CEU COURSE DESCRIPTION – 20 HOURS

GROUNDWATER PRODUCTION CEU TRAINING COURSE

This CEU training course is a detailed explanation of water distribution, water treatment methods and related water fundamentals, groundwater mining along with detailed understanding pumps and motors. The explanation of groundwater production includes many water treatment methods, like chlorination, water sampling, understanding EPA rules and the detailed understanding pumps and motors. This course also covers in detail other disinfection methods, O_3 and disinfection alternatives, byproduct fundamentals. This course will also cover general water quality issues like: tastes and odor problems and MCL/EPA rules and a basic understanding of how the rules were created and implemented will be covered. This course will also cover advanced groundwater production and protection with problem solving solutions.

Groundwater production operators and related personnel are regularly assigned to collect bac-t samples and chlorine/pH samples so that operators can learn the condition or about the water quality of the water entering the system. Many distribution operators are required to perform water bacteriological samples on new water production wells, POEs, water mains and after routine water maintenance issues. As with a conventional water treatment plant, all distribution and groundwater production operators need to collect water samples as daily routine procedures.

Water Distribution CEU Course Goals
Topic 1- Groundwater Production Section
Topic 2- Pump, Motors and Hydraulic Section
Topic 3- Water Quality Section
Topic 4- Chlorine Section
Topic 5- Backflow Section
Topic 6- Water Distribution Section
Topic 7- Excavation Safety Program Section

Specific Learning Objectives

Topic 1- Groundwater Production System Section

Section Focus: You will learn the basics of the groundwater production system. At the end of this section, you the student will be able to understand and describe how groundwater is pumped and delivered to the customer. 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: EPA issued the Ground Water Rule (GWR) to improve drinking water quality and provide protection from disease-causing microorganisms. Water systems that have ground water sources may be susceptible to fecal contamination. In many cases, fecal contamination can contain disease causing pathogens. The purpose of the Ground Water Rule (GWR) is to reduce disease incidence associated with harmful microorganisms in drinking water.

Other EPA drinking water regulations pertain to groundwater systems include:

- Stage 1 and 2 Disinfectants and Disinfection Byproducts Rules (DBPR) (monitoring for DBPs in the distribution system)
- Ground Water Rule (sanitary surveys)
- Revised Total Coliform Rule (monitoring for bacterial contamination in distribution systems)

Groundwater Production Section
Groundwater Introduction - O&M
Aquifer Introduction - O&M and TECH
Cone of Depression - O&M and TECH
Groundwater Explained -O&M and TECH
Appendix 1 –WQ
Well Reports - O&M and TECH
Permeability of Aquifer - O&M and TECH
Well Tests- O&M and TECH
Specialized Well Construction- O&M and TECH
Well Development Section- O&M and TECH
Well Backwashing- O&M and TECH
Selecting a Pumping Rate- O&M and TECH
Post Quiz

Topic 2 - Pumps and Motors Section
Section Focus: You will learn the basics of hydraulics, with a study into various pumps and motors. At the end of this section, you the student will be able to understand and describe water pumps and motors and the associated hydraulic principles that are found in water treatment production. 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 main purpose of this section is to provide understanding of various water lifting procedures, basic pump fundamentals, hydraulic principles, theory, maintenance, related electrical and motor principles.
Pump, Motors and Hydraulic Section
Hydraulic Terms –O&M -TECH
Hydraulic Principles –O&M -TECH
Atmospheric Pressure –O&M -TECH
Pressure –O&M -TECH
General Pumping Fundamentals –O&M -TECH
Pump Definitions –O&M -TECH
Pump Categories–O&M -TECH
Understanding the Pump–O&M -TECH
Types of Pumps –O&M -TECH
Submersible Pump –O&M -TECH
Vertical Turbine Section –O&M -TECH
Centrifugal Pump Section –O&M -TECH
NPSH–O&M -TECH
Pump Performance –O&M -TECH
Motors Section –O&M -TECH
Motor Controls –O&M -TECH
Coupling Section –O&M -TECH
Mechanical Seals –O&M -TECH
Maintenance–O&M -TECH
Troubleshooting Pumps–O&M -TECH
Post Quiz

Topic 3- Water Quality Section Introduction

Section Focus: You will learn the basics of the EPA's Safe Water Drinking Act and the reasons why we need to ensure the water means federal standards. At the end of this section, you the student will be able to understand and describe EPA's Primary and Secondary standards. 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: EPA identifies contaminants to regulate in drinking water to protect public health. The Agency sets regulatory limits for the amounts of certain contaminants in water provided by public water systems. These contaminant standards are required by the Safe Drinking Water Act (SDWA). Drinking water standards may apply differently based on type and size of public water systems.

Water Quality Section

SDWA Acronyms
Water Introduction – WQ
Hard Water -CRAO and WQ
Hard Water Expression –TECH & WQ
Types of Water Hardness –TECH & WQ
Safe Drinking Water Act – CRAO
Source Water Protection – CRAO
MCL Introduction – CRAO
Inorganic Contaminants – CRAO
Arsenic – CRAO
Sampling Plan Introduction – CRAO
Disinfection Rules Stages 1 and 2– CRAO
Primary Drinking Water Regulations – CRAO
Secondary Drinking Water Regulations – CRAO
Chemical Monitoring – CRAO
QA/QC Measures – CRAO
Drinking Water Analysis Chart – CRAO
Post Quiz

Topic 4- Chlorination Section

Section Focus: You will learn the basics of water disinfection with an emphasis on Chlorine. At the end of this section, you the student will be able to understand and describe chlorination. 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: Traditionally, the use of chlorine gas was the most common method of water disinfection. Chlorine gas itself is relatively inexpensive but is a highly toxic chemical that must be transported and handled with extreme caution. It is stored under pressure in large tanks and is released into the water as a gas. Sodium hypochlorite is a diluted liquid form of chlorine that is also commonly used, primarily at well sites.

Chlorine Section

Gas Introduction - O&M -DISN
Chemistry of Chlorination- O&M -DISN
Using DPD - O&M -DISN
DDBPs- O&M –DISN-CRAO
Risks and Benefits of Chlorine - O&M –DISN-CRAO- SAFETY
Chlorination Equipment - O&M –DISN- SAFETY
Chlorine Leak Detection - O&M –DISN- SAFETY
Chlorinator Parts- O&M –DISN- SAFETY
Disinfectant Summary- O&M –DISN- SAFETY

ternative Disinfectants - O&M –DISN- SAFETY
Ozone - O&M –DISN- SAFETY
Ultraviolet Radiation- O&M –DISN- SAFETY
Post Quiz

Topic 5–Cross-Connection-Backflow Prevention Section
Section Focus: You will learn the basics of cross-connection protection and backflow prevention. At the end of this section, you the student will be able to understand and describe cross-connection dangers and backflow prevention methods. 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 Environmental Protection Agency (EPA) holds local water providers responsible for maintaining a certain amount of purity in potable water systems. Many states and/or local municipalities require annual testing of backflow prevention assemblies. In most cases, the law requires a double check (DC), reduced pressure principle device (RP) device, or an air gap when backflow prevention is mandated.
Backflow Sub-Section
Backflow Introduction – CRAO
Cross-Connection Terms–O&M -TECH
Backsiphonage – CRAO
Backpressure – CRAO
Backflow Responsibility – CRAO
Methods and Assemblies–O&M -TECH
Pressure Vacuum Breaker – CRAO
Post Quiz

Topic 6- Water Distribution Operation & Maintenance Section
Section Focus: You will learn the basics of the water distribution system including operations and maintenance concerns. At the end of this section, you the student will be able to understand and describe how treated water is delivered to the customer through distribution piping and valves. 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 purpose of distribution system is to deliver potable water to consumer with appropriate quality, quantity and pressure. Distribution system is used to describe collectively the facilities/equipment used to supply water from its source to the point of usage.
Water Distribution Section
Distribution Design –O&M -TECH
System Layouts–O&M -TECH
Friction Loss–O&M -TECH
Distribution Valve Section–O&M -TECH
Common Rotary Valves –O&M -TECH
Butterfly –O&M -TECH
Water Meter Section–O&M -TECH
Service Connections –O&M -TECH
Types of Pipes –O&M -TECH
Joints and Fittings –O&M -TECH
Water Main Installation –O&M -TECH
Troubleshooting Distribution–O&M -TECH
Water Use–O&M -TECH
Water Storage –O&M -TECH

Hydropneumatic Tanks–O&M -TECH
Post Quiz

Topic 6 –Excavation Safety Section
Section Focus: You will learn the basics of a distribution safety program. At the end of this section, you the student will be able to understand and describe confined space, excavation and related construction safety rules. 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: All distribution operators will at some time will enter a confined space or inside a trench that is 5 feet deep or greater. Many distribution operators have chosen poorly in that they will not implement many required safety procedures in lieu of time or money, or work alone. One of the deadliest distribution operator duties will revolve around a trench failure, or a dangerous confined space entry.
Safety Program Section
Confined Space Program Requirements - SAFETY
Confined Space Program Purpose - SAFETY
Confined Space Hazards - SAFETY
Tanks and Sumps- SAFETY
Unusual Conditions- SAFETY
Permit Required Confined Space- SAFETY
Corrosive Atmospheres- SAFETY
Trench Safety Section- SAFETY
Excavation Facts- SAFETY
Competent Person- SAFETY
Excavation Protection Systems- SAFETY
Trench Safety Guidelines- SAFETY
Hazards- SAFETY
Excavation Safety Plans- SAFETY
Soil Classifications- SAFETY
Sloping- SAFETY
Inspections- SAFETY
Checklist- SAFETY
One Call Center- SAFETY
Natural Gas Dangers- SAFETY
Safety Glossary
References
Post Quiz

Topic Legend

This CEU course covers several educational topics/functions/purposes/objectives of the water distribution system including groundwater production, construction safety, water main and valve installation and repair, bacteriological monitoring and regulatory compliance. Educational topic (objectives assessment) categories were determined by beta-testing.

The topic categories listed below are to assist in determining which educational objective or goal to be covered in a specific topic area:

CRAO: The regulatory and compliance component of the distribution system, may relate to Water Quality or Sampling. May be a requirement of the SDWA act or State Regulations, i.e. compliance, non-compliance, process control related sampling or other drinking water related requirement. This EPA information is to satisfy the regulatory portion of your operator training. Part of O&M or laboratory training requirement for many operators.

DISINFECTION (DISN): This area covers distribution and/or well production related disinfection procedures. Part of O&M training for many operators. May include alternative disinfection procedures, i.e. Ozone and Ultraviolet treatment.

M/O: The biological component. The microorganisms that are specifically found in drinking water. This section may be part of required sampling, i.e. Total Coliform Rule or other biological related sampling. Part of O&M or laboratory training requirement for many operators.

O&M: This area is for normal operation and/or maintenance of the distribution system. Part of O&M training requirement for many operators.

SAFETY: This area is describing construction safety procedures. Part of O&M training requirement for many operators.

TECHNICAL (TECH): The engineering or administrative, mechanical or physical treatment process/component. The applications, engineering, history or theory that is critical to the distribution operation. This may be considered O&M training for many operators. May include advanced groundwater treatment methods or Arsenic removal.

WQ: Having to do with water quality or pollutants, i.e., hard water to primary water standards. May be a requirement of the SDWA and/or water chemistry, or quality concerns. This along with the EPA information is to satisfy the regulatory portion of your operator training.

Specific Course Goals and Timed Outcomes (Beta Testing) ***Short Summary***
Ten students were tested and the average time necessary to complete each task was recorded as 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. Fifteen students were given a task assignment survey in which to track their times on the above learning objectives (course content) and utilized a true/false, and a multiple choice style answer sheet to complete their final assignment. All students were given 30 days to complete this assignment and survey. Jim Bevan and Rusty Randall Proctors, August 2001

Beta Testing Group Statistics
Fifteen students were selected for this assignment. All the students held water distribution and/or water treatment operator certification positions. Three students held a professional engineering registration and quickly and efficiently finished the assignment. None of the test group received credit for their assignment. The average completion time of 20 hours was based upon the outcome of ten students. Five students did not complete or failed the course. The average educational age of this group was the 10/11th grade levels.

Final Conclusion
The average time for the Groundwater Production course is 20 hours with an average score of 81 percent.

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 word practice problem = 1 minute of student time.
1 word quiz/exam question = 1 minute of student time.

**CEU was awarded based on guidelines established by the International Association of Continuing Education and Training (IACET).

Course Page Count Total
1 page of text = 2 minutes of student time.
1 exam question = 1 minute of student time

575 pages times 2 equals 1140 divided by 60 minutes =19 hours
200 questions equals 3.30 hours
We are asking for 20 hours of credit.

Timed Averages
Student have reported the following time burden for successful completion of this distance learning course to be estimated to average of 15 hours per response per completed assignment or final examination. The timed burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing of the final assignment and passing the assignment with a score of 70% or better.

Beta Assessment Survey Results

1. 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

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.

Melissa Durbin, Author and Dean of Instruction.

30 years' experience in groundwater training along with 18 years of college instruction. Call me or any of the other Instructors for course assistance. I welcome your input and comments and hope you enjoy this course.

Course Authors Melissa and Jeff Durbin

Melissa Durbin

This course was co-authored by Melissa Durbin; she has over 20 years of teaching water distribution experience as a college instructor. Melissa has written the several nationally accepted continuing education manuals since 2001. This course has been accepted in most States for continuing education credit. Melissa has taught approximately 10,000 students about water distribution and related classes. She will be available to answer questions relating this course.

Jeff Durbin

This course was co-authored by Jeff Durbin, over 10 years of backflow prevention experience as a backflow inspector for the City of Phoenix and 20 years of water distribution experience. Jeff has taught approximately 10,000 students about backflow primarily in water distribution, plumbing and backflow principle related classes. Jeff will also be able to answer any question pertaining to 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.

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 I possess an Arizona Community College, Special Teaching Certificate in Environmental Studies. Extensive knowledge and experience in college course and assignment/assessment writing.

Course Procedures for Registration and Support

All of Technical Learning College's correspondence 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 distance or 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 an unique number assigned to the student.

Instructions for Written Assignments

The Groundwater Production CEU Training course uses a multiple-choice answer key. Students may e-mail or fax the completed answer key and registration forms to TLC. You must pass the final assignment with a score of 70% or better.

Final Examination for Credit

Opportunity to pass the final comprehensive examination is limited to three attempts per course enrollment. You must pass the final assignment with a score of 70% or better.

Prerequisites None

Security and Integrity

All students are required to do their own work. All lesson sheets and final exams are not returned to the student to discourage sharing of answers. Any fraud or deceit and the student will forfeit all fees and the appropriate agency will be notified. TLC will offer the student either pass/fail or a standard letter grading assignment. If TLC is not notified, you will only receive a pass/fail notice. 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. 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.

Student 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 of compliance. The general course description of topics may be different from the detailed description. These differences are cosmetic only. The topics listed are to assist in determining which educational objective or goal that is covered for a specific educational topic area. The general information is available in the detailed beta-testing information and may be found in the course's table of contents. The detailed testing information is not available in this document and is proprietary information. See page 6 of this document.

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 a particular group.

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 other results within two to three weeks after submitting it, please contact your instructor.

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

At the Completion of this Course the Student…
At the completion of this CEU course, the student will be able to understand and describe production, groundwater mining including various water treatment methods, e.g. chlorination, water sampling, understanding EPA rules and understanding pumps and motors to the delivery of the finished water to customers via the water distribution system.

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.

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.

_____

_____