

Registration form

**Storage Facilities CEU Training Course \$150.00
48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL \$50.00**

Start and Finish Dates: _____ *You will have 90 days from this date in order to complete this course*

List number of hours worked on assignment must match State Requirement. _____

Name _____ Signature _____

I have read and understood the disclaimer notice on page 2. Digitally sign XXX

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Operator ID# _____ Exp Date _____

Please circle/check which certification you are applying the course CEU's.

Water Treatment _____ Distribution _____ Collection _____

Wastewater Treatment _____ Other _____

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Toll Free (866) 557-1746 Fax (928) 272-0747 info@tlch2o.com**

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Professional Engineers; Most states will accept our courses for credit but we do not officially list the States or Agencies. Please check your State for approval.

You can obtain a printed version of the course from TLC for an additional \$89.95 plus shipping charges.

AFFIDAVIT OF EXAM COMPLETION

I affirm that I personally completed the entire text of the course. I also affirm that I completed the exam without assistance from any outside source. I understand that it is my responsibility to file or maintain my certificate of completion as required by the state or by the designation organization.

Grading Information

In order to maintain the integrity of our courses we do not distribute test scores, percentages or questions missed. Our exams are based upon pass/fail criteria with the benchmark for successful completion set at 70%. Once you pass the exam, your record will reflect a successful completion and a certificate will be issued to you.

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Storage Facilities Answer Key

Name _____

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Did you check with your State agency to ensure this course is accepted for credit?

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You can electronically complete this assignment in Adobe Acrobat DC.

Please Circle, Bold, Underline or X, one answer per question. A **felt tipped pen** works best.

- | | | | |
|-------------|-------------|-------------|-------------|
| 1. A B C D | 20. A B | 39. A B | 58. A B |
| 2. A B C D | 21. A B C D | 40. A B | 59. A B |
| 3. A B | 22. A B C D | 41. A B C D | 60. A B |
| 4. A B C D | 23. A B C D | 42. A B | 61. A B |
| 5. A B | 24. A B C D | 43. A B | 62. A B |
| 6. A B C D | 25. A B C D | 44. A B C D | 63. A B |
| 7. A B C D | 26. A B C D | 45. A B C D | 64. A B |
| 8. A B | 27. A B C D | 46. A B | 65. A B |
| 9. A B | 28. A B C D | 47. A B | 66. A B |
| 10. A B | 29. A B | 48. A B C D | 67. A B |
| 11. A B C D | 30. A B C D | 49. A B C D | 68. A B |
| 12. A B C D | 31. A B C D | 50. A B C D | 69. A B |
| 13. A B C D | 32. A B C D | 51. A B | 70. A B |
| 14. A B | 33. A B C D | 52. A B | 71. A B C D |
| 15. A B C D | 34. A B | 53. A B C D | 72. A B C D |
| 16. A B C D | 35. A B C D | 54. A B C D | 73. A B C D |
| 17. A B | 36. A B | 55. A B | 74. A B C D |
| 18. A B | 37. A B C D | 56. A B C D | 75. A B C D |
| 19. A B C D | 38. A B C D | 57. A B | 76. A B C D |

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|-------------|-------------|-------------|--------------|
| 77. A B C D | 83. A B | 89. A B C D | 95. A B C D |
| 78. A B | 84. A B | 90. A B | 96. A B |
| 79. A B | 85. A B | 91. A B C D | 97. A B |
| 80. A B | 86. A B C D | 92. A B C D | 98. A B |
| 81. A B | 87. A B | 93. A B C D | 99. A B C D |
| 82. A B C D | 88. A B C D | 94. A B | 100. A B C D |

Please write down any questions that you had trouble with or finding the answer.

Please e-mail or fax this survey along with your final exam

**STORAGE FACILITIES CEU TRAINING COURSE
CUSTOMER SERVICE RESPONSE CARD**

NAME: _____

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

Please rate the difficulty of your course.

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Please rate the difficulty of the testing process.

Very Easy 0 1 2 3 4 5 Very Difficult

Please rate the subject matter on the exam to your actual field or work.

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Always call to confirm that we have received the paperwork.

Rush Grading Service

If you need this assignment graded and the results mailed to you within a 48-hour period, prepare to pay an additional rush service handling fee of \$50.00. This fee may not cover postage costs. If you need this service, simply write RUSH on the top of your Registration Form. We will place you in the front of the grading and processing line. Thank you...

Storage Facilities CEU Course Assignment

The Assignment (Exam) is also available in Word on the Internet for your Convenience, please visit www.ABCTLTC.com and download the assignment and e- mail it back to TLC.

You will have 90 days from the start of this course to complete in order to receive your Professional Development Hours (**PDHs**) or Continuing Education Unit (**CEU**). A score of 70 % is necessary to pass this course. We prefer if this exam is proctored. No intentional trick questions. If you should need any assistance, please email all concerns and the completed manual to info@tlch2o.com.

We would prefer that you utilize the enclosed answer sheet in the front, but if you are unable to do so, type out your own answer key. Please include your name and address on your answer key and make copy for yourself. You can e-mail or fax your Answer Key along with the Registration Form to TLC. **(S) Means answer may be plural or singular. Multiple Choice Section, One answer per question and please use the answer key.**

Please write down any questions that you had trouble with or finding the answer.

Water Storage Introduction

1. According to the text, treated or pumped water is placed in _____ in order for disinfection to take place.
A. An open tank or reservoir C. A closed tank or reservoir
B. Water distribution system(s) D. None of the above
2. Which of the following limits contamination of water as it travels to the customer, finished water storage facilities are an important component of the protective distribution system?
A. Cathodic protection C. Barrier
B. Corrosion D. None of the above

Storage and Distribution

3. The expense of supplying water to the users of any water system includes are on-going maintenance costs associated with cleaning, repairing and replacing water storage facilities.
A. True B. False
4. Correct construction is important in maintaining system integrity and the distribution system must also protect?
A. Cathodic protection C. Water quality
B. Corrosion D. None of the above

Water Storage Facilities

5. Water storage facilities and tanks vary in types that are used in the water distribution systems, such as stand pipes, elevated tanks and reservoirs, hydropneumatic tanks and surge tanks
A. True B. False
6. Which of the following can be converted into pressure potential energy or kinetic energy for delivery to homes?
A. Static pressure C. Hydraulic power
B. Stored energy D. None of the above

Storage Reservoirs

7. It is suggested that _____ be located at a high enough elevation to allow the water to flow by gravity to the distribution system.
- A. Storage reservoirs C. Adequate pressure tanks
B. Levelers D. None of the above

Steel Reservoirs

8. Steel reservoirs or tanks generally have higher construction and installation costs than concrete, and require less maintenance.
- A. True B. False
9. Steel tanks should be inspected once every 5-7 years.
- A. True B. False
10. The maintenance program for reservoir tanks should call for decade draining for a complete inspection of the interior.
- A. True B. False
11. Many storage facilities have hydraulic matters that has resulted in many storage facilities operating today with _____ than is needed for non-emergency usage.
- A. Smaller water storage capacity C. Inadequate pressure
B. Larger water storage capacity D. None of the above

Categories of Finished Water Storage Facilities

12. Which of the following does not include facilities such as clearwells that are part of treatment or contact time obligations per the Surface Water Treatment Rules?
- A. Long detention times C. Finished water storage
B. Ground storage reservoirs D. None of the above
13. Ground storage tanks or reservoirs can be below ground, and may be accompanied by pump stations if not built at elevations providing the required system pressure by?
- A. Storage volume of a standpipe C. A filtration and treatment plant
B. Gravity D. None of the above
14. Elevated tanks are supported by a single pedestal that has been constructed where aesthetic factors are an important part of the design process.
- A. True B. False
15. Which of the following purposes are somewhat as a combination of ground and elevated storage?
- A. Storage volume C. Surge tank
B. Standpipe D. None of the above
16. Several standpipes were built with?
- A. A common inlet and outlet C. Pressure reliefs
B. Air tanks D. None of the above
17. Water color in many storage facilities is the most important factor related to water quality deterioration.
- A. True B. False

18. Long detention times, resulting in unnecessary water age, can be conducive to microbial growth and chemical changes.
A. True B. False

Municipal Water Supply Systems

19. Water supplies that are used to _____ to a filtration and treatment plants for purification for domestic purposes including drinking water is classified as raw water.

- A. Feed water C. Treat
B. Store water D. None of the above

20. Raw water sources are not proper for any domestic purposes including water for cooking, bathing, and especially drinking.

- A. True B. False

21. There is an exception to the rule above, the exception is _____ that has been chlorinated and disinfected for individual household use in accordance with individual State Public Health regulations.

- A. A sample C. Water quality tests have been done prior
B. Individual well water D. None of the above

22. Which of the following is the most common type of water storage on a municipal water system that uses clear wells?

- A. Water storage C. Finished water storage
B. Storage D. None of the above

Distribution Storage Functions

23. Storage within a _____ enables the system to process water at times when treatment facilities otherwise would be idle.

- A. System demand C. Distribution system
B. Holding tank D. None of the above

Advantages

24. The main advantages of _____ include the fact that storage equalizes demands on supply sources, production works, and transmission and distribution mains.

- A. Distribution storage C. System demands
B. Dedicated fire storage D. None of the above

Meeting system demands and required fire flow.

25. Deviation in demand occurs throughout the day in different parts of the _____ along with the location, capacity, and elevation of distribution storage are closely associated with system demands.

- A. System demand C. Distribution system
B. Variation in demand D. None of the above

26. Which of the following can be determined only after a careful analysis of an entire distribution system?

- A. Water supply distribution system C. System demands
B. Distribution storage water quality D. None of the above

Elevated and Ground-Level Storage

27. Distribution system storage is usually provided in one of two ways, elevated storage or ground storage with?

- A. High-service pumping
- B. Variations in demand
- C. System demand
- D. None of the above

Elevated Storage

28. Properly sized elevated water tanks provide dedicated fire storage and are used to maintain constant pressure on the?

- A. Pumping equipment
- B. Dedicated fire storage
- C. Water supply distribution system
- D. None of the above

29. Domestic water supplies are normally fed to the system from the top 10 to 15 feet of water in the elevated tanks.

- A. True
- B. False

30. The high-service pumps are constant-speed units, which can operate at their highest efficiency point, the remaining water in the tanks normally is held in reserve as?

- A. Pumping equipment
- B. Dedicated fire storage
- C. Water supply backup
- D. None of the above

31. The fire storage reserve will feed into the system automatically as the fire-flow demand and the domestic use at a specific time exceed the capacity of the?

- A. System demand
- B. Variations in demand
- C. System's high-service pumps
- D. None of the above

Ground Storage

32. Since water kept in ground storage is not under any significant pressure, it must be delivered to the point of use by?

- A. Pumping equipment
- B. Distribution storage in stand pipes
- C. Water supply distribution system height
- D. None of the above

33. Which of the following is needed for normal uses as well as any fire demand, which requires a generally unused investment in pumping capacity?

- A. System demand
- B. Peak demand
- C. Holding tank
- D. None of the above

34. Water supply sources and ground-level storage must be maintained at all times because the system cannot function without the pumps.

- A. True
- B. False

35. The distribution lines to all points in the water distribution system must be significantly oversized to handle fire flow, no matter where the fire might occur near one or more fire hydrants on the?

- A. Trees
- B. Water supply
- C. Piping system
- D. None of the above

36. In hilly areas, it is frequently possible to install ground reservoirs at sufficient elevation so that the water would "float" on the distribution system.

- A. True
- B. False

Iron

48. Ferrous iron (Fe_2) is in a _____, and water containing ferrous iron is colorless.
A. Corrosive state C. Dissolved state
B. Hardness state D. None of the above
49. Ferric iron (Fe_3) has been oxidized, and water containing it is?
A. Black water C. Yellow colored
B. Rust-colored D. None of the above
50. Gallionella can cause _____, tastes and odors, clogged pipes, and pump failure.
A. Red water C. Yellow colored
B. Rust-colored D. None of the above
51. Water samples show increased iron concentrations between the point where water enters the distribution system and the consumer's tap, either corrosion, Iron bacteria, or both are probably taking place.
A. True B. False
52. If the above problem is caused by system pressure, flushing mains, shock chlorination, and carrying increased residual chlorine are alternatives to consider.
A. True B. False

Manganese

53. The NSDWR recommend a concentration not to exceed 0.05 mg/L to avoid?
A. Pressure loss C. Harmful effects on humans
B. Customer complaints D. None of the above

Water Quality Safeguards

54. Which of the following are recommended above is necessary to prevent back siphonage and the entry of contaminants?
A. Continuous negative pressure C. Monitoring
B. Continuous positive pressure D. None of the above
55. Either water use must be restricted or the water system must be upgraded to be capable of supplying more water, if water demands are so great during peak demand periods that pressure declines in parts of the systems.
A. True B. False
56. Which of the following also may be reduced during a main break because of the large amount of escaping water?
A. Bacteriological safety C. Cross connection
B. System pressure D. None of the above

Water Hammer

57. Water hammer is a pressure surge or wave caused by the static energy of a fluid in motion when it is forced to stop or change direction suddenly.
A. True B. False

58. Moving water in a pipe has kinetic energy proportional to the mass of the water in a given volume times the square of the velocity of the water.
A. True B. False

**New EPA Rules for Distribution
Reduction of Lead in Drinking Water Act**

59. The Reduction of Lead in Drinking Water Act means municipalities, water districts and developers who work with and pay for water infrastructure need to be preparing.
A. True B. False

60. Lead, a metal found in natural deposits, is often used in household plumbing materials and water service lines.
A. True B. False

61. Lead in drinking water can also cause a variety of adverse health effects. In babies and children, exposure in drinking water above the action level can result in delays in physical and mental development, along with slight deficits in attention span and learning abilities. In adults, it can cause increases in blood pressure.
A. True B. False

62. The most common problem with brass or chrome-plated brass faucets and fixtures is it can leach significant amounts of lead into the water, especially cold water.
A. True B. False

63. Homes built after 2019 are more likely to have lead pipes, fixtures and solder.
A. True B. False

64. New homes are also at risk: even legally “lead-free” plumbing may contain up to 8 percent lead.
A. True B. False

65. Reduction of Lead in Drinking Water Act is to amend the Safe Drinking Water Act regarding the use and introduction into commerce of lead pipes, plumbing fittings or fixtures, solder and flux.
A. True B. False

66. This lead reduction law was established a prospective effective date of January 4, 2014, which provided a three-year timeframe for affected parties to transition to the new requirements.
A. True B. False

Pervasive Environmental Contaminant

67. Lead can be consumed from various sources, including lead paint and house dust contaminated by lead paint, as well as soil, drinking water, and food.
A. True B. False

68. Because lead accrues in the body, all sources of lead should be controlled or eliminated to prevent childhood lead poisoning.
A. True B. False

69. Beginning in the 1970s, lead concentrations in air, tap water, food, dust, and soil began to be substantially reduced, resulting in significantly reduced blood lead levels in children throughout the United States.

- A. True B. False

70. Homes built before the 1978 homes might contain lead paint hazards, as well as drinking water service lines made from lead, or plumbing materials that contain lead.

- A. True B. False

71. Which of the following control reduces the leaching of lead plumbing components or solder into drinking water?

- A. Lead concentrations C. Lead enforcement
B. Adequate corrosion D. None of the above

Composite Meters

72. Composite meters are one example of a _____ alternative that is not susceptible to no-lead regulations.

- A. Lead free C. Zero lead
B. Low-lead brass D. None of the above

73. Composite meters do not depend on metal pricing variations and have zero lead as opposed to low lead or even _____ meters.

- A. Bronze C. A blend of plastic and fiberglass
B. Zero lead D. None of the above

74. Which of the following type of meter boast longevity and resistance to corrosion from aggressive water?

- A. Bronze C. Composite
B. Lead-free D. None of the above

75. Composite meters are constructed using a blend of plastic and?

- A. Bronze C. Zero lead
B. Fiberglass D. None of the above

76. Which of the following have been found to eliminate the “friction feeling” typically experienced with metal threads and metal couplings, facilitating easier installation?

- A. Bronze threads C. Composite threads
B. Lead-free threads D. None of the above

77. With comprehensive testing, composite meters have demonstrated a burst pressure that is significantly greater than?

- A. Bronze C. Zero lead
B. Lead-free D. None of the above

78. Composite technology today allows for better, more environmentally friendly composite products that will last up to 10 years in residential applications.

- A. True B. False

79. It is critical that utilities consider all of their options when selecting a new fleet of meters.

- A. True B. False

80. Many deserves access to safe, clean water.

- A. True B. False

81. It is critical that manufacturers deliver products that meet the highest standards for safety, quality, reliability and accuracy to ensure availability to, and conservation of water.

- A. True B. False

82. To ensure that drinking water supplied by all public water supply systems as defined by the EPA meet Federal and State requirements, water system operators are required to collect samples regularly and?

- A. Chemical analyses C. Have the water tested
B. Protect personal health D. None of the above

83. The regulations specify maximum sampling frequencies, sampling locations, testing procedures, methods of keeping records, and frequency of reporting to the State.

- A. True B. False

84. The regulations also mandate special reporting procedures to be followed if a contaminant exceeds the goal.

- A. True B. False

85. About half the distribution systems must provide periodic monitoring for microbiological contaminants and some chemical contaminants.

- A. True B. False

86. The frequency of sampling and the chemicals that must be tested for depend on the physical size of the water system, _____, and the history of analyses.

- A. Frequency of sampling C. Water system customers
B. The water source D. None of the above

General Disinfection Requirements

87. According to the text, disinfection is absolutely required for all water systems using surface water sources.

- A. True B. False

88. As the water enters the distribution system, it must carry a _____ that will be retained throughout the distribution system.

- A. Disinfectant like UV C. Continuous chlorine residual
B. A byproduct of chlorine D. None of the above

89. Water samples from points on the distribution system must be analyzed periodically to make sure _____ is being maintained.

- A. Disinfectant like UV C. An adequate chlorine residual
B. A byproduct of chlorine D. None of the above

90. The use of chlorine has almost completely eliminated occurrences of waterborne diseases in the United States.

- A. True B. False

91. The disinfection byproducts are formed when chlorine reacts with naturally occurring substances in raw water such as decaying vegetation containing?

- A. Humic and fulvic acids
- B. Chemical analyses
- C. Turbidity
- D. None of the above

92. Which of the following is known as trihalomethanes, a group of organic chemicals that are known carcinogens to some animals, so they are assumed also to be carcinogenic to humans?

- A. Chlorine byproduct chemicals
- B. Chloramines
- C. Chlorine residuals
- D. None of the above

93. Which of the following have been identified may be harmful, and may cause some adverse health reactions?

- A. Other byproducts of disinfection
- B. Chemical analyses
- C. Turbidity
- D. None of the above

Consumer Confidence Reports

94. One of the very significant provisions of the 1996 SDWA amendments is Continuous chlorine residual requirement.

- A. True
- B. False

95. Information on the source water and _____ must be furnished to the satellite system by the system selling the water (parent company).

- A. Continuous chlorine residual
- B. Chemical analyses
- C. No concern for byproducts
- D. None of the above

96. Some States are arranging much of the information for their water systems, but the system operator still must add local information.

- A. True
- B. False

97. Some States are preparing much of the information for their water systems, but the system operator still must add local information.

- A. True
- B. False

98. The purpose of the CCR is to provide all water customers with basic facts regarding their drinking water so that individuals can make decisions about decisions based on their personal health.

- A. True
- B. False

99. What is the weight of 1 foot by 1 foot square (1 cubic foot of water) of water in a tank?

- A. 8.34
- B. 7.48
- C. 62.3
- D. None of the above

100. How much pressure per square inch does 5 feet of water create at the bottom of a tank?

- A. 2.31
- B. 2.1
- C. 62.3
- D. None of the above