

Hot Topics in Basic Operations for 2024

Hot Topics in Basic Operations for 2024 is a six-hour overview of some typical task performed on a daily basis. We have surveyed student – operator comments and evaluation feedback, developing some popular topics over the past ten months; to create a unique experience for continuing education. This series includes various tasks with a basic reminder of various techniques and practices to meet operator needs in expanding their skill sets and knowledge base. The series is broken down into six 1-hour video-based courses in various topics, such as:

Operator Math Made Easy - overview
Data & Risk Assessment suggestions for 2024
Plastic Piping System - overview
Pipeline Maintenance - overview for 2024
Lab Practices - overview for 2024
Operations - overview for 2024

As you may see, the selection for 2024 is comprised some risk assessment and data protection, along with a review of piping materials and maintenance, overview of lab terms and equipment, plus a special section on chain-of-custody, historical video of the environmental disasters that led to the USEPA, overview of basic operations, and math review ... for the ones that need a little exam prep or checking the ole' calculations ... each of these course sections are highlights from the instructors overall course library and provides some good commonsense approaches to today's basic operations. We hope you like them and please share your thoughts in the evaluations; as we collect comments for the 2025 version. and Thank You for your interest in CEU Plan.

This package includes the following Courses:

10042 (WW) and 10041 (DW) - Hot Topics in Basic Operations for 2024
Operator Math Made Easy - overview
Data & Risk Assessment suggestions for 2024
Plastic Piping System - overview
Pipeline Maintenance - overview for 2024
Lab Practices - overview for 2024
Operations - overview for 2024

Course Series Package includes current and emerging topics in a themed environment of self-paced studies, instructionally designed to reinforce basic and commonsense techniques for day-to-day operational activities, and to encourage the “Need-to-Do” attitude instead of the “wait and see” in preventive maintenance. Some in these series are summaries of overall technical topics covered in greater detail.

Author Full Name: Paul Krauth

Experience:

Paul graduated from the University of Utah in 1987. After a long and undistinguished career as a professional student earning two engineering degrees (a geek squared), he went to work for the Utah Division of Water Quality in 1989. At the Utah DWQ, he worked for two and a half years in the UPDES permits program, including the writing of discharge permits. During this time he was involved with pretreatment, wastewater sludge and stormwater issues, providing technical and operational assistance to all of Utah's wastewater treatment facilities, along with process reviews for all proposed wastewater facilities within the state. He holds ABC wastewater certifications in small lagoons systems, collections, treatment, biosolids application, plant maintenance, and laboratory analysis. Paul recently retired from the Utah Division of Water Quality. In 2015, Paul received the WEAU Bedell Award for extraordinary personal service to a Member Association. Paul has been a true friend to the wastewater treatment community, and his passion is shown in sharing his experience and knowledge to operators across the country.

Category: Mathematics of the Treatment Process

Course Title: Operator Math Made Easy - overview

ANSI/IACET CEU Calculations - Required to complete this Course: one hour

Course Summary:

Operator Math Made Easy - overview is a refresher of the formulas used including: Area, Volume and Flow Rates. The basic and fundamental procedures are illustrated by the instructor in terms of pipe and tanks, so you will understand how much water is in a tank or flowing through a pipeline, and be able to calculate area and volume of various tanks within your treatment facility. It is essential to master these basics, in order to determine dosage and feed rates, re-order chemicals and double check the engineer or to make sure your tankage is sized to maintain the correct amount of storage.

A treatment plant operator is expected to be able to solve a number of mathematical equations to determine that the plant is running correctly and efficiently, to order chemicals and supplies, or as a prerequisite to a licensing exam. Math is not generally a popular subject, but a few rules can make it easier to master. The "Power Circle" or "Blair Witch" method is a shortcut that can be used to solve almost any equation. This short course shows how these methods can be used to find volume measurements. Several downloadable formula sheets using these techniques are included in the course, along with a downloadable worksheet for calculation practice of the section quizzes.

Learning Outcomes:

By the end of this training course, you will have the ability to:

- Define the basics for calculating volume – area – flow rates
- Calculate the volume of a circular tank
- Estimate psi to feet conversion
- Illustrate the classic Flow rate measurement through open channels
- explain the various Units of Measurements: cfs gpd gps mgd gpm

Course Breakdown:

The following course breakdown illustrates the individual sections:

- Section 1 – Introduction to Area formulas and the Power Circle Method
- Section 2 – Review of Volume formulas
- Section 3 – Describe the Flow Rate formula

CEU ID #	Course Title	Instructor	CEU Hours
338	Operator Math Made Easy - overview	Krauth	one



CEU Plan # 338 - Operator Math Made Easy - overview

Instructor: Paul Krauth

amount of course hours: **one**

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Lesson Name	Time	Content Description	Learning Outcomes	Learning Styles	Assessment	Instructional Materials	Comments
Section 2 338-02	content: 6.55 Minutes quiz: 20 minutes accumulative: 27 minutes	Review of Volume formulas	- discuss the power circle method for calculating - define the basics for calculating volumes - illustrate the volume formula	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Reinforcement Techniques: utilize images and illustrations for double Reinforcement of Need-to-Know criteria	Computer Based Exam	Required view of streaming clip, listen to audio presentation via streaming – take quiz upon completion of course material section View table, Charts, and Photograph Images	Inform students of the required assignments in the top header of the content section. At the conclusion of the course section, instructions to proceed to the quiz will be indicated.
Section 3 Final Course Requirements 338-03	content: 9.27 Minutes quiz: 20 minutes accumulative: 30 Minutes	Describe the Flow Rate formulas	- describe the “Blair” Witch Method - indicate Flow Rate Equations - illustrate the classic Flow rate measurement through open channels - explain the various Units of Measurements: cfs gpd gps mgd gpm	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Video Clip illustrating content within this section	Computer Base - Final Exam Essay Question - listing objectives that they learned from the course and how they apply to their job and workplace Final Course Essay and Evaluation form	Required view of streaming clip, listen to audio presentation via streaming – take final quiz upon completion of course material section Instructions to complete studies and evaluation form	Inform students of the required assignments in the top header of the content section. Complete the essay and evaluation form, prior to course being complete.

Accumulative Time:

sec 1 =	30								
sec 2 =	27								
sec 3 =	30								

accumulative time total : 87 minutes = 1 hours = 0.1 CEU

**** standard beta allows one minute for each question and answer. The essay requirement listing three things that they have learned from the course with a 10-15 word description of each thing is a non-measured time element of the course; it is not included the beta testing.**

Assessment Analysis- Level 3 - CEU Plan Beta Testing will be performed during the fall of 2023-24. At the beginning of 2024, student feedback and comments will be reflected in the final beta testing results, along with accumulative average of student tracking and monitoring posted during the February - July 2024 test period. The Level 1 and Level 2 Beta Testing have been completed and comply with the ANSI / IACET 1-2018 Standard, along with the internal review by CEU Plan.

Student Feedback:

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Author Full Name: Tom Hofer

Experience:

Thomas Hofer is a retired U.S. Army Warrant Officer and Military Intelligence (MI) professional with nearly 30 years of service. Thomas had enlisted time as a Prisoner of War (IPW) interrogator followed by 25 years as an Army Warrant Officer, reaching the most senior warrant officer rank - Chief Warrant Officer 5 (CW5). In his final military assignment, Thomas served as an instructor with the Central Intelligence Agency's clandestine operations course. Following his 2003 military retirement, Thomas embarked on a second career as a clandestine operations officer with the Central Intelligence Agency until his retirement in 2014. Thomas was named an Exceptional Intelligence Collector by the Intelligence Community Staff in 1985. His military awards include multiple awards of the Legion of Merit and Defense Meritorious Service medal.

Category: Supervision and Management

Course Title: Data & Risk Assessment suggestions for 2024

ANSI/IACET CEU Calculations - Required to complete this Course: one hour

Course Summary:

Data & Risk Assessment suggestions for 2024 is a one-hour short course focuses on preparing the risk assessment and emergency response plan required by the 2018 America's Water Infrastructure Act for water utility professionals.

Section 01 – Safeguarding & Understanding Data Protection - discusses the fundamentals of data with some current studies and regulations. In the course, Tom explains the very important topic of personal and system data protection, and how it impacts your life and your utility system. He describes your rights to privacy and in general –“sector privacy rights”.

Section 02 – Developing – Conducting a *Risk Assessment* – explaining the basic principles in creating a risk assessment; discussion of terminology and a systematic treatment of the risk management process, using the international standards for risk management. Assisting the utility operator in the preparation of the required risk assessment for water utility organizations.

Section 03 - Data & it's Use and Where - provides the information on the utility operator's rights to data privacy and data protection by reviewing current laws and regulations in the USA and overseas. This is followed by a discussion on the extent of personal information collection by social media platforms and tech firms, offering advice on minimizing the amount of data provided.

Learning Outcomes:

By the end of this training course, you will have the ability to:

- understand the importance of safe- guarding your utility and personal data
- describe some of the legal aspects to data protection
- list aspects to maintain a secure database from attacks
- understanding of your utility's obligation to conduct a risk assessment and an emergency response plan (resiliency assessment) mandated by the America's Water Infrastructure Act

CEU ID #	Course Title	Instructor	CEU Hours
339	Data & Risk Assessment suggestions for 2024	Hofer	one



CEU Plan # 339 - Data & Risk Assessment suggestions for 2024

amount of course hours: **one**

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Lesson Name	Time	Content Description	Learning Outcomes	Learning Styles	Assessment	Instructional Materials	Comments
Section 2 339-02	content: 15.50 Minutes quiz: 10 minutes accumulative: 26 minutes	Developing - Conducting a Risk Assessment	- demonstrate the plan to develop your risk assessment - explain your plan of attack to handle vulnerabilities - evaluate your risk and resiliency to update your existing vulnerability assessment plan	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Reinforcement Techniques: utilize images and illustrations for double Reinforcement of Need-to-Know criteria	Computer Based Exam	Required view of streaming clip, listen to audio presentation via streaming – take quiz upon completion of course material section View table, Charts, and Photograph Images	Inform students of the required assignments in the top header of the content section. At the conclusion of the course section, instructions to proceed to the quiz will be indicated.
Section 3 Final Course Requirements 339-03	content: 13.28 Minutes quiz: 10 minutes accumulative: 23 Minutes	Data & it's Use and Where	- define the 4 categories of personal data - explain why social media and search engines are not “free of charge” - describe how to set up your browser to block cookie placement and enable “do not tracking” commands	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Video Clip illustrating content within this section	Computer Base - Final Exam Essay Question - listing objectives that they learned from the course and how they apply to their job and workplace Final Course Essay and Evaluation form	Required view of streaming clip, listen to audio presentation via streaming – take final quiz upon completion of course material section Instructions to complete studies and evaluation form	Inform students of the required assignments in the top header of the content section. Complete the essay and evaluation form, prior to course being complete.

Accumulative Time:

sec 1 =	20								
sec 2 =	26								
sec 3 =	23								

accumulative time total : 69 minutes = 1 hours = 0.1
CEU

**** standard beta allows one minute for each question and answer. The essay requirement listing three things that they have learned from the course with a 10-15 word description of each thing is a non-measured time element of the course; it is not included the beta testing.**

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Student Feedback:

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Author Full Name: Bill Edgar

Experience: Bill Edgar has been involved in the operation, maintenance, renovation, and repair of treatment plants, from systems of 10,000 GPD (gallons per day) to 125 million gallons per day. He pioneered UV disinfection in Florida in 1985, in 1982 developed the Effluent Reuse System for a major Power Plant Scrubber system, and developed the first wastewater reuse system in Costa Rica in 1996. His experience includes contract operations and maintenance of treatment plants, with attention to emergency preparedness, for over 40 years. He taught his first Operator Short School in 1978 and has been recognized locally and nationally for his innovative techniques in operations and maintenance. In 1999, he created CEU Plan, an online training program, the oldest online training organization in the Water and Wastewater Treatment industry.

Category: Operation and Control of a Treatment Plant

Course Title: Plastic Piping System - overview

ANSI/IACET CEU Calculations - Required to complete this Course: one hour

Course Summary:

Plastic Piping System - overview is a one-hour course for all water and wastewater treatment operators, distribution and collection staff, and anyone interested in piping systems. In a brief historical review, we will investigate where piping systems began and how they have improved, progressing to the world of plastics in the piping systems of today.

The materials of construction for pipe and fittings, along with the ratings and standards that regulate them, are illustrated in the ASME Standards Reference, ABC Need-to-Know criteria, and industry benchmarks. Understanding the codes and markings on pipe and schedule of pipe and fittings, as well as the sizing of gaskets is important for new installations, preventive maintenance and repair of all types of pipe systems. Knowledge of welding methods is also essential for efficient operation. We discuss the proper procedure for solvent welding or gluing a PVC connection.

Learning Outcomes:

By the end of this training course, you will have the ability to:

- describe the various types of piping systems and materials
- compare the difference between thermoplastic and thermoset piping systems
- illustrate the importance for testing equipment and piping, prior to start-up and training
- discuss the importance of color codes and signage for piping systems
- discuss problems in your pipelines associated with hypochlorite - chlorine usage

Course Breakdown:

The following course breakdown illustrates the individual sections:

- Section 1 – Introduction to Plastic Pipe
- Section 2 – FRP pipe
- Section 3 – Overview and Review of handout - resources for you

CEU ID #	Course Title	Instructor	CEU Hours
340	Plastic Piping System - overview	Edgar	one



CEU Plan # 340 - Plastic Piping System - overview

amount of course hours: **one**

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Lesson Name	Time	Content Description	Learning Outcomes	Learning Styles	Assessment	Instructional Materials	Comments
Section 2 340-02	content: 15.48 Minutes quiz: 10 minutes accumulative: 26 minutes 2nd Beta Test on 7.28.18	FRP pipe	- discuss the advancements in thermoplastic (PVC) pipes - describe PVC welding of plastic pipe - define and explain the corrosion barrier in thermoset pipes - compare thermoset vs. thermoplastic	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Reinforcement Techniques: utilize images and illustrations for double Reinforcement of Need-to-Know criteria	Computer Based Exam	Required view of streaming clip, listen to audio presentation via streaming – take quiz upon completion of course material section View table, Charts, and Photograph Images	Inform students of the required assignments in the top header of the content section. At the conclusion of the course section, instructions to proceed to the quiz will be indicated.
Section 3 Final Course Requirements 340-03	content: 12.10 Minutes quiz: 10 minutes accumulative: 22 Minutes 2nd Beta Test on 8.28.18	Overview and Review of handout - resources for you	- explain the History of Piping Systems - describe the manufacturing process for thermoplastic (PVC) pipe - indicate the differences of PVC and FRP pipes - list the various types of isolating valves	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Video Clip illustrating content within this section	Computer Base - Final Exam Essay Question - listing objectives that they learned from the course and how they apply to their job and workplace Final Course Essay and Evaluation form	Required view of streaming clip, listen to audio presentation via streaming – take final quiz upon completion of course material section Instructions to complete studies and evaluation form	Inform students of the required assignments in the top header of the content section. Complete the essay and evaluation form, prior to course being complete.

Accumulative Time:

sec 1 =	26								
sec 2 =	26								
sec 3 =	22								

accumulative time total : 74 minutes = 1 hours = 0.1 CEU

**** standard beta allows one minute for each question and answer. The essay requirement listing three things that they have learned from the course with a 10-15 word description of each thing is a non-measured time element of the course; it is not included the beta testing.**

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Student Feedback:

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Author Full Name: Joey Leverette

Experience: Joey Leverette has 21 years' experience in the Water & Wastewater industry, and has served in several management positions with municipal utilities and contract operations. He is a state certificated operator in Water Treatment, Water Distribution, and Water Collections in the State of Georgia. Likewise, Joey is a member of the Georgia Association of Water Professionals (GAWP) and American Water Works Association (AWWA). He has served on various committees with these associations and has authored and presented at state conferences. Mr. Leverette holds a Bachelor of Arts (BA) from the University of Georgia and a Master of Public Administration (MPA) from Georgia College and State University.

Course Title: Pipeline Maintenance – overview for 2024

ANSI/IACET CEU Calculations - Required to complete this Course: one hour

Course Summary:

Pipeline Maintenance - overview is a snapshot of a couple reminder techniques to consider, while working around a water or wastewater service line. Understanding the basic and fundamental repair procedures will save you time and allow you to plan for the proper techniques to use. We have taken some of the highlights from Pipeline Condition Assessment, Inflow & Infiltration, along with Fire Hydrant flushing to offer a one-hour course to summarize some of the day-to-day issues you face in operating service lines.

Section 1 – **Fire Hydrant Flushing procedures and operation** - will educate the student on the how to conduct proper inspections of fire hydrants, to determine maintenance problems and provide techniques for the correct manner in which to flush a fire hydrant. The student will learn a four-step process for operating and inspecting a fire hydrant correctly. In addition, information in this course includes discussions related to fire hydrant types, basic maintenance, specifications, and safety concerns when operating a fire hydrant.

Section 2 – **Inflow Infiltration - reduction techniques** - detailed overview of the issues caused by I&I and the benefits of reducing and preventing these problems. The instructor - Joey Leverette provides a case study and cost benefit analysis of an existing collection system. The study illustrates some of the problems associated with the existing system and the estimated pay-back.

Section 3 – **Introduction to Pipeline Condition Assessment** - Pipeline condition assessments are integral to optimizing the performance and analyzing risks related to any water distribution system. Aging and deteriorating water infrastructure has forced utilities to focus on the overall health and condition of their pipeline systems. Assessment technologies provide utilities with essential information to improve capital and operational planning, provide resilience of critical systems, and to facilitate regulatory compliance.

Learning Outcomes:

By the end of this training course, you will have the ability to:

- explain the current pipeline conditions of our piping systems and materials
- identify some of the causes of infiltration
- list the common maintenance needs for fire hydrants
- discuss the use of transient wave technologies for pipeline assessments
- Illustrate the importance of using proper flushing techniques

CEU ID #	Course Title	Instructor	CEU Hours
341	Pipeline Maintenance – overview for 2024	Leverette	one



CEU Plan # 341 - Pipeline Maintenance – overview for 2024

amount of course hours: **one**

341-01

Lesson Name	Time	Content Description	Learning Outcomes	Learning Styles	Assessment	Instructional Materials	Comments
Section 2 341-02	content: 16.04 Minutes quiz: 10 minutes accumulative: 26 minutes	Inflow Infiltration - reduction techniques	● explain the CIPP process ● describe the pay back benefits from repairs to a collection system ● list some of the inflow prevention devices used for manholes	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Reinforcement Techniques: utilize images and illustrations for double Reinforcement of Need-to-Know criteria	Computer Based Exam	Required view of streaming clip, listen to audio presentation via streaming – take quiz upon completion of course material section View table, Charts, and Photograph Images	Inform students of the required assignments in the top header of the content section. At the conclusion of the course section, instructions to proceed to the quiz will be indicated.
Section 3 Final Course Requirements 341-03	content: 16.00 Minutes quiz: 10 minutes accumulative: 26 Minutes	Introduction to Pipeline Condition Assessment	● explain the current pipeline conditions of our piping systems and materials ● describe the type of corrosive soil testing ● compare the benefits of pipeline condition assessment ● perform a pipe-wall thickness test (Integrity Testing)	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Video Clip illustrating content within this section	Computer Base - Final Exam Essay Question - listing objectives that they learned from the course and how they apply to their job and workplace Final Course Essay and Evaluation form	Required view of streaming clip, listen to audio presentation via streaming – take final quiz upon completion of course material section Instructions to complete studies and evaluation form	Inform students of the required assignments in the top header of the content section. Complete the essay and evaluation form, prior to course being complete.

Accumulative Time:

sec 1 =	24								
sec 2 =	26								
sec 3 =	26								

accumulative time total : 76 minutes = 1 hours = 0.1 CEU

**** standard beta allows one minute for each question and answer. The essay requirement listing three things that they have learned from the course with a 10-15 word description of each thing is a non-measured time element of the course; it is not included the beta testing.**

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Student Feedback:

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Author Full Name: Margaret Doss

Experience:

Margaret Doss is the Water Quality Manager for the Columbia County Water Utility in Evans, Georgia. She began her tenure with the Water Utility in 1991, working as the Laboratory Analyst at the Little River WPCP, a secondary-treatment activated sludge plant. Since that time she has served as Laboratory Manager for the Central Laboratory, which analyzes both - wastewater and drinking water samples. She is also the Industrial Pretreatment Coordinator, and the Utility's Environmental Trainer.

Course Title: Lab Practices – overview for 2024

ANSI/IACET CEU Calculations - Required to complete this Course: one hour

Course Summary:

Lab Practices - overview is a quick one-hour course to hit a couple of key topics involved in collecting and transporting samples, understanding chemistry basics, and a summary of lab equipment used in water and wastewater. By popular demand, we have taken some of the highlights from Margaret's courses on Basic Chemistry & Laboratory Techniques, Basic Laboratory Terminology, and Lead Sampling in School Buildings. Periodically, we need a refresher to basic lab terms and procedures..... especially in following the chain of custody regarding sampling or communications, the Lead Sampling exercise discuss lead, however it could apply to many other sampling requirements that you encounter... following the proper forms makes life so much easier for the lab folks...

Section 1 – **Introduction of Basic Chemistry** - provides a great overview of basic chemistry components for entry level, as well as, refresher for advanced levels. Margaret introduces some of the basic concepts of chemistry and relates them to water. She discusses such topics as elements and how they are arranged in the periodic table and what the periodic table tells us, physical properties, and how atoms bond to form molecules (such as water).

Section 2 – **Description of Lab Equipment** - Margaret covers the basic terms, acronyms used in laboratory practices, and the new terms within the industry. Previously, she was the Chair of the V & E for the ABC Laboratory Practices committee; her wealth of experience is demonstrated in this unique exam-prep presentation on laboratory terminology. This course is a great refresher and update of current laboratory terms used in the water and wastewater treatment industry. Most importantly, it is an excellent cross-training course.

Section 3 – **Sampling Procedures & Chain of Custody** - you will learn the process and planning for sampling a multiple story school building with water outlets throughout, in an animated exercise of what should and should not be required of sampling for lead in the water supply. From locating the sampling sites, preparing for the test, preparing the Chain-of-Custody form and transmittal paperwork, to grabbing the samples and recording the data for submitting to the lab, Margaret details the steps involved in preparing and sampling, and explains "How to Fill Out the Chain-of-Custody" form. An understanding of these procedures and techniques will be very beneficial for entry level and first-time responders when taking a sample, and can serve as reinforcement of the requisites, as a review at all levels.

Learning Outcomes:

By the end of this training course, you will have the ability to:

- Identify and describe laboratory tools and instruments
- Relate to the abbreviations on a Chemical Periodic Table
- Explain the process whereby, gas or dissolved molecules in liquid adhere to the surface of a solid body
- describe the preparation for taking a sample
- Indicate the properties related to Hardness in Water

CEU ID #	Course Title	Instructor	CEU Hours
342	Lab Practices – overview for 2024	Doss	one



CEU Plan # 342 - Lab Practices – overview for 2024

amount of course hours: **one**

342-01

Lesson Name	Time	Content Description	Learning Outcomes	Learning Styles	Assessment	Instructional Materials	Comments
Section 2 342-02	content: 12.42 Minutes quiz: 10 minutes accumulative: 23 minutes	Description of Lab Equipment	- Describe COD - Describe the Clean Water Act - Identify what colony forming units (CFU) are - Illustrate the colorimetric testing	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Reinforcement Techniques: utilize images and illustrations for double Reinforcement of Need-to-Know criteria	Computer Based Exam	Required view of streaming clip, listen to audio presentation via streaming – take quiz upon completion of course material section View table, Charts, and Photograph Images	Inform students of the required assignments in the top header of the content section. At the conclusion of the course section, instructions to proceed to the quiz will be indicated.
Section 3 Final Course Requirements 342-03	content: 15.02 Minutes quiz: 10 minutes accumulative: 25 Minutes	Sampling Procedures & Chain of Custody	REVIEW: learning styles and animated exercise - describe the preparation for taking a sample - explain importance for a “Do Not Use” label - indicate the sampling procedure for lead sampling	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Video Clip illustrating content within this section	Computer Base - Final Exam Essay Question - listing objectives that they learned from the course and how they apply to their job and workplace Final Course Essay and Evaluation form	Required view of streaming clip, listen to audio presentation via streaming – take final quiz upon completion of course material section Instructions to complete studies and evaluation form	Inform students of the required assignments in the top header of the content section. Complete the essay and evaluation form, prior to course being complete.

Accumulative Time:

sec 1 =	25								
sec 2 =	23								
sec 3 =	25								

accumulative time total : 73 minutes = 1 hours = 0.1 CEU

**** standard beta allows one minute for each question and answer. The essay requirement listing three things that they have learned from the course with a 10-15 word description of each thing is a non-measured time element of the course; it is not included the beta testing.**

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Student Feedback:

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Author Full Name: Landis Legg

Experience: Landis is the Wastewater Plants Supervisor for Hernando County Utilities Department; he holds a Class "A" Wastewater Treatment License, Class "B" Water Treatment License, Class "C" Reclaimed Water Treatment Certificate, Class "C" Wastewater Collection Certificate and has 26 years in the Operation of Wastewater and Water Treatment Systems in the State of Florida. His many projects include: Mobile wastewater residuals and dewatering systems using centrifuge dewatering technology (Residuals from these systems are deposited in a lined landfill cell and mixed with household trash, producing methane gas to provide electrical energy.), Design and operation of self-serve, unmanned septic waste receiving stations that are monitored off site by video and SCADA systems, Odor, corrosion and FOG control projects that consist of liquid phase biological neutralization products, gas phase acid scrubbing, and biological sulfide adsorption units for odor control.

Course Title: Operations – overview for 2024

ANSI/IACET CEU Calculations - Required to complete this Course: one hour

Course Summary:

Operations - overview is a summary of a couple courses involved in basic training, from many suggestions, we have taken the introduction and foundation to environment protection, briefly describing a water and wastewater treatment process, with the similarities in some process equipment. Review some of the historical aspects of Why we Treat What were the pollutions and some case studies ... developing a better understand to the treatment process in this one hour course.

Section 1 – **Introduction to Environmental Protection** - describing the beginnings of our environmental and public health protection of the water we drink and the air we breathe. It begins with a description of how the USEPA began, and WHY it was developed in the late 1960s, opening its doors on December 2, 1970. For many, awareness of the pollution to our waterways and skies is mostly obscure, or has faded away over the past 20 years. In this section, we bring this issue to light, demonstrating the fouled waterways and polluted skies of Pittsburgh, and investigate how we are doing today -- where we are at....

Section 2 – **looking at Water Treatment** - describes the various sources of water, and the treatment types for each. A water treatment plant includes many different areas and processes, such as: Pumps to circulate the flow around the process, Screening or separating any debris from the inlet, Settling and clarification, Disinfecting, Solids or sludge removal from the settling basins. The main questions are the source of the water, and its purpose or end use. Is it for drinking, processing, or reuse?

Section 3 – **overview of Wastewater Treatment**, plus a look at disinfection and monitoring equipment for water – wastewater -- includes several process control steps and processes, in order to treat to acceptable limits, whether for reuse or for discharge into ponds and streams. How this is accomplished and performed will be illustrated in the processes included for the wastewater influent.

There are many steps in processing wastewater, which require various types of treatment; these will be illustrated to provide an overview of the process and control aspects of wastewater treatment.

Learning Outcomes:

By the end of this training course, you will have the ability to:

- Determine the daily routine of working at a treatment plant
- Explain Sources of Water and define the “water table”
- List the various treatment process types for water and wastewater treatment

CEU ID #			CEU Hours
	Course Title	Instructor	
343	Operations – overview for 2024	Legg	one



CEU Plan # 343 - Operations – overview for 2024

amount of course hours: **one**

343-01

Lesson Name	Time	Content Description	Learning Outcomes	Learning Styles	Assessment	Instructional Materials	Comments
Section 2 343-02	content: 14.42 Minutes quiz: 10 minutes accumulative: 25 minutes	looking at Water Treatment	• explain Sources of Water and define the “water table” • describe an Aquifer system • indicate some of the Sources of Groundwater Contamination • discuss the operations of a surface water treatment plan	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Reinforcement Techniques: utilize images and illustrations for double Reinforcement of Need-to-Know criteria	Computer Based Exam	Required view of streaming clip, listen to audio presentation via streaming – take quiz upon completion of course material section View table, Charts, and Photograph Images	Inform students of the required assignments in the top header of the content section. At the conclusion of the course section, instructions to proceed to the quiz will be indicated.
Section 3 Final Course Requirements 343-03	content: 14.76 Minutes quiz: 10 minutes accumulative: 25 Minutes	overview of Wastewater Treatment, plus a look at disinfection and monitoring equipment for water - wastewater	• describe flow measurement • explain the importance of barscreens • highlight the disinfection aspects to safe guard and clean our water • discuss water reuse	Streaming Based Online monitor of student's progress measured in elapsed time (in minutes) Video Clip illustrating content within this section	Computer Base - Final Exam Essay Question - listing objectives that they learned from the course and how they apply to their job and workplace Final Course Essay and Evaluation form	Required view of streaming clip, listen to audio presentation via streaming – take final quiz upon completion of course material section Instructions to complete studies and evaluation form	Inform students of the required assignments in the top header of the content section. Complete the essay and evaluation form, prior to course being complete.

Accumulative Time:

sec 1 =	25								
sec 2 =	25								
sec 3 =	25								

accumulative time total : 75 minutes = 1 hours = 0.1 CEU

**** standard beta allows one minute for each question and answer. The essay requirement listing three things that they have learned from the course with a 10-15 word description of each thing is a non-measured time element of the course; it is not included the beta testing.**

Assessment Analysis- Level 3 - CEU Plan Beta Testing will be performed during the fall of 2023-24. At the beginning of 2024, student feedback and comments will be reflected in the final beta testing results, along with accumulative average of student tracking and monitoring posted during the February - July 2024 test period. The Level 1 and Level 2 Beta Testing have been completed and comply with the ANSI / IACET 1-2018 Standard, along with the internal review by CEU Plan.

Student Feedback:

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