Tuesday, 2/21/2023
Time: 1:00pm-2:00pm

During this session we will discuss how and why you should break into the lucrative world of yellow grease. Yellow and brown grease is a commodity that is in high demand. Biodiesel and Regenerative diesel technology and plants continue to grow. Government incentives inflate the price of the feedstocks. You can use your existing equipment to get another stream of revenue.

1. Identify and define opportunities in the biofuel feedstock realm
2. Discuss how to market and recruit food service establishments
3. Identify what your feedstock is worth
4. Discuss how the logistics work

Code: TU13
Course Title: FOG Recovery for Profit – Best Practices for Municipal and Industrial WWTPs
Date: Tuesday, 2/21/2023
Time: 1:00pm-2:00pm

The renewable diesel industry has created a new market for recovered FOG, providing new revenue opportunities for industrial and municipal processors who handle this traditionally problematic waste. This session will cover the challenges and current best practices for handling concentrated fats, oils, and greases (FOG) at municipal and industrial wastewater treatment plants (WWTP). This session will review best practices for receiving, handling and recovering saleable products from grease trap waste at the WWTP, and how a well implemented processing program can support collection and pretreatment in successfully implementing a comprehensive fats, oils and grease (FOG) control program to prevent the discharge of FOG into the sewer system.

1. Identify major issues in FOG handling
2. Explore different methods of FOG receiving and treatment
3. Review economic opportunities for FOG receiving and processing
4. Survey properties of different FOG streams and substrates

Code: TU14
Course Title: No Slow Season in Business
Date: Tuesday, 2/21/2023
Time: 2:30pm-3:30pm

The #1 functional barrier to scaling up is the lack of an effective marketing department - but many of us in the service industry don't have a set marketing department. Instead, we collectively do a little marketing, most frequently when the phone goes dead and we realize we need the calls. The job of a leader is to build a PREDICTABLE revenue and profit engine in an unpredictable marketplace and world - getting your marketing right will eliminate your slow seasons.

1. Review your existing marketing matrix to identify holes
2. Analyze your assets and determine what you're willing to do to eliminate slow seasons
3. Discuss solutions for the benefit of the group
4. Define your "DRP" (Directly Responsible Person) for carrying out your new slow season solution

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Code: TU15
Course Title: Locating for Plumbers Only (and municipal CCTV operators)
Date: Tuesday, 2/21/2023
Time: 2:30pm-3:30pm

Plumbers sometimes face unique challenges in locating the exact location and depth of the damaged section of pipe they are called in to repair: different pipe materials can affect the ability of a signal to be detected, and unique construction or installation techniques can lead to confusion as to the location of lateral pipes. Yet plumbers are expected to be able to sort through these challenges to pinpoint the location of the damage, so that repairs may be expertly completed. This class will discuss the common, and not so common tactics for successfully locating all pipes. Operators will learn how signals are emitted by their cameras, and sondes. Actual locating will be conducted in the class to demonstrate the proper techniques for accurate locating.

1. Detail the capabilities and limits of available locating technology
2. Identify the available technological options
3. Reveal the methods for verifying your gear is working properly
4. Locate in various situations

Code: TU16
Course Title: Serving Others to Boost Your Bottom Line!
Date: Tuesday, 2/21/2023
Time: 2:30pm-3:30pm

Michael Williams, a well-known successful plumber and drain cleaner from Philadelphia, will be interviewed by Dave Dunbar, National Sales Manager for General Pipe Cleaners. Michael will reveal how he has been able to use superior customer service and people skills to build his drain cleaning and plumbing business over the past 42 years. Michael will share specific suggestions and information that any plumbing or drain cleaning professional will be able to use to boost their bottom line! He appeared on the cover of Cleaner Magazine, November 2019.

1. Explain how to build drain cleaning referrals
2. Discuss how 'Serving Others' as a mindset can boost your bottom line
3. Explain how to stay lean and profitable
4. Discuss what mix of machines to have on your truck

Code: TU17
Course Title: Food Waste Digestion: The Impact of the EPA's New Rules for Renewable Fuel Standard Monetization
Date: Tuesday, 2/21/2023
Time: 2:30pm-3:30pm

New legislation requiring diversion of food waste from landfills, along with the EPA's modified rules for Renewable Fuel Standard RIN qualification has presented both a challenge and an opportunity to Waste Water Treatment Plants. The mandated food waste diversion is driving localities to process food waste through anaerobic digestion, and WWTP digester facilities are likely to be pressured to accept this feedstock. Coupling this food diversion with the newly revised EPA guidance on D3 vs. D5 RIN designation, WWTPs can monetize biogas for both transportation market and the growing voluntary markets. This session will review where mandated diversion legislation is in place (or under consideration) and present a basic understanding of how the D3 vs. D5 RIN designation is calculated. The result is that more biogas is produced, which can be a profitable venture for the WWTP.

1. Review and describe the general trend in food waste diversion legislation
2. Describe how the diverted food waste legislation can impact WWTP digester operators
3. Describe the EPA's recent rulemaking concerning D3 vs. D5 RIN designation
4. Analyze how the Legislation and EPA Rulemaking affects the monetization of the processed Renewable Natural Gas in both transportation and voluntary markets

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Code: TU18
Course Title: Construction and Engineering Controls to Manage Risk in Small Diameter UV Pipe Lining
Date: Tuesday, 2/21/2023
Time: 2:30pm-3:30pm

Small diameter (2" to 8") UV CIPP lining poses unique challenges, opportunities, and technology differences from the more familiar sewer main lining with UV CIPP. This presentation specifically discusses the "state of the practice" capabilities and limitations of UV CIPP technologies in small diameters. Materials, Equipment, and Methods are discussed including pull-in-place, inversion, various available tube construction, available resins, pipe assessment and cleaning, curing technology, branch reinstatement, and connection lining technologies. Understanding the role of UV irradiance requirements and the performance differences between LED and halogen bulbs will be discussed. Referencing real world project experiences, the presentation outlines key good practices and engineering controls that can help to control associated project risks.

1. Review the current "state of the practice" capabilities and limitations of available small Diameter UV Pipe Lining technologies
2. Discuss good practices that control construction risks
3. Analyze examples of performance-based specification measures and inspection practices that can provide improved design control over project risks

Code: TU19
Course Title: Starting an Apprenticeship Program (for your Septic Installer Business)
Date: Tuesday, 2/21/2023
Time: 3:00pm-4:00pm

Septic Installers should have more skills and variables to contend with than electricians and plumbers. During this session we will review a case study of how we built an apprenticeship program. We'll discuss lessons learned along the way and discover why it's worth it. We'll cover how to get funding to build your own apprenticeship program, and what resources are available to build your own program or make the program we created your very own.

1. Identify first steps to take when embracing a program and discuss the benefits of a septic professional apprenticeship program
2. Standardize and systematize what employees know
3. Create built in recruitment and incentive benchmarks
4. Embrace regulators, manufacturers & distributors

Code: TU20
Course Title: General Session: How Operators Without Borders is Helping Ukrainian Water Utilities During the War
Date: Tuesday, 2/21/2023
Time: 4:00pm-5:00pm

In the Ukraine our counterparts are fighting the battle for their country and at the same time fighting the battle to keep water and wastewater services running. Water utility employees can be operators by day and soldiers by night. Operators Without Borders is part of the Ukrainian WASH (Water, Sanitation and Hygiene) Group as well as being an integral member of a Consortium of Water Utilities and other interested parties working on assisting their counterparts in Ukraine. OWB Chair, Valerie Jenkinson, who traveled to Poland and has been one of the initial team members on this initiative, will be joined virtually by colleagues from water utilities in Poland and Ukraine. We will give an overview of the current situation of water and wastewater utilities in Ukraine, what the Consortium is doing and has planned, and what help is needed both in terms of equipment and expertise. Join us for this fascinating talk and learn first hand what is happening and how we can help.

1. Have a general understanding of the current situation of water and wastewater utilities in Ukraine
2. Be conversant with help that is taking place and planned
3. Know how you can personally assist

2023 WWETT Education Program Course Codes, Title, Day, Time

Code: WE01
Course Title: Why You Need Business Credit
Date: Wednesday, 2/22/2023
Time: 8:00am-9:00am

See how to build business credit with no personal guarantee, how to get business credit with no personal liability, how business credit helps you protect your personal assets, how business credit increases the value of your business, how business credit determines how much money you'll get approved for with loans, how business credit determines the interest rates you get approved for, and how business credit gets you higher approvals. Give your business a path to fund itself so that you can stop asking friends and family (or opening your own wallet) when your business needs cash. Improve fundability, help build business credit, and get business loans and credit lines so that you can grow your business with confidence.

1. Give your business a path to fund itself so that you can stop asking friends and family (or opening your own wallet) when your business needs cash
2. Improve your businesses fundability, help you build business credit, and get business loans and credit lines so that you can grow your business with confidence
3. Make sure that your business meets all lending guidelines before you apply
4. Build credit in your business name and with your EIN so that you don't have to personally guarantee business finances. Get loans and credit lines so that your business can continue to GROW.

Code: WE02
Course Title: Sanitary Sewer Siphons: Tricks and Tips for Maintenance and Inspection
Date: Wednesday, 2/22/2023
Time: 8:00am-9:00am

Sanitary sewer siphons are the most challenging assets to inspect as they are designed to be continuously full of water, they have little to no redundancy, with typically very high flow volumes. They are also located deep underground as they are designed to carry wastewater under roadways, channels, and water bodies, so dewatering and cleaning can be difficult. The construction and operation of inverted siphons will be explained, then an in-depth explanation of the methods that can be used to dewater, bypass, clean, and inspect sanitary sewer siphons will be presented. Proactive maintenance best practices will be discussed, along with repair alternatives for various defect scenarios that we have typically discovered during siphon inspections.

1. Explain the construction and typical operation of sewer siphons
2. Explain cleaning methods based on siphon configuration
3. Explain inspection methods for sewer siphons
4. Explain repair methods for siphon defects

Code: WE03
Course Title: Expert Sewer Camera Inspection Methods - Understanding Residential Sewer Laterals
Date: Wednesday, 2/22/2023
Time: 8:00am-9:00am

How does your company inspect residential sewer lines? Do you have a method that leads to repeatable success? Sewer problems can be complex, but diagnosing them and giving your customers the answers they need doesn't have to be. In this session, Frank Taciak will provide a structure of inspection success for you and your company that you can use on every job. From formatting your inspection reports to navigating tricky pipe bends with your camera pushrod, you will learn the tips and tricks to make every job go well. An accurate sewer inspection can make or break many drain projects, and this session will prepare you and your crew for anything a sewer line can throw at you.

1. Describe and analyze common pipe defects
2. Review the best practices of sewer inspection reporting
3. Recognize the best ways of inspecting difficult piping situations
4. Analyze the best ways to interact with customers

2023 WWETT Education Program Course Codes, Title, Day, Time

Code: WE04
Course Title: The NASSCO-ICGC Test Cell Research Project and Resulting Grout Formations
Date: Wednesday, 2/22/2023
Time: 8:00am-9:00am

Beginning in 2017, members of NASSCO's Infiltration Control Grouting Committee (ICGC) funded a multi-year research project to advance the understanding of the behavior and formation of gel masses within the sewer trench. An above ground structure was used to recreate a full-scale model of a trench and pipe installation allowing for the use of common construction methods and variables for the pipe trench and bedding materials. Acrylamide grout was injected through three different pipe defects installed in various bedding materials using different gel times and pressures. Employing the Grounded Theory method of qualitative research, each of the grout mass installations were carefully measured, documented, and analyzed. The findings and results were then used as scientific proof of grout mass characteristics in differentiated pipe installations to develop the proper means and methods of sewer grouting. Ultimately, the research concluded with the creation of two distinct specifications: Capital Grouting -supporting the protocol for standalone pipe sealing and stabilizing sewer trench for the long run of 25+ years and Maintenance grouting - a complementary approach to allowing for the elimination of infiltration and the installation of other trenchless technologies.

1. Describe the Test Cell Research Project
2. Discuss the resulting grout formations within the sewer trench
3. Discuss different trench backfill materials and how they affect grout formations

Code: WE05
Course Title: Sewer Cleaning Equipment - Why It All Starts With the Application
Date: Wednesday, 2/22/2023
Time: 8:00am-9:00am

During this 101 presentation, we will discuss why it is so critical to examine your application and toughest challenges when it comes to sewer cleaning equipment. With the continuing supply chain issues and rising costs of equipment due to inflation, you simply can NOT afford to waste time, money, and resources. This is a passionate educational topic. We want to help you identify the most important things you must know regarding your sewer cleaning challenges. Unsure what sewer cleaning truck is the best solution for your situation? We want to help you analyze your application and provide you with the best solution.

1. Analyze your application to find your best solution
2. Review the types of sewer cleaning truck related to your application
3. Realize how to find the right product for your application and explain the differences between main product types
4. Discover total lifetime value of the sewer cleaning solution

Code: WE06
Course Title: Applications of Advanced Pipeline Condition Assessment for Asset Management Programs
Date: Wednesday, 2/22/2023
Time: 9:30am-10:30am

Pipeline condition assessment (PCA) is a critical component of asset management. When implementing a pipeline condition assessment program, various factors should be considered to select cost-effective methods. This presentation will describe the challenges of inspecting non-pressure and pressure pipe including metallic and non-metallic pipe. It will define PCA technologies utilized within the visual and non-visual categories of inspection systems. It will demonstrate the 4 major levels of inspection hierarchy and how this supports a comprehensive risk-based asset management program for buried pipelines. In addition, multi-sensor inspection systems will be introduced as well as how pipeline inspection is being integrated with pipeline rehabilitation technology to provide advanced solutions for challenging applications.

1. Discuss challenges of inspecting non-pressure and pressure pipe including metallic and non-metallic pipe
2. Identify PCA technologies utilized within the visual and non-visual categories of inspection systems

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3. Discover the 4 major levels of inspection hierarchy and how this supports a comprehensive risk-based asset management program for buried pipelines
4. Define how pipeline inspection is being integrated with pipeline rehabilitation technology to provide advanced solutions for challenging applications

Code: WE07
Course Title: Wastewater Treatment and Water Quality Protection Around Lakes
Date: Wednesday, 2/22/2023
Time: 9:30am-10:30am

Using enhanced cultures of specific facultative bacteria coupled with Aerobic Bacteria Generator technologies can go a long way to remediate aging septic systems near lakefronts. There are two essential aspects to this. One is that failing leachfields can surface effluent that directly contaminates lakes with fecal bacteria, nitrogen and phosphates. Biological removal of clogging biomats keeps effluent under the soil avoiding conditions of direct runoff. Beyond this the altered microbiology can reduce nitrogen through soil based denitrification, and conversion of these septic systems from anaerobic to aerobic status increases soil absorption of phosphate, minimizing this source of eutrophication.

A second advantage is by converting these systems, either renovation of old systems, or installation of entirely new ABG systems that have NSF 40 certification allows improvement of effluent quality to the point where standard gravel-trench leachfields can be replaced with Subsurface Drip irrigation. In this fashion placement of the discharge point near the soil surface adds extra distance from often high groundwater in these lakefront sites. This also applies the liquid in the root zone of lakefront lawns and landscapes. This can eliminate the need for artificial fertilizers near the lakefront, a substantial source of nutrient contamination. Further the nutrients in the waste will be directly taken by the vegetation. In fact during the summer the discharged effluent travels upward via plant transpiration instead of down to the aquifer.

Experience with this technology has allowed us to successfully apply drip irrigation in the worst freezing conditions in northern Michigan with almost 20 years of examples.

1. Discuss alternative microbiological processes
2. Describe bioremediation in leachfield soils
3. Review approaches to water quality protection in lakes
4. Discuss harmful algae blooms in lake waters

Code: WE08
Course Title: Cross Bores-Be Aware!
Date: Wednesday, 2/22/2023
Time: 9:30am-10:30am

The session will include knowledge of the potential of utility line cross bores into sanitary and storm sewer lines. It will include the potential risks associated with unknown cross bores and best practices working around them. There will be discussion around Northern Indiana Public Service Company's (NIPSCO's) current program, how it started, where they are today, and where they are going with details of the findings pertaining to cross bores. The session will be pertinent information to those that work with, around, or inside sewer lines.

1. Explain what "cross bores" within the utility industry are
2. Explain NIPSCO's cross bore program and it's effectiveness
3. Define best practices before cleaning a storm/sanitary sewer line
4. Discuss the safety advantages of proactive actions around cleaning sewer lines

Code: WE09
Course Title: Asbestos Abatement and Recent Green Innovation in Pipe Rehab
Date: Wednesday, 2/22/2023
Time: 9:30am-10:30am

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We will review the case study of the Asbestos Abatement Pipe Rehabilitation Project in Santa Maria, CA. This presentation will highlight the technological trenchless innovation that has allowed for proven asbestos abatement results in the rehabilitation of dilapidated pipes with asbestos readings that run through private and environmentally protected public properties in Santa Maria. Panel is presented in collaboration with materials from the installation team, Performance Pipeline.

1. Identify potential health & environmental hazards in at risk rehabilitation projects and highlight macro solutions
2. Briefly discuss the recent innovation in the pipe rehabilitation industry that has allowed for safe, environmentally friendly solutions for these unique project challenges
3. Explain best practices approaches and unique project specific solutions using the Santa Maria Pipe Rehabilitation Project as reference
4. Outline the potential these projects have to move the Wastewater Infrastructure industry into a more sustainable, public works partnering future that prioritizes the municipalities we serve AND the safety & financial well being of installation/manufacturing partnerships.

Code: WE10
Course Title: Proper Potholing Technique for Vacuum Excavators
Date: Wednesday, 2/22/2023
Time: 9:30am-10:30am

Potholing is an essential step in the horizontal directional drilling process. By using soft excavation means, like a vacuum excavator, contractors are able to safely dig down to an existing utility to where it is visible from ground level. Best practices say to excavate to the depth of bore, especially when going under utilities so operators can physically see the drill bit and pipe safely passing under the utility. This is crucial to avoid damage to existing infrastructure, but there is a right way and wrong ways to do it. This presentation will include nozzle and gun considerations to ensure the proper PSI is being used to excavate, along with the correct technique when handling to help protect the various types of utilities being exposed.

1. Explain how a vacuum excavator helps contractors safely dig down to an existing utility
2. Discuss the best practices and right way to use a vacuum excavator to avoid damaging existing infrastructure
3. Explain nozzle and gun considerations to ensure proper PSI is being used to excavate
4. Outline the correct techniques to use when handling to help protect different types of utilities being exposed

Code: WE11
Course Title: How To Build a Powerful Online Footprint for Wastewater Service Firms
Date: Wednesday, 2/22/2023
Time: 11:00am-12:00pm

When prospects or clients go looking for you online, how easy are you to find? And then, if and when they do get to your website or social media pages, what is their user experience like? Will it compel them to select you? This session covers the essential components needed to build a strong online marketing footprint and how-to tips to give your business the competitive advantage: a call to action website, a social media personality and media coverage. Today's customer wants to be engaged and "edutained". Content is your currency—people buy from people they trust, so by learning to use and incorporate the elements covered in this session, when customers research you and your online authority, you will stand out as the best choice.

1. Develop a great user experience for your website
2. Write compelling calls to action to convert website visits into inquiries and customers
3. Complete your social media profiles to fully establish your brand and company personality
4. Review formulas, elements and content needed in press releases to catch the attention of editors and get coverage

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Code: WE12
Course Title: Long-Term Financial Framework to Maximize the Benefit of Investing in Water Infrastructure for Asset Management Program
Date: Wednesday, 2/22/2023
Time: 11:00am-12:00pm

Ineffectual and wasteful investment in the water sector causes an adverse effect on the grades of the infrastructure report card for water infrastructures. Moreover, this may lead to a negative impact on water-reliant sectors and water-related infrastructures due to the economic ripple effect. In order to measure the benefit and cost of a strategy of maximizing the efficiency of limited budgets and resources, this presentation will explore how to conduct a benefit-cost analysis due to the investment costs for rehabilitating and improving water infrastructures using economic and financial data. The major objective of this presentation is to understand how to conduct a benefit-cost assessment in terms of private, financial, economic, and efficiency using nominal and real terms for maximizing the benefit of investing water sector and for reducing the vulnerability of water infrastructures. The long-term financial framework, including the deep uncertainties for decision-makers to understand the benefit of investing assets for an optimal level versus the cost of doing nothing allowing the asset to run to failure, will be developed using the cost-benefit assessment. Minimizing risks of ineffectual and wasteful water sector investment through rehabilitating and improving water infrastructures in a rational manner will lead to improving grades of the infrastructure report card and the resiliency of interrelated infrastructures and sectors.

1. Discuss the novel methodology for efficiency-based long-term investment planning in water infrastructures
2. Discuss the effect of uncertainties in the water capital investment strategies for water infrastructures
3. Review measuring the benefit and cost of a strategy of maximizing the efficiency of limited budgets/resources
4. Establish a long-term financial framework based on cost-benefit analysis and priorities

Code: WE13
Course Title: Remote Monitoring and Telemetry
Date: Wednesday, 2/22/2023
Time: 11:00am-12:00pm

In recent years modern wastewater control system technology has diversified to offer a wide variety of monitoring and telemetry capability. Everything from very sophisticated monitoring, command and & control, and on-board intelligence to remote alarm notification. Four main tiers of capability have emerged in the market. With these choices many designers and operators are asking how they can best leverage these technologies. Matching control system capabilities to the needs of system owners, operators, and service companies can help create opportunities for improved system operation, greater O&M efficiency, and operational flexibility.

1. Determine which tier of monitoring best suits your application
2. Demonstrate how different monitoring capabilities work at scale
3. Demonstrate how modern telemetry can be used to optimize O&M
4. Explain the capabilities & limitations of currently used sensors and underlying equipment

Code: WE14
Course Title: Jetter Hose Repair and Maintenance
Date: Wednesday, 2/22/2023
Time: 11:00am-12:00pm

This is a comprehensive class on hose diagnostics. From properly identifying the manufacturer of a sewer cleaning hose, to best practices for repair and replacement. Instructor Ed Fitzgerald has the in-field, industry expertise you need to help you get the job done.

1. How to identify when to repair and replace Sewer Hose
2. Understand the Swage process (properly attaching the fitting to the hose)
3. Properly identify the manufacturer of a sewer cleaning hose
4. Understand the proper tools and techniques for repairing the sewer cleaning hose

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Code: WE15
Course Title: Development of Sensible Specifications for Renewing and Rehabilitating Your Wastewater Collection System Infrastructure
Date: Wednesday, 2/22/2023
Time: 11:00am-12:00pm

This presentation will give attendees a new appreciation for how they can avoid being overwhelmed by the ever-expanding and never-ending onslaught of technical, product, and performance specifications that flow our way when it comes time to getting something fixed within their wastewater collection system. They come to us by way of e-mail, voice messages, social media, conferences (just like this one), word-of-mouth, your Uncle Billy (a pipe sales guy for several years), websites, your local engineer, vendors, professional associations, trainers, and the like. This session is intended to make this task of developing your own technical electronic library of coherent, comprehensive, and easily understood specifications for most small-to-midsized communities, cities, and wastewater agencies. Best of all, such a sensible approach can result in a full specs that will be used over-and-over again on virtually any pipeline renewal or rehabilitation project with only a little bit of annual "maintenance" to keep them current with the ever-changing world of trenchless technology.

1. Develop a single set of bid-ready specifications, work orders, and even purchase orders for both scheduled and emergency repairs for renewing and rehabilitating buried pipeline infrastructure
2. See the value of using such a strategy and approach, and-give you confidence that these specifications along with related means-and-methods are ultimately implemented for your sewer renewal program
3. Find such an approach useful, uncomplicated, and leave some time and money at the end of the day

Code: WE16
Course Title: Your Company Can Enhance Itself by Instilling a Teaching Culture
Date: Wednesday, 2/22/2023
Time: 12:30pm-1:30pm

Why is it that some companies seem to "run themselves?" The answer is quite simple – those companies know how to teach. There is much more than meets the eye when it comes to teaching. For some, teaching is a lifetime profession. It is endlessly complex and is always unique according to the specific task at hand. And yet, despite that complexity and those ambiguous conditions that prevent a one size fits all approach, there are basic concepts that you can learn and apply regardless of your unique situation. Having awareness of these basic concepts will give you the foundation that you need to tailor and instill a culture of teaching. Understanding how people learn, recognizing systems that promote learning, and empowering others to share knowledge has a theoretical side and a practical side. As a leader, YOU have to assess, apply, and adjust the practical side. During this presentation, I will expose you to the theoretical side. This will give you a bird's eye view of what's happening. Understanding is half the battle. Integrate these concepts into your company's culture, and watch as your company takes on those traits and habits associated with a company that, "runs itself."

1. Reflect on one skill you know well and those most pivotal moments that allowed you to comprehend and apply that skill
2. Explain the theory associated with Kolbe's Experiential Learning Model (ELM)
3. Conduct a live practical participation of ELM applied to a simple concept
4. Provide a concise example of how Kolbe's learning model was applied at Pipe Services

Code: WE17
Course Title: Sewer Inspection Technologies and How to Use Them
Date: Wednesday, 2/22/2023
Time: 12:30pm-1:30pm

You can open any industry magazine or walk around any trade show floor and see several different technologies that exist to inspect a sewer collection system. The sheer amount of options can be overwhelming, or can lead to incorrect technologies being used to complete a project. During this presentation, we will discuss different technologies like CCTV, lateral CCTV, Lidar, Laser, Sonar, Manhole Scans, Acoustic Inspections, and

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Jetter Cameras. Each technology is like a tool in a toolbox, and should be pulled out to be used for the proper task. Just like the old adage that you don't use a hammer when you need a screwdriver, you also need to use the right inspection technology for the project.

1. Walk away with an understanding of the uses of different inspection technologies
2. Know when to use which tool
3. Define the proper way to scope out a project so the proper technology is used

Code: WE18
Course Title: Flow Equalization and Time Dosing
Date: Wednesday, 2/22/2023
Time: 12:30pm-1:30pm

Time dosing is used to control pump "off" and "on" times so wastewater is sent to the next downstream component evenly throughout the day. When activated during high-flow events, a peak enable sensor shortens the rest period between doses to allow the system liquid level to gradually return to normal levels. Flow equalization is a management concept that can help reduce stress on system performance due to high variation in flows. In flow equalization, the peak flows are stored for a period of time to be delivered to the next downstream component over a longer period of time. By sizing downstream components based on equalized flow and not peak flow, system cost and reliability can both be improved.

1. State the objective of time dosing
2. Compare the function of demand dosing to time dosing
3. Name at least two facility types where incorporating flow equalization could substantially improve system performance
4. Discuss whether these two ways of controlling flows can be used in the same system or not

Code: WE19
Course Title: Nozzle Capacity Cleaning
Date: Wednesday, 2/22/2023
Time: 12:30pm-1:30pm

We will share research that determines how much material a bottom-cleaning nozzle can actually put into suspension and move it out of the pipe. Based upon that information, including the GPM and the pressure being used with the nozzle, we were able to determine how far into the pipe each pass must be before being retrieved in order not to leave any material in that section of pipe. That process should be continued until the pipe is cleaned.

1. Increase daily sewer cleaning production rates
2. Discuss the advantages of employing nozzle capacity cleaning
3. Realize increases in the quality of sewer cleaning abilities with this knowledge
4. Define a nozzle's ability to "carry" debris

Code: WE20
Course Title: Grout-In-Place Liner (GIPL) Systems: State of the Industry Practices
Date: Wednesday, 2/22/2023
Time: 12:30pm-1:30pm

Grout-in-place liner (GIPL) systems place a relatively thin thermoplastic material that has been extruded with a stiffening profile tightly inside an existing pipeline. The placement is either by machine winding into place or by hand placement. This presentation will review the GIPL systems such as Danby System, Sekisui-SPR, and the 3S Segmental Panel System, etc. Also, we will discuss the Back River Influent Sewer Repair Project in Baltimore, MD as a case study.

1. Define the GIPL options

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2. Explain the GIPL installation
3. Discuss the GIPL standards
4. Discuss testing and QA/QC

Code: WE21
Course Title: Leading Through the Rain - Protecting Your Company from Internal and External Attacks
Date: Wednesday, 2/22/2023
Time: 2:00pm-3:00pm

Be inspired as you hear about the Journey that Susan Frew and her team endured as the result of a bad hire. Follow the journey of how they almost lost their multi-million dollar company and their road back! Be inspired to put processes and procedures in place so you can protect your company from internal and external attacks. This interactive presentation is a massive crowd-pleaser with concrete step-by-step instructions on how to turn your business around regardless of the obstacles in the way. Susan successfully bailed her company out of \$1,000,000 in debt in 18 months.

1. Safeguard your businesses against employee theft
2. Turn around a business in debt
3. Grow your business and profitability
4. Create a plan to get your head in the game, overcome business challenges and crush your plan for the future

Code: WE22
Course Title: Inherent Dangers in the Use of Pneumatic Plugs
Date: Wednesday, 2/22/2023
Time: 2:00pm-3:00pm

This presentation will provide useful information concerning the use of pneumatic plugs as a tool in a variety of sewer assessment/cleaning/rehab activities. People are seriously hurt and/or killed every year as a result of misuse and lack of training in the use of pneumatic plugs. Most workers lack the understanding of the combined pressures created within a plug when it is fully inflated. For example: a 30-inch plug inflated to its maximum rated pressure could contain over one-quarter million pounds of force, which equals the number of square inches within the plug multiplied by its inflation rating. We will emphasize the inherent dangers associated with this tool through multimedia and instruction. Proper use and precautions that must be exercised during the use of pneumatic plugs will be demonstrated and possible injuries that could occur will be explained. Past experiences of other municipal workers using these tools that have narrowly escaped injury and those who were injured will be shared.

1. Explain the dangers involved in the use of pneumatic plugs
2. Identify the pressure ratings of pneumatic plugs
3. Recognize the actual forces contained within a pneumatic plug
4. Properly perform tasks of storage, setting, inflation and deflation of pneumatic plugs

Code: WE23
Course Title: Keep the Pressure On! Hydro-Jetter Troubleshooting
Date: Wednesday, 2/22/2023
Time: 2:00pm-3:00pm

Downtime due to a Hydro-Jetter that is not running up to pressure can be a costly problem - stalling the job and the solution you were hired to provide! In this session the speaker will cover several "Low-Pressure" or "No-Pressure" troubleshooting procedures, and build your understanding of how a Hydro-Jetter actually works, all to help you "keep the pressure on"!

1. Explain how a Hydro-Jetter system actually builds pressure; your foundation for troubleshooting
2. Troubleshoot several low-pressure/no-pressure problem scenarios, and cover possible field-repair solutions

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3. Select the right spare parts by identifying the various components that can fail & cause pressure-loss in a Jetter system (typically NOT the pump!)
4. Discuss how prevention is the best medicine for keeping your Hydro-Jetter running dependably

Code: WE24
Course Title: Post Combat/Natural Disaster, Rapid Response Infrastructure Stabilization Using UV Cure Lining Technology
Date: Wednesday, 2/22/2023
Time: 2:00pm-3:00pm

This session will explore the unique benefits offered by mainline UV CIPP to rapidly repair, stabilize and facilitate interim facilities and infrastructure in the wake of large scale combat operations or natural disasters. With its small footprint and ability to operate with minimal support infrastructure UV CIPP can be on the ground making a difference in a very short period of time. The ability of FRP liners to be free standing makes them uniquely capable of temporary emplacement to get systems operating until more permanent repairs can be carried out. The nature of the curing equipment allows for deployment on a variety of chassis and equipment facilitating access into even the roughest terrain with or without road access.

1. Present information about the unique abilities of UV CIPP to operate in the unimproved chaos following major impact events
2. Discuss non-traditional approaches for material deployment to aid post disaster cleanup and reestablishment of functional infrastructure
3. Present several hypothetical scenarios showing the potential methods and means of liner deployment
4. Provide detail on potential management and logistics for such an operation

Code: WE25
Course Title: Utilizing Smart Tools to Improve Your Business
Date: Wednesday, 2/22/2023
Time: 2:00pm-3:00pm

Join our industry pros and product experts as they discuss advancements in underground technology and software. Hear real-life examples of how pairing technology with innovative tools makes jobs more efficient, saves time, and enhances their brand. Learn how technology enables quicker, data-driven decisions and how professional, mobile reporting tools increase profitability. We will demonstrate how smart underground tools allow you to spend less time on admin tasks and utilize real-time metrics to spend more time on the job site.

1. Discover how to drive productivity with tools and new technology in your business
2. Discuss software solutions that enable clear communication with your team and customers
3. Identify opportunities to use tool data to reduce downtime and avoid roadblocks that cost you time and money
4. Explore emerging trends and how they can help you stand out to your customers

Code: TH01
Course Title: Cross Bore Prevention and Detection
Date: Thursday, 2/23/2023
Time: 8:00am-9:00am

With the number of utilities using directional drilling as a pipeline renewal method, it is of great importance that utilities and municipalities have a set of guidelines to detect and protect them as well as their customers from delays in service, potential for injury, death or catastrophic damage due to cross bores. Cross bores are defined as the intersection of an existing underground utility or structure by a second utility resulting in direct contact between the transactions of the utilities that compromises the integrity of either utility or underground structure. Nationally, .02 percent of sewers are damaged by cross bores annually. Many are undetected until the sewer backs up and needs to be cleared. The National Association of Sewer Service Companies assembled a Cross Bore Prevention Committee made up of Contractors, Engineers and Municipal representatives to discuss best practices and real-world experience to develop a comprehensive set of guidelines for utilities, drilling contractors

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and municipalities to use. This presentation will introduce the guidelines that have now been developed and are being shared across the nation including step by step procedures to follow prior to drilling and follow-up procedures to take after the drilling is complete. The guideline includes communication with the customer (homeowner) and documentation as well as what to do with legacy detection of cross bores. The guidelines are applicable to all utilities doing directional drilling for sanitary and stormwater pipeline work.

1. Discuss what a Cross Bore is
2. Discover how they are caused
3. Prevent and Detect Cross Bores
4. Review NASSCO Cross Bore Prevention and Detection Specification Guidelines

Code: TH02
Course Title: Using Smart Nozzle Cleaning Data to Prioritize Maintenance for Municipalities
Date: Thursday, 2/23/2023
Time: 8:00am-9:00am

Modern technologies allow data collection and processing to integrate smoothly into the pipe cleaning workflow, helping municipalities to save costs and focus maintenance attention on the pipe assets most in need. This presentation will discuss how smart cleaning nozzles collect (HD Video) data during pipe cleaning and how this data is assessed by Artificial Intelligence software that delivers decision-ready pipe status reports and helps suggesting next actions. Approximately 70% of sewer main lines do not require additional measures, presenting municipalities a huge opportunity to save costs by integrating cleaning data driven asset management.

1. Discuss the advantages of cleaning data driven asset management (evidenced by case studies)
2. Explain how (HD video) data can be gathered during cleaning
3. Explain how Artificial Intelligence software does cleaning data processing for us
4. Describe implementation methods for cleaning data driven asset management

Code: TH03
Course Title: The Landscape of Synthetic Lubrication
Date: Thursday, 2/23/2023
Time: 8:00am-9:00am

The advantages and disadvantages of different synthetic lubricants. Knowing the difference will impact your operational sustainability and equipment reliability. This training session features information on multiple types of synthetic lubricants to help make the right choices during operations.

1. Differentiate between synthetic lubricants and their impact on your operations
2. Explain why not all synthetic lubricants are equal, they must be fit for purpose for water systems
3. Discuss the advantages of proper lubrication
4. Provide up to date information regarding the regulatory impact on specified synthetic products

Code: TH04
Course Title: A Comprehensive Approach to Large Diameter Pipeline Assessment
Date: Thursday, 2/23/2023
Time: 9:30am-10:30am

Buried infrastructure that is exposed to atmospheric elements and water are often faced with various structural and maintenance problems. The structural aspects that can affect the pipeline can range from corrosion issues to ovality whereas maintenance issues can hinder an asset's fundamental hydraulics. These adverse effects to the pipeline typically correlate to the material and the environment the asset is in. Utility owners are often faced with the difficult task of predicting when these problems will occur and how to accurately prioritize work on large diameter pipelines. In this session we will present two projects which used advanced inspection methods to obtain structural and debris data analysis over a given time period. The methods used included multi-sensor inspections operating LiDAR, Sonar, CCTV and gas collection. These projects allowed the agencies to predict

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pipeline failures and further develop rehabilitation schedules based on the degradation that was seen over various years of inspection and analysis. Options will be provided to owners looking to monitor and evaluate critical assets and the advantages and disadvantages that come with such inspections along with the cost benefits and risks incurred.

1. Address the effectiveness of various methods of advanced inspection methods in large diameter assets
2. Discuss the advantages and disadvantages of various methods such as CCTV, sonar, Laser/Lidar and more
3. Analyze the costs that impact large diameter pipeline inspections
4. Review the overall benefits of obtaining quality data on critical infrastructure in order to predict and prevent failures.

Code: TH05
Course Title: Excavation Safety – Think Before You Dig
Date: Thursday, 2/23/2023
Time: 9:30am-10:30am

There are challenges that come with working underground, but thinking before you dig can help solve problems before they develop. Pre-planning doesn't automatically mean the project will be more complicated or more expensive. Proper assessment of the soil, consideration of the site conditions, and planning for handling those issues can help the job run more safely and be more cost effective.

1. Realize the value in planning in advance of the work.
2. Recognize hazardous site conditions
3. Understand compliant options for trench protective-systems
4. Differentiate between support systems and shield systems

Code: TH06
Course Title: Trenchless Rehabilitation of a 15.000 ft. Sewer Force Main in Glendale, AZ
Date: Thursday, 2/23/2023
Time: 9:30am-10:30am

Combining flexibility and stability Flexible Fiber-Reinforced Pipes (FFRP) comes up with various advantages for the trenchless rehab of pressurized pipes such as small construction pits, short rehabilitation times and the low level of impact on the environment. However, as such liners can traverse multiple bends and operate independently from the host pipe, FFRP systems do not only account for more efficiency but in fact often display the only feasible solution to difficult projects.

In Glendale, AZ, a 35 years old 6-inch waste activated sludge line, running from Arrowhead Wastewater Treatment Plant to its eventual discharge point, was experiencing internal corrosion and deterioration. This was a uniquely difficult project to approach due to the high concentration of infrastructure and a high number of bends in the line, several of which were 45 degrees and in difficult-to-access locations. This project showcased the flexibility of the FFRP in similarly difficult and unique situations as the 15.000 ft. could be rehabilitated in 15 sections with minimal disruptions to the surrounding infrastructure. The plant operators were glad to not have to resort to any heavy construction in or around that treatment building and were pleased to have found this ideal solution for the rehabilitation of their aging infrastructure, renewing the pipe for decades to come.

1. Define the characteristics of the FFRP system
2. Explain the installation process
3. Describe the rehab of a force main in Glendale, AZ, using the FFRP
4. Discuss the advantages that could be achieved using this system

Code: TH07
Course Title: What New Legislation Means to Contractors Installing Underground Utilities
Date: Thursday, 2/23/2023
Time: 11:00am-12:00pm

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Cross bore mitigation is driving new legislation on how underground utilities are installed. To protect the current infrastructure, surrounding communities and utility professionals, certain safeguards are being implemented that can have a profound impact on our industry. This presentation will detail the new mandates in the California legislation. In part, contractors are now required to perform both pre and post bore inspections on existing utilities and provide mapping of existing and newly installed utilities. We will discuss procedures that contractors will need to follow and the equipment that will allow them to do so. While this legislation is currently only active in California, these types of mandates will spread to other regions of the country.

1. Outline new legislation and mandates related to how underground utilities are installed
2. Explain how this new legislation will impact underground utility contractors and the underground utility industry
3. Discuss procedures that contractors will need to implement to follow the new mandates
4. Discuss equipment that will allow contractors to follow the new mandates

Code: TH08
Course Title: Leveraging CCTV Data to Solve Underground Problems
Date: Thursday, 2/23/2023
Time: 11:00am-12:00pm

Over the last 30 years municipalities and consulting firms have collected thousands of feet of CCTV footage of sewer and stormwater. They have collected hundreds of thousands of data points and defect information. In an era of AI and system automations, leverage your data collection and historic data to better assist you in the decision-making process and budget management. There is more to your CCTV inspection than just a nice video and some pictures showing your underground infrastructure problems. We have developed tools that can assist you with your future projects for rehab, repair and cleaning as well as using your budget where it is most needed as well handling your CMOM plan in a more efficient, data driven way.

1. Discuss the importance of data accuracy
2. Analyze the advantages of data collection
3. Review how this data can be applied to future and current budgets and expenditures
4. Discover ways to use the data collected

Code: TH09
Course Title: Your Future is Bright With UV Cure
Date: Thursday, 2/23/2023
Time: 11:00am-12:00pm

While UV Cure dominates the CIPP market in Europe and Asia, the US lags with only 10-15% of municipal contracts requiring UV Cure CIPP for mainline rehab. UV is even less prolific in the home later market where contractors are still utilizing 80% steam inversion curing techniques. This session will provide a case study of a 10+ year old CIPP contractor that made a strategic decision to only utilize UV Cure technology in 2017. The business was able to grow revenues by 50% while decreasing expenses and only focusing on negotiated contract work vs. competitive bid projects. We will unpack how to transition your team to utilize UV cure technology to provide a longer lasting CIPP install, work in environmentally sensitive areas and increase employee safety. You will learn proven practices for how to educate clients on the benefits of UV cure and build lasting relationships with prime contractors for negotiated contracts and avoid the low price bid table.

1. Define the differences between traditional felt/steam cure CIPP and ultraviolet light (UV) cure
2. Discuss the business cost savings for converting to UV cure
3. Explain best practices in educating contractors and municipal clients on the benefits of UV cure to convert competitive bid projects to negotiated contracts
4. Provide an in-depth financial analysis of a business that moved to UV Cure and increased margins 10-20%

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Code: KNOTE
Course Title: Seven SEAL Team Maxims
Date: Tuesday, 2/21/2023
Time: 8:00am-9:00am

On a final operation in the Al Anbar Province of Iraq, with the objective of capturing a deadly suicide-bomb manufacturer, members of SEAL Team 7 found themselves being set up on a premeditated ambush. In SEVEN, Former Navy SEAL Chad Williams recounts the harrowing details of that ominous event, while communicating the seven SEAL Team maxims that ultimately led he and his team to overcoming a hail of bullets in the worst of circumstances, and against all odds achieving mission success. Sharing the seven SEAL maxims in a relatable way, Chad demonstrates how these battle-tested truths translate to the battlefield of doing business.

1. Discuss goal setting
2. Practice servant leadership
3. Overcome obstacles and demonstrate resilience
4. Demonstrate innovation and composure

Code: CONSP
Course Title: Confined Space Entry Training
Date: Tuesday, 2/21/2023
Time: 12:00pm-4:00pm

This comprehensive course will follow 29 CFR 1910.146 training requirements. Topics covered include air monitoring alarm points, effects and exposure to low and high oxygen, toxic gases, sampling with air monitoring equipment; hazards to be aware of; ventilation; PPE for entry; responsibilities of the entrant attendant and entrant supervisor; review of confined space permit; reclassification of a permit space to non-permit; equipment review, and more.

Code: WKSH2
Course Title: Growth for the Employer's Mindset: The Beneficial Impacts of Positivity, Grace, & Gratitude on Revenue, Productivity & Beyond
Date: Tuesday, 2/21/2023
Time: 1:00pm-4:00pm

What type of organizational leader are you? Have you maximized your potential as a growth-minded employer who empowers your workforce to its fullest? Just like your consistent exercise and nutrition choices directly impacts your physical condition, the mindset you daily choose and the content you regularly consume directly impact your everyday life, including the success (or lack thereof) of your business. So, how do you train your mind to focus on the positive to the exclusion of the negative to gain a competitive advantage? Attend this goal-driven workshop full of strategies that will best equip you to exude leadership that inspires you, your workforce, and your organization to reach your highest potential.

1. Celebrate your unique strengths and skillset to rid yourself of negative self-talk and self-doubt
2. Show yourself and others grace to rid yourself of anger and judgment while creating positive interactions with others and increasing your self-worth
3. Form happy, healthy and productive habits that maximize your performance to gain competitive advantage
4. Live a life of gratitude and empower your workforce to its fullest

Code: WKSH1
Course Title: I'm a Manager, Now What?
Date: Wednesday, 2/22/2023
Time: 8:00am-11:30am

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This workshop is for workers/technicians who have been promoted to manager or are aspiring to become a manager. Research shows that 60% of managers fail within 24 months – mainly because they are unprepared for the transition from labor to management. Being a good worker doesn't necessarily equate to becoming a good manager. You need a different set of tools to help with the mental shift from technical skills to social skills and managerial skills. This interactive 3-1/2 hour workshop uses a combination of lecture, workbook exercises, storytelling, interactive breakout sessions, and Q&A. It is designed to help leaders at all levels understand the essential responsibilities and areas they need to focus on to succeed. A workbook to take home with you is included

1. Identify areas and skills leaders need to focus on to be successful
2. Create objective measurements of your successes
3. Recognize what your team members need for success
4. Use your workbook as a blueprint for success

Code: NAWT
Course Title: One Day Inspector Training Course
Date: Wednesday, 2/22/2023
Time: 8:00am-5:00pm

During this course the nationally recognized NAWT Inspection Training and protocol will be covered. The approach for a NAWT Inspection is from the perspective that this activity is the start of managing on-site systems so they are sustainable for the long-term and provide viable solutions to wastewater problems. The discussion will cover all aspects of what an on-site wastewater treatment system is, how it works and what constitutes a failure for an OWTS. The inspection protocol that is covered is used in many states across the county for their Time of Sale, Title Transfer or Use Permit programs. At the end of the day each participant will take a comprehensive 50 questions (true/false, multiple choice) exam. Upon completion you will receive a NAWT Certificate of Completion.

Materials provided include the NAWT Basic and Inspection Manuals and copies of the PowerPoint slides in handout format.

Code: PSAI
Course Title: PSAI Basic Service Technician Training Series and Certification Exam
Date: Wednesday, 2/22/2023
Time: 8:00am-5:00pm

The courses of this series cover the following knowledge domains:

Knowledge Domain 1: Transportation and Logistics

- Preparation for transporting equipment
- Operation of tank vehicles
- Site selection and equipment placement
- Waste disposal
- Vehicle inspection and maintenance protocols

Knowledge Domain 2: Servicing Portable Sanitation Equipment

- Operation of pumping equipment
- Maintenance and repairs of portable sanitation equipment in the field
- Cleaning procedures

Knowledge Domain 3: Safety and Hazard Management

- Personal protective equipment (PPE)
- Materials handling
- Spill containment
- Accident/incident management
- Infectious diseases

Knowledge Domain 4: Record Keeping

Knowledge Domain 5: Professional Demeanor and Conduct

- Effective, courteous communication
- Conduct reflecting positively on the profession

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Code: TT01
Course Title: Deep Rock Tunnel Pump Station Tour
Date: Thursday, 2/23/2023
Time: 9:00am-11:15am

Citizens Energy Group (Citizens) has constructed an underground storage tunnel for wet weather storage of combined sewer overflows. The 270 million gallon storage tunnel is approximately 250 feet underground, 28 miles long and scheduled to be fully in service in 2025. The Deep Rock Tunnel Pump Station is also 250 feet underground and includes four, 30 MGD pumps that will pump wastewater from the storage tunnel to Citizens' Southport Advanced Wastewater Treatment Plant. You will be touring the Deep Rock Tunnel Pump Station which was completed in late 2019.

Code: TT02
Course Title: Belmont Advanced Wastewater Treatment Plant Tour
Date: Thursday, 2/23/2023
Time: 9:00am-11:15am

You will tour the Secondary Treatment System and Control Room at the Belmont Advanced Wastewater Treatment Plant. The Advanced Wastewater Treatment Plant was expanded in 2012 to increase the secondary treatment system to a capacity of 300 million gallons per day (MGD) and accepts flows from a combined sewer system. The secondary treatment system includes an air nitrification system installed in 2012. Operators have been consolidated into the newer combined control room that operates the Southport Plant Liquids, Deep Rock Pump Station, Belmont Liquids, Incinerations and monitors the Eagle Creek Dam for DPW.

Code: TT03
Course Title: Deep Rock Tunnel Pump Station Tour
Date: Thursday, 2/23/2023
Time: 11:15am-1:30pm

Citizens Energy Group (Citizens) has constructed an underground storage tunnel for wet weather storage of combined sewer overflows. The 270 million gallon storage tunnel is approximately 250 feet underground, 28 miles long and scheduled to be fully in service in 2025. The Deep Rock Tunnel Pump Station is also 250 feet underground and includes four, 30 MGD pumps that will pump wastewater from the storage tunnel to Citizens' Southport Advanced Wastewater Treatment Plant. You will be touring the Deep Rock Tunnel Pump Station which was completed in late 2019.

Code: TT04
Course Title: Belmont Advanced Wastewater Treatment Plant Tour
Date: Thursday, 2/23/2023
Time: 11:15am-1:30pm

You will tour the Secondary Treatment System and Control Room at the Belmont Advanced Wastewater Treatment Plant. The Advanced Wastewater Treatment Plant was expanded in 2012 to increase the secondary treatment system to a capacity of 300 million gallons per day (MGD) and accepts flows from a combined sewer system. The secondary treatment system includes an air nitrification system installed in 2012. Operators have been consolidated into the newer combined control room that operates the Southport Plant Liquids, Deep Rock Pump Station, Belmont Liquids, Incinerations and monitors the Eagle Creek Dam for DPW.