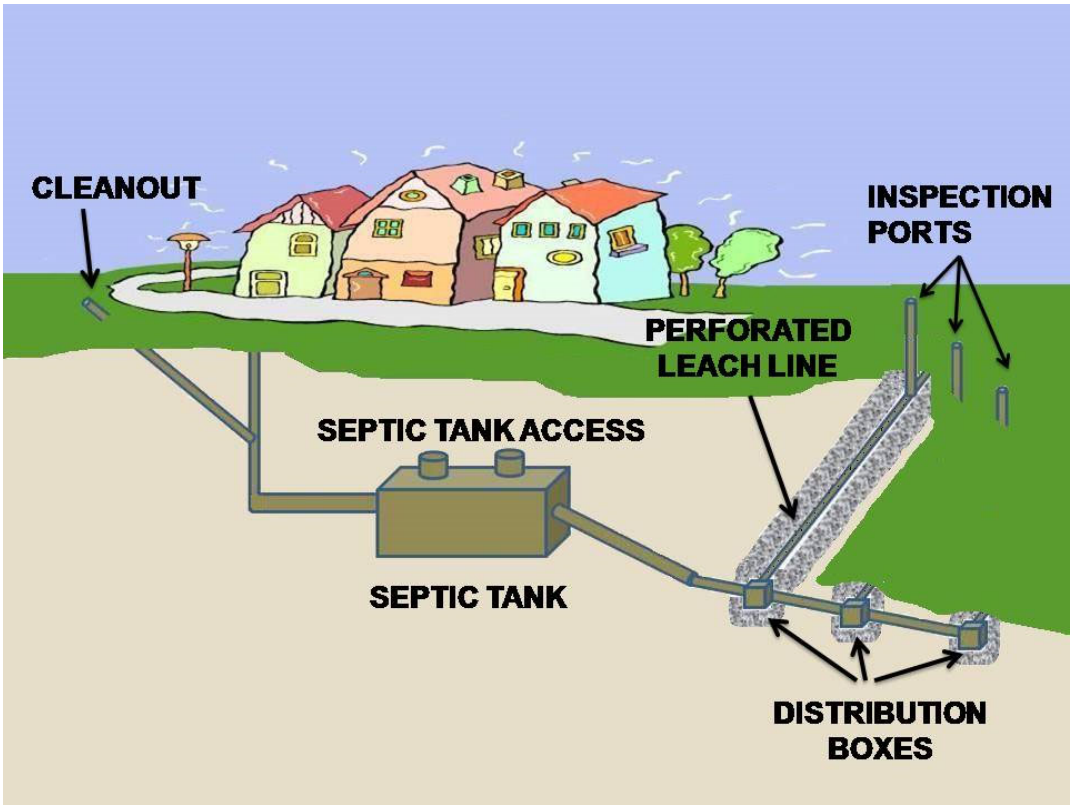
COURSE DESCRIPTION

ONSITE 101 CEU COURSE

This CEU course is designed for the continuing education, knowledge and enhancement of sewer/septic installers, onsite installers, maintenance and service providers. The target audience for this course is the person interested in working in a pumping, installation, collection systems, home sewage treatment systems or septic installation and/or wishing to maintain CEUs for certification license or to learn how to do the job safely and effectively, and/or to meet education needs for promotion. You will not need any other materials for this course.



General Information

This home study course will cover the sewage onsite systems from soil analysis to permitting process ensuring that the onsite septic system is sited and constructed so that human health and the environment are protected. The suitability of a proposed site for a septic system is largely determined by the type and depth of soil and the depth to the water table. This course will cover various onsite factors from the size of the property, how steep the site is, location of the system relative to streams, wells, cuts and fills, and whether sewer service is available.

This CEU course will also review and describe various wastewater onsite-sewer/septic collection, maintenance construction, design, cleaning and detailed safety related subjects, from wastewater treatment fundamentals to pumps and motors.

This course is general in nature and not state specific, but it will contain different wastewater collection methods, septic disposal, rules, confined space techniques, maintenance policies, electricity, pump operation, general safety information, and lift station information. Review of the dangers of trenching and excavation and related safety fundamentals connected to sewage system installation. This course will cover the basic requirements of OSHA's Competent Person 29 CFR 1926.650 Subpart F and other related federal safety rules.

This CEU course is primarily intended for Onsite Installers and Onsite Wastewater Operators but is good for conventional Wastewater Treatment, Collections and Pretreatment/ Industrial Waste Inspectors, depending upon your State's approval. This course is general in nature and not state specific but will contain different wastewater treatment methods, policies and ideas. You will not need any other materials for this course.

Course Focus
This distance based CEU course will cover the basics of a sewage onsite system from soil analysis to permitting process ensuring that the onsite septic system is sited and constructed so that human health and the environment are protected. This course will cover various onsite factors from the size of the property, how steep the site is, location of the system relative to streams, wells, cuts and fills, and whether sewer service is available including inspection, maintaining, or certifying or supervising maintenance of onsite systems including alternative septic/wastewater treatment technologies, including recirculating gravel filters, or sand filters.

This CEU course is designed for the continuing education, knowledge and enhancement of sewer/septic installers, onsite installers, maintenance and service providers. The target audience for this course is the person interested in working in a pumping, installation, collection systems, home sewage treatment systems or septic installation, a person who inspects, maintains, or certifies or supervises maintenance of onsite systems using alternative treatment technologies, including recirculating gravel filters, or sand filters. A person who must be certified as a maintenance provider *and* by the manufacturer of the system. Or anyone and/or wishing to maintain CEUs for certification license or to learn how to do the job safely and effectively, and/or to meet education needs for promotion. You will not need any other materials for this course.

Target Audience
The primary target audiences for this course are onsite septic installers and service providers. There are no prerequisites, and no other materials are needed for this course.

Course Statement of Need
All septic installer and service providers shall be able to describe various wastewater onsite-sewer/septic collection, maintenance construction, design, cleaning and detailed safety related subjects, from wastewater treatment fundamentals to pump and motor related concerns.

All septic installer and service providers shall be able to describe various different, septic operation and maintenance concerns, related septic installer rules, confined space techniques, related electricity, pump operation, general safety information, and lift station information.

All septic installer and service providers shall be able to describe various dangers of trenching and excavation and related safety fundamentals connected to sewage system installation. All septic installer and service providers shall be able to describe various requirements of OSHA's Competent Person 29 CFR 1926.650 Subpart F and other related federal safety rules.

Prerequisite

Basic math knowledge on at a high school level is recommended for successful completion of this course. The understanding of the mathematics of water calculations including hydraulics (area, flows, pressures, volumes, horsepower, velocities) and water/wastewater treatment (chlorination, detention time, chemical dosage) is an important skill for all onsite septic installers and service providers and is commonly used daily.

CEU Course Goals and Timed Outcomes Explained

1. Understand and define various onsite terminologies from septic, sewerage, maintenance, drainage, wastewater collection rules and regulations, Clean Water Act, and pumping, plumbing code regulations. Explore onsite sewage systems components and related regulations. This section will also cover suitability and operation of an onsite or septic system, water table, groundwater pollution, soils analysis, and related onsite sewage system factors. Examine various septage collection units and understand the biomat.
2. Understand and explore the purpose of various septic and wastewater collection systems and reason for non-convention or municipal wastewater treatment and disposal, including pumping, chemical treatment and disposal of waste at non-hazardous liquid disposal facilities.
3. Understand and define residential onsite/septic and drainage systems (leach fields) and processes, construction techniques, explore conventional sewer operation and maintenance procedures.
4. We'll cover the differences between various types of pumps and explain how to size and use pumps for onsite systems. Understand the operations and various components of onsite sewage system's and conventional wastewater treatment's pumps, risers and baffles, including basic electricity and horsepower. Understand detailed pump troubleshooting associated with basement homes. Wastewater pumps are an integral part of most onsite septic systems, and they come in all shapes and sizes.
5. Understand various septic and onsite collection construction safety procedures, from confined space to trenching and excavation. Understand excavation and trench safety techniques and related familiarization related to onsite installation and various provider safety procedures.
6. Explore various trouble/maintenance scenarios found in the sewer-septic system and understand possible corrective measures, cleaning and troubleshooting.
7. Understand and review various wastewater related math principles and formulas for sewer system disposal operators. Wastewater, plumbing related mathematical exercise that will explore wastewater pump, hydraulics and related mathematical skills.
8. Advanced septic and sewer construction techniques and confined space safety related practices, understanding and problem solving, assignment section.

Specific Training Information

Chapter 1 – ONSITE SEWAGE FACILITIES (OSSF) ONSITE SYSTEMS

Section Focus: You will learn about the Clean Water Act and the basics of the decentralized or onsite wastewater facility and its operational requirements. Advanced/difficult installations including high water tables, traffic rated installs and deep buries. At the end of this section, you the student will be able to describe the basics of a decentralized (onsite subsurface wastewater infiltration systems) wastewater facility. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: Onsite sewage treatment system installers/operators provide and maintain septic systems in compliance with all state and federal requirements and permits to ensure that untreated wastewater will not contaminate the environment or pollute waterways.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.

Advanced Systems Components- ONSITE & O&M & TECH
Advanced Systems- ONSITE & O&M & TECH
Aerobic Treatment Units- ONSITE & O&M & TECH
Basic Onsite Treatment Process- ONSITE & EN
Cluster System Applications- ONSITE & O&M & TECH
Commonly Found Septic Systems- ONSITE & EN
Conventional Septic System- ONSITE & O&M & TECH
Elevated Mound Systems- ONSITE & O&M & TECH
EPA Regulation- CRAO & O&M & TECH
Federal Septage Rules- ONSITE & EN & TECH
Media Filters- ONSITE & O&M & TECH
Onsite Process Options- ONSITE & EN
Pressure and Drip Systems Introduction- ONSITE & O&M & TECH
Pressure Distribution- ONSITE & EN & TECH
Pretreatment Components- ONSITE & O&M & TECH
Pumping Frequency Chart- ONSITE & EN & TECH
Residual Section- ONSITE & O&M & TECH
Septage Management- ONSITE & O&M & TECH
Septic System Basics- ONSITE & EN
Sewerage System Types - ONSITE & EN
Submerged Flow Wetlands- ONSITE & EN & TECH
SWIS Septic Tank Operation- ONSITE & O&M & TECH
Post Quiz

Chapter 2- ONSITE OPERATION AND MAINTENANCE SECTION

Section Focus: You will learn about the Clean Water Act and the basics of maintaining the decentralized or onsite wastewater facility and its operational requirements. At the end of this section, you the student will be able to describe the basics of decentralized wastewater facility maintenance and failures. There is a post quiz at the end of this section

to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: Onsite sewage treatment system installers/operators provide and maintain septic systems in compliance with all state and federal requirements and permits to ensure that untreated wastewater will not contaminate the environment or pollute waterways.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Aerobic Treatment Introduction- ONSITE & O&M & TECH
Clustered Treatment System Maintenance- ONSITE & O&M & TECH
Impacts of Effluent on Groundwater- ONSITE & EN & TECH
Improving OSSF Performance- ONSITE & O&M & TECH
Leach Field Inspection- ONSITE & EN & TECH
Management Considerations- ONSITE & EN & TECH
Operating Permits- ONSITE & O&M & TECH
Performance Based Standards- ONSITE & EN & TECH
Ponds and Lagoons- ONSITE & O&M & TECH
Regular Maintenance Introduction- ONSITE & O&M & TECH
Septic Failures- ONSITE & EN & TECH
Septic System Evaluation- ONSITE & O&M & TECH
Sludge and Scum Accumulation- ONSITE & O&M & TECH
Two Types of Septic Inspections- ONSITE & O&M & TECH
Summary
Post Quiz

Chapter 3 – SUBSURFACE WASTEWATER INFILTRATION CONSTRUCTION

Section Focus: You will learn about the Clean Water Act and the basics of the decentralized or onsite wastewater facility and its operational requirements. Advanced/difficult installations including high water tables, traffic rated installs and deep buries. A background on soil texture, structure, porosity, water table and other important features related to siting onsite septic systems. We will also cover topics such as permanent water tables and rapidly draining soils that require additional design considerations. At the end of this section, you the student will be able to describe the basics of the subsurface wastewater collection and infiltration system. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: Onsite sewage treatment system installers/operators install septic systems in compliance with all state and federal requirements and permits to ensure that untreated wastewater will not contaminate the environment or pollute waterways.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Bedding and Backfilling- ONSITE & O&M & TECH
Construction Phases- CRAO & EN & TECH
Dosed Flow Distribution- ONSITE & O&M & TECH
Dripline Pressure Networks- ONSITE & O&M & TECH

Gravel-less Wastewater Systems- ONSITE & O&M & TECH
Gravity Flow- ONSITE & O&M & TECH
Infiltration Surface Loading Limitations- CRAO & EN & TECH
Infiltration Surface- ONSITE & O&M & TECH
Inspector Qualifications - CRAO & EN & TECH
Installer Training- CRAO & EN & TECH
Layout of Drip Systems- ONSITE & O&M & TECH
Organic Loading Rates- CRAO & EN & TECH
Perc Terms Associated with Saturation- ONSITE & O&M & TECH
Pressure Manifold- ONSITE & O&M & TECH
Sampling Soils- CRAO & EN & TECH
Separation Distance from Limiting Conditions- ONSITE & O&M & TECH
Septic Tank Construction- ONSITE & O&M & TECH
Site Limitations- ONSITE & O&M & TECH
Site Preparation Practices- CRAO & EN & TECH
Site Protection. - CRAO & EN & TECH
Soil Absorption- ONSITE & O&M & TECH
Soil Investigation Section- CRAO & EN & TECH
Soil Texture- CRAO & EN & TECH
Subsurface Drainage- ONSITE & O&M & TECH
SWIS Media- ONSITE & O&M & TECH
System Design Standards- ONSITE & O&M & TECH
Vadose Zone- ONSITE & O&M & TECH
Wastewater Distribution- ONSITE & O&M & TECH
Post Quiz

Chapter 4 - WASTEWATER COLLECTION SYSTEM

Section Focus: You will learn the basics of the wastewater collection. At the end of this section, you the student will be able to describe the basics of the gravity collection system and its effect on onsite or septic systems. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: As an Onsite Operator, you will need knowledge of many different concerns of the collections system in order to properly identify problem. Master's level knowledge of the collection system is essential for all onsite operators. We'll cover the differences between various types of pumps and explain how to size and use pumps for onsite systems. Understand the operations and various components of onsite sewage system's and conventional wastewater treatment's pumps, risers and baffles, including basic electricity and horsepower. Understand detailed pump troubleshooting associated with basement homes. Wastewater pumps are an integral part of most onsite septic systems, and they come in all shapes and sizes.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
CCTV– CO & O&M
Flow Capacity– CO & O&M
Flow Monitoring– CO & O&M
Gravity Sanitary Sewer – CO & O&M
Low-Pressure– CO & O&M

Manholes– CO & O&M
Mapping– CO & O&M
Chapter Summary
Post Quiz

Chapter 5 - COLLECTION SYSTEM OPERATION AND MAINTENANCE

Section Focus: You will learn the basics of the operation and maintenance of the collection system. At the end of this section, you the student will be able to describe the basics of proper operation and maintenance of the wastewater collection system. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: As a pretreatment inspector, you will need knowledge of many different concerns of the collections and wastewater treatment systems in order to properly identify the pretreatment (pass-through or interference) problem. Master's level knowledge of the collection system is essential for all pretreatment inspectors.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Cleaning Techniques– CO & O&M
Manhole Inspection– CO & O&M
Sewer Cleaning Section– CO & O&M
Sewer Rehabilitation– CO & O&M
Sewer Technology– CO & O&M
Smoking Out Leaks– CO & O&M
Tree Roots– CO & O&M
Chapter Summary
Post Quiz

Chapter 6 - FATS, OILS AND GREASE

Section Focus: You will learn the basics of the Clean Water Act, the need for FOG fats, oils and grease regulation and enforcement. At the end of this section, you the student will be able to describe the need for fats, oils and grease regulation, enforcement and public education. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: The CWA made it unlawful to discharge any pollutant (FOG) from a point source into navigable waters, unless a permit was obtained. EPA's National Pollutant Discharge Elimination System (NPDES) permit program controls discharges. Food service establishments deal with large volumes of FOG on a daily basis. FOG can have a very negative impact if not handled properly. It can cause serious damage to the sewer system, your property and that of your neighbors, as well as, damage the environment and public health concerns. Cleanup of sewer overflows can be very costly and this expense translates to higher bills for sewer customers. By being aware of what FOG can do to your surroundings, it is easier to take that extra minute to do your part and prevent FOG from ending up in the sewer.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Best Management Practices (BMPs) - TECHNICAL.& CRAO
Controlling FOG Discharges- TECHNICAL.& CRAO
Grease Traps - CO & O&M
Interceptors– CO & O&M
pH Section- TECHNICAL.& CRAO
Ways to Recycle FOG. - TECHNICAL.& CRAO
Chapter Summary
Post Quiz

Chapter 7– COLLECTION RULES & REGULATIONS

Section Focus: You will learn the Clean Water Act and the basics of the wastewater collection system. At the end of this section, you the student will be able to describe the basics of the Capacity, Management, Operation and Maintenance program. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: Sanitary sewage overflows that reach waters of the U.S. are point source discharges. Like other point source discharges from municipal sanitary sewer systems, sanitary sewage overflows are prohibited unless authorized by a NPDES permit. Moreover, SSOs, including those that do not reach waters of the U.S., may be indicative of improper operation and maintenance of the sewer systems, and may violate NPDES permit conditions.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
CMOM Elements– CO & O&M
CMOM Summary – CO & O&M
Collection System Management – CO & O&M
Combined Sewer Overflows– CO & O&M
Hydrogen Sulfide Gas– SAFETY & CO & O&M
Leading Causes of SSO's – CO & O&M
Potential Performance Indicators– CO & O&M
Pretreatment Preface – CRAO & CO
Purposes of CMOM Programs– CO & O&M
Sanitary Sewer Overflow– CO & O&M
Post Quiz

Chapter 8 – PUMPS AND LIFT STATIONS

Section Focus: You will learn the Clean Water Act and the basics of the wastewater collection pumping or lift stations. At the end of this section, you the student will be able to describe the basics of the pumping station system. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: In many systems, a lift or pumping station is a major component of lifting wastewater to the onsite facility. Sewer pipes are generally gravity driven. Wastewater flows slowly downhill until it reaches a certain low point. Then, pump or "lift" stations push the wastewater back uphill to a high point where gravity can once again take over the process.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Complicated Types of Pump– CO & O&M & PE
Electric Motor Maintenance– CO & O&M & PE
Hydraulic Principle Section– CO & O&M & PE
Hydraulic Terms– CO & O&M & PE
Lift Station Inspection– CO & O&M & PE
Lift Station Introduction– CO & O&M & PE
Lift Station O&M– CO & O&M & PE
Motors– CO & O&M & PE
Pump Fundamentals– CO & O&M & PE
Pumps Chapter Highlights– CO & O&M & PE
Wastewater Pump Introduction– CO & O&M & PE
Pump Definitions
Post Quiz

Chapter 9 – HYDROGEN SULFIDE

Section Focus: You will learn the basics of hydrogen sulfide gas. At the end of this section, you the student will be able to understand and describe the dangers of hydrogen sulfide gas. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: Hydrogen sulfide (H_2S) is a colorless gas with a strong odor of rotten eggs. Exposure to hydrogen sulfide may cause irritation to the eyes and respiratory system. It can also cause apnea, coma, convulsions; dizziness, headache, weakness, irritability, insomnia; stomach upset, and if liquid: frostbite. Workers may be harmed from exposure to hydrogen sulfide. The level of exposure depends upon the dose, duration, and work being done.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Hydrogen Sulfite Gas– CO & O&M & SAFETY
Chapter Highlights– CO & O&M & SAFETY

Chapter 10– CONFINED SPACE SAFETY SECTION

Section Focus: You will learn the basics of proper confined space entry. At the end of this section, you the student will be able to understand and describe confined space and permit required confined spaces. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: The Confined Space Entry Program is provided to protect authorized employees that will enter confined spaces and may be exposed to hazardous atmospheres, engulfment in materials, conditions which may trap or asphyxiate due to converging or sloping walls, or contains any other safety or health hazards.
Reference: OSHA-Permit-Required Confined Spaces (**29 CFR 1910.146**).

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Charge of Entry– CO & O&M & SAFETY

Confined Space Duties– CO & O&M & SAFETY
Confined Space Training– CO & O&M & SAFETY
Entry Permit Program– CO & O&M & SAFETY
General Rules - – CO & O&M & SAFETY
Hazards – CO & O&M & SAFETY
Permit Required Confined Space– CO & O&M & SAFETY
Chapter Summary
Post Quiz

Chapter 11 – EXCAVATION SECTION

Section Focus: You will learn the basics of proper excavation and trenching safety. At the end of this section, you the student will be able to understand and describe commonly found trench safety procedures and devices. There is a post quiz at the end of this section to review your comprehension and a final examination in the Assignment for your contact hours.

Scope/Background: The OSHA SUBPART P - 29 CFR 1926.650-652 requires the employer to set up an excavation safety program to protect employees from cave-in and other excavation dangers.

Need-to-Know Onsite, O&M and Service Provider Criteria covered in this section along with continuing education specific training topic classification.
Competent Person– CO & O&M & SAFETY
Excavation Protection Systems– CO & O&M & SAFETY
Ladder Safety– CO & O&M & SAFETY
LOTO Safety– CO & O&M & SAFETY
One Call Center– CO & O&M & SAFETY
Soil Classification– CO & O&M & SAFETY
Trenching Guidelines– CO & O&M & SAFETY
Post Quiz

Need –to-Know Criteria Topic Legend

This CEU course covers several educational topics/functions/purposes of onsite and/or wastewater collection operations. The topics listed below are to assist in determining which educational area is covered in a specific topic area:

CO: Having to do with the wastewater collections system leading to the onsite facility or septic tank. Could be regular or emergency work. This is O&M training for Onsite, O&M, Service providers - operators.

CRAO: The regulatory and compliance component. May be a requirement of the city, county permitting, compliance, non-compliance, any part of the permitting or permit obtaining procedures. Having to do with water quality or pollutants. May be a requirement of your NPDES or discharge permit. This along with the EPA information is to satisfy the regulatory portion of your operator training.

ENGINEERING (EN): Having to do with scientific or engineering principles, laws or theories of onsite or sub-surface onsite wastewater facility or septic tanks or soil analysis or perk testing.

FLUID MECHANICS (FM): Having to do with hydraulic or fluid mechanics. A highly technical and specialized engineering field. This may be considered O&M training for many operators or credit for pump engineers or pump mechanics.

MOTOR: Having to do with the electrical-mechanical portion of moving water. This may be considered O&M training for many operators. This is O&M training for Onsite, O&M, Service providers - operators.

O&M: This area is for normal operation and/or maintenance of the onsite facility, plant and/or sewer collection system. O&M training for many operators.

ONSITE: Having to do with installing septic systems**.** This is O&M training for onsite installers and/or operators. This person is responsible for the proper construction or installation of onsite systems. A maintenance provider who inspects, maintains, or certifies maintenance of onsite systems using alternative treatment technologies, recirculating gravel filters, or sand filters must be certified as a maintenance provider *and* certified by the manufacturer of the system.

PUMP ENGINEERING (PE): The technical science of pumping and pump performance principles. May be a law or theory or calculation related to pumping. Information that a pump engineer or Onsite, O&M, Service providers – operators may need.

SAFETY: This area is describing process safety procedures. Safety or general training for many operators.

TECHNICAL: The mechanical or physical treatment process/component. O&M training for many operators.

Accreditation Formula for Figuring CEU Credit
The results of beta-testing were used in conjunction with a formula to determine average student time for accreditation purposes for intended audiences. This formula may not work for unintended audiences.

1 page of text = 2 minutes of student time.
1 practice problem = 1 minute of student time.
1 quiz/exam question = 1 minute of student time.
400 post examination questions= 6.50 hours

Final Examination for Credit
Opportunity to pass the final comprehensive examination is limited to three attempts per course enrollment.

Upon Successful Completion of this Course, You Will Receive
- 1.8 Continuing Education Unit/ twenty training hours.
- A frameable certificate of competition.

Specific Course Goals and Timed Outcomes (Beta Testing) Short Summary
23 students were successfully tested and the average time necessary to complete each task was recorded stated in the above objectives and timed outcome section. In the above timed outcome section area, the tasks were measured using times spent on each specific objective goal and final assignment grading of 70% and higher. 35 students were originally given a task assignment survey in which to track their times on the above learning objectives (course content) and utilized a Scantron answer sheet to complete their final assignment. All students were given 30 days to complete this assignment and survey. Only 23 were successful and passed the final assignment with the highest passing score of 99 and the lowest score of 72 percent with 13 students failing by not completing the assignment or scoring less than 70 percent.

Beta Testing Group Statistics
35 students at the Powledge Unit were selected for this assignment. None of the test group received credit for their assignment. 5 students did not complete the reading assignment for one reason or another, 8 other failed the assignment. The average time to complete the assignment was 18 hours was based upon the outcome of 35 successful students. All students utilized a Scantron style answer key to complete their assignment. Average high score was 94, with the average passing score of 84 percent. Average completion time for both successful and unsuccessful students was 23.8 hours. The majority of students found this assignment difficult to complete without assistance. Rusty Randall Proctor, July 2005 Powledge Unit

Beta Course Training/Assessment Short Summary
1. The difficulty of your course.
   Very Easy 0 1 2 3 <u>4</u> 5 Very Difficult

2. Please rate the difficulty of the testing process.
   Very Easy 0 1 <u>2</u> 3 4 5 Very Difficult

3. Please rate the subject matter on the exam to your actual field or work.
   Very Similar 0 1 2 <u>3</u> 4 5 Very Different

Task Analysis and Training Needs Assessment Process Information Gathering
Task Analysis and Training Needs Assessments have been conducted to determine or set Needs-To-Know for the basis of TLC's continuing education courses. The following is a listing of some of those who have conducted extensive valid studies from which TLC has based the continuing education program upon: the Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), the Texas Commission of Environmental Quality (TCEQ), Pennsylvania Depart of Environmental Protection (PDEP) and the Association of Boards of Certification (ABC).

TLC has primary used Training Provider Manual for the Pennsylvania Water and Wastewater System Operator Training Program for course goal setting and learning objectives for all three training formats; conventional classroom, distance paper based and web based training.

The titles or names of subjects (Learning Objectives) may be changed for readability purposes. Some of the terms used in this document may be part of a copyrighted adult learning assessment process and in these cases, we utilize generic terminology. The needs assessment/survey maintains our training and education materials criteria. Assessments and changes are performed based on changes in technology, evaluations of the students, regulatory changes and editorial corrections. Most of this information is considered intellectual property and may not be owned by TLC but by third –parties. All of TLC's information is proprietary.

ADDIE
TLC utilizes a five-phase instructional design model consisting of Analysis, Design, Development, Implementation, and Evaluation for our continuing education courses. Each course design step has an outcome that feeds into the next step in the sequence. The five phases of ADDIE are as follows:

ANALYSIS
During the Training Needs Assessment Process Information Gathering Analysis phase, the course designer(s)(see Subject Matter Experts and Contributing Editors) identifies the learning need, the goals and objectives, the student's needs, existing knowledge, Course Statement of Need**,** and any other relevant characteristics (State or Federal Need-to-Know) and to ensure that students are learning what is relevant for their job**.**

DESIGN
This is the systematic process of specifying learning objectives from the Training Needs with a focus on Bloom's Taxonomy. A detailed storyboard following the Needs Assessment/Survey and/or Course Statement of Need will determine the course content.

DEVELOPMENT
The actual creation (production) of the training content will begin based upon the Design phase using Bloom's Taxonomy. At this time, a decision is make to proceed or table the course.

IMPLEMENTATION
During implementation, the Alpha testing plan is put into action and a procedure for course and/or assessment revision is implemented. These course materials and assessments are delivered or distributed to the student group. After delivery, the effectiveness of the

training materials is evaluated in Beta testing phase. All of our courses have extensive Alpha and Beta testing to ensure job relevancy, correct information and course learning objectives are met.

EVALUATION
This phase consists of (1) formative and (2) summative evaluation from Alpha and Beta testing. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for criterion-related referenced items and providing opportunities for feedback from the students and proctor.

Ongoing Course Evaluation: Administrative and instructional staff will collect all student concerns (verbal, written and surveys) and distribute these to TLC Administrative personnel for evaluation and course corrections. Course and/or Assessment revisions are made as necessary.

Precept-Based (Micro-Learning) Training Course
TLC's training courses are based upon a form of induction training, made of topical and technical precepts that are discovered in the Needs Assessment/Survey and/or Training Needs Assessment Process Information Gathering. The training topics or learning objectives are made up of "micro-content" or "precepts"– or small chunks of information that can be easily digested. These bite-size pieces of technical information are considered to be one of the most effective ways of teaching students new or important information (regulatory or technical) because it helps the mind retain knowledge easier. Micro-learning or precept-based training doesn't rely on the student to process a large amount of information before breaking it down. Our method includes short modules with clearly defined learning goals for each section. This method allows a student to hone in on a particular skill, then given the opportunity to exhibit their knowledge in the final assessment (assignment).

Course Training/Assessment Needs Methodology
Technical Learning College identified training/assessment needs by placing identifying them in two categories; internal and external.

Internal Methods include:
- ✓ Observation
- ✓ Interviews
- ✓ Instruments: Perception instruments and Knowledge based assessments
- ✓ Student records and reports
- ✓ Group problem analysis (Classroom or Seminars)
- ✓ Performance or Survey appraisals

External Methods include:
- ✓ Outside consultants (Completion)
- ✓ Government Certification Reviews (Training Needs)
- ✓ Records and reports from other agencies

The needs assessment/survey maintains our training and education materials criteria. Assessments and course material changes are performed based on changes in technology, evaluations of the participants and regulatory changes. Materials are assessed yearly or as needed to insure course integrity.

Course Author
Melissa Durbin
This course was co-authored by Melissa Durbin; she has over 25 years of wastewater treatment teaching experience as a college instructor. Melissa has written the several nationally accepted wastewater treatment manuals since 2001. This course has been accepted in most States for continuing education credit. Melissa has taught approximately 20,000 students about water/wastewater treatment, disinfection and related classes. She will be available to answer questions relating this course.

Extensive Academic Research
Technical Learning College's (TLC's) continuing education course material development was based upon several factors; field experience working in the water quality field, extensive academic research (teaching in the community college system), advice from subject matter experts (State officials and industry leaders), data analysis, task analysis and training needs assessment process information gathered from other states.

Both Melissa and Jeff Durbin are the two primary Instructors, Subject Mater Experts and Technical Writers have trained and/or certified more than ten thousand students. These two Instructors teach on a daily basis in a classroom setting throughout Arizona and on-line to students nationwide. See below for more information.

Primary Course Designers Melissa and Jeff Durbin
Melissa Durbin
This course was co-designed by Melissa Durbin; she has over 25 years of teaching water and wastewater treatment experience as a college instructor. Melissa has written the several nationally accepted water and wastewater treatment manuals. Melissa has taught approximately 20,000 students about water and wastewater treatment and related classes. She will be available to answer questions relating this course.

Jeff Durbin
This course was co-designed by Jeff Durbin, over 10 years of water and wastewater treatment experience as a backflow inspector for the City of Phoenix and 20 years of water and wastewater treatment experience. Jeff has taught approximately 10,000 students about water and wastewater treatment primarily in water distribution, and pollution control (water quality) related classes. Jeff will also be able to answer any question pertaining to this course.

Advice from Subject Matter Experts
Both Melissa and Jeff Durbin are professional trainers and have been educated in current trends in professional education and continuing education needs.

Course Complier
Peter Easterberg, Detail-oriented technical writer/technical editor/desktop publisher/copy editor. 20 years' experience editing and writing feasibility and trade-off studies, test procedures, specifications, user manuals, company policies, HR forms, and ISO-9000 documents. Exceptional grammatical/written communication skills. "Go-to" person for Microsoft Word, Outlook, and general computer questions. Internet Webmaster Certificate (including HTML)

Contributing Editors

James L. Six Received a Bachelor of Science Degree in Civil Engineering from the University of Akron in June of 1976, Registered Professional Engineer in the State of Ohio, Number 45031 (Retired), Class IV Water Supply Operator issued by Ohio EPA, Number WS4-1012914-08, Class II Wastewater Collection System Operator issued by Ohio EPA, Number WC2-1012914-94

Joseph Camerata has a BS in Management with honors (magna cum laude). He retired as a Chemist in 2006 having worked in the field of chemical, environmental, and industrial hygiene sampling and analysis for 40 years. He has been a professional presenter at an EPA analytical conference at the Biosphere in Arizona and a presenter at an AWWA conference in Mesa, Arizona. He also taught safety classes at the Honeywell and City of Phoenix, and is a motivational/inspirational speaker nationally and internationally.

James Bevan, Water Quality Inspector S.M.E. Twenty years of experience in the environmental field dealing with all aspects of water regulations on the federal, state, and local levels. Experience in the water/wastewater industry includes operation of a wastewater facility, industrial pretreatment program compliance sampling, cross-connection control program management, storm water management, industrial and commercial facility inspections, writing inspection reports for industry, and technical reports per EPA permit requirements. Teacher and Proctor in Charge for Backflow Certification Testing at the ASETT Center in Tucson for the past 15 years and possess an Arizona Community College, Special Teaching Certificate in Environmental Studies. Extensive knowledge and experience in college course and assignment/assessment writing.

Dr. Pete Greer S.M.E., Retired biology instructor, chemistry and biological review.

Jack White, Environmental, Health, Safety expert, City of Phoenix. Art Credits

Ongoing Course Evaluation

Administrative and instructional staff will collect all student concerns (verbal, written and surveys) and distribute these to Jeff Durbin and Bubba Jenkins for evaluation and course corrections.

Course Procedures for Registration and Support

All of Technical Learning College's (TLC) distance and classroom training courses have complete registration and support services offered. Delivery of services will include: e-mail, web site, telephone, fax and mail support. TLC will attempt immediate and prompt service. When a student registers for a correspondence course, he/she is assigned a start date and an end date. It is the student's responsibility to note dates for assignments and keep up with the course work. If a student falls behind, he/she must contact TLC and request an end date extension in order to complete the course. It is the prerogative of TLC to decide whether to grant the request. All students will be tracked by their social security number or a unique number will be assigned to the student.

Instructions for Written Assignments

The Onsite 101 CEU Training course uses a multiple choice style answer key. You can write your answers in this manual or type out your own answer key. TLC would prefer that you fill out and fax or e-mail the final examinations to us, but it is not required.

TLC Contact Information

All instructors and administrative staff are obligated to respond within 1 day by email, snail mail or telephone providing proper guidance to successfully complete the assignment. Email and telephone inquiries are handled quickly, generally within 2 hours of the call. We encourage students to complete their work with less frustration and fewer delays by calling or e-mailing us for any concern. We attempt to provide direct interaction similar to conventional classroom training.

Student's Identity, Attendance, and Participation Verification

A proctoring report and/or computer-tracking program validates proper identity, attendance and participation. The student shall submit a driver's license for signature verification and track their time worked on the assignment. The student shall also sign an affidavit verifying they have not cheated and worked alone on the assignment. We follow up with telephone confirmation and/or quiz review assessment. All student attendance is tracked on TLC's student attendance database.

Teaching Techniques and Assessment Tools

Our training courses are based upon a form of induction training, made of topical and technical precepts. The training topics are made up of "micro-content" or "precepts"– or small chunks of information that can be easily digested. These bite-size pieces of technical information are considered to be one of the most effective ways of teaching people new information because it helps the mind retain knowledge easier. Micro-learning or precept-based training doesn't rely on the student to process a large amount of information before breaking it down. Our method includes short modules with clearly defined learning goals for each section with a post quiz and a final assessment (quiz). This method of pre-quiz allows a student to hone in on a particular skill, then given the opportunity to exhibit their knowledge in the final assessment.

Educational Learning Objective Topics

The CEU course covers several educational topics/functions/purposes/objectives. The topics listed are to assist in determining which educational objective or goal is covered for a specific topic area. This information is available in the detailed beta-testing information and may be found in the course's table of contents. The titles or names of subjects may be changed for readability purposes.

Security and Integrity
We expect every student to produce his/her original, independent work. Lesson sheets and final exams are not returned to the students, to discourage sharing of answers. If any fraud or deceit is discovered, the student will forfeit all fees, and the appropriate agency will be notified. Any student whose work indicates a violation of the Academic Misconduct Policy (cheating and/or plagiarism) can expect penalties as specified in the Student Handbook, which is available through Student Services; contact them at (928) 468-0665. Driver's license is required to confirm identity of student along with signature confirmation. We reserve the right to revoke any certificate at any time, if we discover any impropriety.

Disclaimer and Security Notice
The student shall understand that it their responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. The student shall understand and follow State laws and rules concerning distance learning courses and understand these rules change on a frequent basis and will not hold Technical Learning College responsible for any changes. The student shall understand that this type of study program deals with dangerous conditions and will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable for any errors or omissions or advice contained in this CEU education training course or for any violation or injury caused by this CEU education training course material. The student shall contact TLC if I need help or assistance and double-check to ensure my registration page and assignment has been received and graded. The student shall submit a driver's license for signature verification and track their time worked on the assignment. The student shall sign an affidavit verifying they have not cheated and worked alone on the assignment.

Required Texts
The Onsite 101 CEU Training course will not require any other materials. This course comes complete. ***No other materials are needed.***

Environmental Terms, Abbreviations, and Acronyms
TLC provides a glossary that defines in non-technical language, commonly used environmental terms appearing in publications and materials. It also explains abbreviations and acronyms used throughout the EPA and other agencies. You can find the glossary in the rear of the manual.

Feedback Mechanism (Examination Procedures)
Each student will receive a feedback or survey form as part of his or her study packet. The student will be able to find this form in the front of the assignment or lesson(assessment). The student can e-mail, snail mail or telephone TLC for any concern at any time.

Student Concerns
Most of student/training course related concerns are generally answered within 2 hours but not more than 24 hours. TLC has three support staff administrators with computers and telephones and have excellent communication and computer skills and able to respond and track all students and obtain or submit required forms and assignments. TLC has a dedicated computer student tracking system database that is backed-up on a daily bases and this information is secured and stored at a secure offsite location in case of fire or security problems. All student website information is tracked and documented for security measures.

Recordkeeping and Reporting Practices

TLC keeps all student records for a minimum of five years. It is the student's responsibility to give the completion certificate and/or paperwork to the appropriate government agencies. If necessary, we will electronically submit the required information to New York, Colorado, Texas, Indiana, Pennsylvania and any other required state for your certification renewals.

TLC Record Storage

TLC's training records include the following elements:

1. Individual course training (assessment) and registration page (Customer Order Record) is recorded in Excel format and the hard copies are scanned and stored in a computer database for 5 years and include the following:

a. the instructor(s) who taught each session on that date the of the training session or grading was offered (in comments section registration page) as well as which instructor was considered to be the lead instructor(s) and by the Director.

b. the name of the instructor(s) and facilitator(s) who proctored and/or graded the examination for each training session if applicable (in comments section registration page);

c. the attendance sign-in sheet(s) (registration page) for each training course or session;

d. all graded and dated validated examination answer (Assessment) sheets for each examination attempt including an explanation (written in comments and/or Excel list) for any retests as well as a narrative explaining any assistance provided to the attendee before the re-test; and

e. session evaluation(survey)forms (in comments section registration page and or Excel list).

Grading Criteria

TLC offers students the option of either pass/fail or assignment of a standard letter grade. If a standard letter grade is not requested, a pass/fail notice will be issued. Final course grades are based on the total number of possible points. The grading scale is administered equally to all students in the course. Do not expect to receive a grade higher than that merited by your total points. No point adjustments will be made for class participation or other subjective factors. For security purposes, please fax or e-mail a copy of your driver's license and always call us to confirm we've received your assignment and to confirm your identity.

Final Assignment

The final examination assignment is determined by the examination administrator or the instruction and there are generally three versions that are readily available. There are also three levels of the examination from average, (5 Answers) Difficult (5 +All of the above) and very difficult (Six answers and All of the above). The student is provided the average rated examination unless there is a condition or concern that requires a more difficult exanimation. Example, two or more students at the same address or any suspicion of cheating or potential fraud. We try to ensure the security and learning experience. Assignments/answer keys are only accessible to instructors and administrative staff that have a need to know clearance.

Failure
If the student fails the examination, they are provided with two more chances to successfully pass the exam with a score of 70% or better. The student may receive a different and randomly generated exam. Upon failure of an exam, the student can submit their concerns in writing or submit a survey form and has the option to receive instructor assistance that would be equivalent to conventional classroom assistance in discovering the areas that are deficient. The instructor has the option in describing the assistance method or procedure depending upon the student's deficiencies.

Grading Criteria
TLC will offer the student either pass/fail or a standard letter grading assignment.
A 900 – 1000 points
B 800 – 899 points
C 700 – 799 points
D 600 – 699 points
F <600 points

In order to successfully pass this course, you will need to have 70% on the final exam. The entire assignment is available on TLC's Website in a Word document format for your convenience.

Forfeiture of Certificate (Cheating)
If a student is found to have cheated on an examination, the penalty may include--but is not limited to--expulsion; foreclosure from future classes for a specified period; forfeiture of certificate for course/courses enrolled in at TLC; or all of the above in accordance with TLC's Student Manual. A letter notifying the student's sponsoring organization (State Agency) of the individual's misconduct will be sent by the appropriate official at TLC. No refund will be given for paid courses. An investigation of all other students that have taken the same assignment within 60-day period of the discovery will be re-examined for fraud or cheating. TLC reserves the right to revoke any published certificates and/or grades if cheating has been discovered for any reason and at any time. Students shall sign affidavit agreeing with all security measures. The student shall submit a driver's license for signature verification and track their time worked on the assignment. The student shall sign an affidavit verifying they have not cheated and worked alone on the assignment.

Note to students: Keep a copy of everything that you submit.
If your work is lost, you can submit your copy for grading. If you do not receive your certificate of completion or quiz results within two or three weeks after submitting it, please contact us immediately. We expect every student to produce his/her original and independent work.

Any student whose work indicates a violation of the Academic Misconduct Policy (cheating, plagiarism) can expect penalties as specified in the Student Handbook, which is available through Student Services; contact them at (928) 468-0665. A student who registers for a distance learning course is assigned a "start date" and an "end date." It is the student's responsibility to note due dates for assignments and to keep up with the course work. If a student falls behind, she/he must contact the instructor and request an extension of her/his *end date* in order to complete the course. It is the prerogative of the instructor to decide whether or not to grant the request.

Your assignments are due on time. Any assignment or mailed-in examination that is one to five days late will be marked down one letter grade. Any assignment or mailed-in examination that is turned in *later* than five days will not be accepted and will be recorded in my grade book as "non-participating" and you can be withdrawn from class. (See final grade options.)

Proctoring Instructions
Students enrolled in Technical Learning College's CEU courses that require proctored testing and **who do not live in the physical service area** of the Technical Learning College Test Center must nominate and gain prior approval of a proctor who will monitor course tests. A new proctor nomination form is required for each term and for each class.

PROCTORS, *If Necessary…*
A proctor is an individual who agrees to receive and administer a student's test(s) from Technical Learning College at the proctor's business email address. The test(s) will be ethically and professionally administered in a suitable testing environment (e.g., college/library or professional office). The proctor will return the test(s) to the Technical Learning College Test Center via fax immediately after administration, and the proctor will mail the exam within one (1) work day of administration to the Technical Learning College Test Center.

Proctors certify in writing to the Technical Learning College Test Center that the student completed the test according to all of the specific directions provided in the proctor guidelines letter. As the Proctor Nomination Form indicates, the student will identify the specific test(s) the proctor will monitor.

Any proctor the student nominates must be acting in the official capacity in one of the following positions:

- **College or University Personnel:** Dean, Department Chair, Student Records, Professional Staff Member of an adult/continuing education office or counseling center, Librarian, Professor, or any official testing center personnel if the tests are administered in the center.
- **Armed Forces Education Office Personnel**
- **Public or Private School Personnel:** Superintendent, Principal, Guidance Counselor, or Librarian.
- **Other:** Civil Service Examiner, Librarian for City/County, HR Professional, or Education/Training Coordinator.

The following persons do not qualify as proctors:

- **Co-workers, someone who reports to you or your immediate supervisor**
- **Friends**
- **Neighbors**
- **Relatives**

Nominating a Proctor
Students are responsible for identifying, nominating, and making all of the arrangements for the proctoring of their course tests, including the payment of any fees for services and the return of test materials to Technical Learning College Test Center (cost of FAX or postage). The proctor must be able to receive the student's test(s) via email as

attachments. The Technical Learning College Test Center does not accept Yahoo, AOL, G-mail, Hotmail, or etc. email addresses.

If the student is unable to find a suitable proctor, they must contact the Technical Learning College Test Center for assistance immediately via email.

Proctor Nomination Form
Students will use the Proctor Nomination Form for nomination and approval of a proctor. The student will complete the top part of the form for each course s/he is taking, even if the same proctor is used for all tests. The student must click on the submit button for the data to be electronically transmitted to the Technical Learning College Test Center.

Disclaimer Notice
It is ultimately the student's responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. The student shall understand State laws and rules change on a frequent basis and believe this course is currently accepted in their State for CEU or contact hour credit, if it is not, the student shall will not hold Technical Learning College responsible. The student shall also understand that this type of study program deals with dangerous conditions and that the student shall will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable for any errors or omissions or advice contained in this CEU education training course or for any violation or injury caused by this CEU education training course material. The student shall will call or contact TLC if help or assistance is needed and double-check to ensure the registration page and assignment has been received and graded.

Affidavit of Exam Completion
The student shall affirm that they alone completed the entire text of the course. The student shall affirm that they completed the exam without assistance from any outside source. The student shall understand that it is their sole responsibility to file or maintain their certificate of completion as required by the state.

Refund Policy
We will beat any other training competitor's price for the same CEU material or classroom training. Student satisfaction is guaranteed. We will refund course fees if the course is not accepted for credit by the State. Otherwise, any other problem will be given an exchange credit towards an acceptable or approved course for the State. Once we are notified of the refund or exchange, we will generally issue a refund in 30 days of the problem and exchange within the same day.

Continuing Education Units
You will have 90 days from receipt of this manual to complete it in order to receive your Continuing Education Units (**CEUs**) or Professional Development Hours (**PDHs**). A score of 70% or better is necessary to pass this course. If you should need any assistance, please visit our Assistance Page on the website. Please e-mail all concerns and the final test to info@tlch2o.com.

Mission Statement
Our only product is educational service. Our goal is to provide you with the best possible education service possible. TLC will attempt to make your learning experience an enjoyable opportunity.

ADA Compliance
TLC will make reasonable accommodations for persons with documented disabilities. Students should notify TLC and their instructors of any special needs.

Course content may vary from this outline to meet the needs of this particular group.

Prerequisites: None

Continuing Education Units
You will have 90 days from receipt of this manual to complete it in order to receive your Continuing Education Units (**CEUs**) or Professional Development Hours (**PDHs**). A score of 70% or better is necessary to pass this course. If you should need any assistance, please visit our Assistance Page on the website. Please e-mail all concerns and the final test to info@tlch2o.com.

Educational Mission
The educational mission of TLC is:

To provide TLC students with comprehensive and ongoing training in the theory and skills needed for the environmental education field,

To provide TLC students with opportunities to apply and understand the theory and skills needed for operator certification,

To provide opportunities for TLC students to learn and practice environmental educational skills with members of the community for the purpose of sharing diverse perspectives and experience,

To provide a forum in which students can exchange experiences and ideas related to environmental education,

To provide a forum for the collection and dissemination of current information related to environmental education, and to maintain an environment that nurtures academic and personal growth.

Course Objective: To provide twenty hours of continuing education training in effective and efficient sewerage and waste disposal collection methods, onsite sewage installation practices, onsite sewage regulations, sewage drainage and pumping, related onsite recordkeeping requirements, sewer and septic cleaning, groundwater protection rules, and generally accepted onsite/wastewater treatment/collection related safety practices and regulations.

The student is required to submit the following information for assignment grading…

1. 70 PERCENT ON FINAL ASSESSMENT
2. DRIVER'S LICENSE
3. SCHEDULE OF TIME WORKED ON ASSIGNMENT
4. AFFIDAVIT OF EXAM COMPLETION
5. PROCTOR CERTIFICATION
6. TELEPHONE CONFIRMATION

CUSTOMER SERVICE RESPONSE CARD

NAME: _____

E-MAIL_____PHONE_____

PLEASE COMPLETE THIS FORM BY CIRCLING THE NUMBER OF THE APPROPRIATE ANSWER IN THE AREA BELOW.

1. Please rate the difficulty of your course.
   Very Easy 0 1 2 3 4 5 Very Difficult

2. Please rate the difficulty of the testing process.
   Very Easy 0 1 2 3 4 5 Very Difficult

3. Please rate the subject matter on the exam to your actual field or work.
   Very Similar 0 1 2 3 4 5 Very Different

4. How did you hear about this Course? _____

5. What would you do to improve the Course?

_____

How about the price of the course?

Poor_____ Fair ____ Average ____ Good____ Great_____

How was your customer service?

Poor___ Fair ____ Average ____ Good _____ Great_____

Any other concerns or comments.
