Registration form

Distribution Primer 4 Training Course $100.00

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

Name_____**Signature**_____
I have read and understood the disclaimer notice on page 2. Digitally sign XXX

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Home (____) _____ **Work (____)** _____

Operator ID #_____**Exp. Date**_____

List hours worked on assignment must match State Requirement. _____

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

Water Treatment _____ Distribution_____ Other _____

Your certificate will be mailed to you in about two weeks.

Technical Learning College PO Box 3060, Chino Valley, AZ 86323
Toll Free (866) 557-1746 Fax (928) 272-0747 info@tlch2o.com

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DISCLAIMER NOTICE

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State Approval Listing Link, check to see if your State accepts or has pre-approved this course. Not all States are listed. Not all courses are listed.

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.

State Approval Listing URL…

http://www.abctlc.com/downloads/PDF/CEU%20State%20Approvals.pdf

You can obtain a printed version from TLC for an additional $129.95 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.

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.

Thank you…

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Distribution Primer 4 Answer Key

Name_____

Phone _____

You are solely responsible in ensuring that this course is accepted for credit by your State. No refunds. Did you check with your State agency to ensure this course is accepted for credit?

Method of Course acceptance confirmation. Please fill this section

Website __ Telephone Call___ Email____ Spoke to_____

Did you receive the approval number if Applicable? _____

What is the approval number if Applicable? _____

You are responsible to ensure that TLC receives the Assignment and Registration Key. Please call us to ensure that we received it.

You can use Adobe Acrobat DC Program to complete the assignment.

Please circle, underline, bold or X only one correct answer

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Please fax the answer key to TLC Western Campus
Fax (928) 272-0747.

Always call us after faxing the paperwork to ensure that we've received it.

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**.**

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

DISTRIBUTION PRIMER 4 CEU TRAINING COURSE

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I will contact TLC if I do not hear back from them within 2 days of assignment submission. I will forfeit my purchase costs and will not receive credit or a refund if I do not abide with TLC's rules.

Please Sign that you understand and will abide with TLC's Rules.

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Distribution Primer 4 CEU Training Course Assignment

The Assignment (Exam) is also available in Word on the Internet for your Convenience, please visit www.ABCTLC.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 manual 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.**

Distribution Safety Section Excavation & Trenching

1. Which of the following terms is mandatory to ensure employee protection when working in or around excavations?

A. Trenching and excavating safety
B. Identifying all overhead hazards
C. Trench safety
D. Safety compliance
E. Personal protective equipment
F. None of the Above

2. The competent person(s) must be trained in accordance with the OSHA Excavation Standard, and all other programs that may apply (examples Hazard Communication, Confined Space, and Respiratory Protection), and must demonstrate a thorough understanding and knowledge of the programs and?

A. During an excavation
B. Identifying hazardous atmospheres
C. Proper training
D. The hazards associated
E. Predictable hazards
F. None of the Above

3. All other employees working in and around the excavation must be trained in the recognition of hazards associated with?

A. Trenching and excavating
B. All overhead hazards
C. Trenches
D. Safety compliance
E. Personal protective equipment
F. None of the Above

Hazard Controls

4. Before_____, underground installations must be determined. This can be accomplished by either contacting the local utility companies or the local "one-call' center for the area.

A. An excavation
B. Entering a hazardous atmosphere
C. Any excavation
D. All underground utility locations
E. Existing and predictable hazards
F. None of the Above

5. Which of the following terms that create a hazard to employees must be removed or supported to eliminate the hazard?

A. Trenching and excavating hazards
B. All overhead hazards
C. Trench hazards
D. Safety hazards
E. Existing and predictable hazards
F. None of the Above

6. If the _____ is to be over 20 feet deep, it must be designed by a registered professional engineer who is registered in the state where work will be performed.

A. Excavation
B. Hazardous atmospheres
C. Spoil pile
D. Trenching and excavating hazards
E. Existing and predictable hazards
F. None of the Above

7. Which of the following terms will be utilized to protect employees. This can be accomplished through sloping, shoring, or shielding.

A. Trenching and excavating
B. All overhead hazards
C. Adequate protective systems
D. Safety compliance
E. Personal protective equipment
F. None of the Above

8. The worksite must be analyzed in order to design adequate _____and prevent cave-ins. There must also be an excavation safety plan developed to protect employees.

A. Protection systems
B. Hazardous atmospheres
C. Safety compliance
D. All underground utility locations
E. Existing and predictable hazards
F. None of the Above

9. Workers must be supplied with and wear any _____ deemed necessary to assure their protection.

A. Mandattory equipment
B. All overhead hazards
C. Trench equipment
D. Safety compliance equipment
E. Personal protective equipment
F. None of the Above

10. All spoil piles will be stored a minimum of two (2) feet from the sides of the excavation. The spoil pile must not block the?

A. Excavation
B. Exit
C. Safe means of egress
D. The ladder
E. Existing and predictable hazards
F. None of the Above

11. If a _____is 4 feet or deeper, stairways, ramps, or ladders will be used as a safe means of access and egress. For trenches, the employee must not have to travel any more than 25 feet of lateral travel to reach the stairway, ramp, or ladder.

A. Hole
B. Supervisor
C. Confined space
D. Trench or excavation
E. Execution
F. None of the Above

12. No employee will work in _____where water is accumulating unless adequate measures are used to protect the employees.

A. An excavation
B. Supervisor
C. Confined space
D. Trench or execution
E. Execution
F. None of the Above

13. A competent person will inspect all excavations and trenches daily, prior to employee exposure or entry, and after any rainfall, soil change, or any other time needed during the shift. The competent person must take prompt measures to eliminate any and?

A. All hazards
B. All overhead hazards
C. Trenches
D. Safety concerns
E. All evidence
F. None of the Above

14. Which of the following terms - 4 feet or deeper that have the potential for toxic substances or hazardous atmospheres will be tested at least daily. If the atmosphere is inadequate, protective systems will be utilized.

A. Holes
B. Excavations and trenches
C. Confined space
D. Trench or excavation
E. Execution
F. None of the Above

15. If work is in or around traffic, employees must be supplied with?

A. Flashlights
B. Firearms
C. And wear orange reflective vests
D. Safety compliance
E. Personal protective equipment
F. None of the Above

Competent Person Responsibilities

16. The OSHA Standards require that the competent person _____and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and have authorization to take prompt corrective measures to eliminate them and, if necessary, to stop the work.

A. Be warm and breathing
B. Be taller than 4 foot
C. Not be a spoil pile
D. Must be capable of identifying existing
E. Must be capable of controlling existing
F. None of the Above

A competent person is required to:

17. Have a complete understanding of the _____standards and any other data provided.

A. Applicable safety
B. Excavation and trench
C. Employee protection
D. Underground installation
E. Cohesion test
F. None of the Above

18. Conduct _____and reclassify soil after any condition changes.

A. Cohesive relationships
B. Natural solid mineral matter tests
C. Soil classification tests
D. Cohesion and plasticity clay art
E. The cohesiveness test
F. None of the Above

19. Determine adequate _____ for employee protection.

A. Protective systems
B. Executions
C. Employee protection
D. Underground installations
E. Cohesion tests
F. None of the Above

20. Conduct all _____for potential hazardous atmospheres.

A. Cohesive soil tasting
B. Natural solid mineral matter
C. Air classification tests
D. Business
E. Air monitoring
F. None of the Above

21. Conduct daily and periodic inspections of _____.

A. Type A and B to Type C soil
B. Excavations and trenches
C. Employee's orientation
D. Underground installations or utilities
E. Cohesion tests
F. None of the Above

xcavation Safety Plan

22. An excavation safety plan is required in written form. This plan is to be developed to the level necessary to ensure complete compliance with the _____and state and local safety standards.

A. OSHA Excavation Safety Standard
B. EPA rule
C. Soil classification tests
D. Confined Space rule
E. Hazard communication standard
F. None of the Above

Soil Classification and Identification

23. The OSHA Standards define soil classifications within the Simplified Soil Classification Systems, which consist of four categories: Stable rock, Type A, Type B, and Type C. Stability is greatest in _____and decreases through Type A and B to Type C, which is the least stable.

A. Type A
B. Type B
C. Type C
D. Type AB
E. Stable rock
F. None of the Above

24. Which of the following terms is defined as natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed?

A. Type A
B. Type B
C. Type C
D. Type AB
E. Stable rock
F. None of the Above

Soil Test & Identification

25. The competent person will classify the _____in accordance with the definitions in Appendix A based on at least one visual and one manual analysis.

A. Soil type
B. Excavations and trenches
C. Employee's protection
D. Underground installations or utilities
E. Cohesion tests
F. None of the Above

26. These tests should be run on freshly excavated samples from the excavation and are designed to determine stability based on a number of criteria: the cohesiveness, _____, the presence and amount of water, the unconfined compressive strength, the duration of exposure, undermining, and the presence of layering, prior excavation and vibration.

A. The presence of fissures
B. Natural solid mineral matter
C. Soil classification tests
D. Plasticity
E. Underground installations or utilities
F. None of the Above

27. The cohesion tests are based on methods to determine the presence of?

A. Type A
B. Type B
C. Sand
D. Type AB
E. Stable rock
F. None of the Above

28. Which of the following terms exhibit good cohesion and plasticity?

A. Type A
B. Sand
C. Type C
D. Clay minerals
E. Stable rock
F. None of the Above

29. Which of the following terms exhibits no elasticity and virtually no cohesion unless surface wetting is present. The degree of cohesiveness and plasticity depend on the amounts of all three types and water?

A. Type A
B. Sand
C. Type C
D. Clay minerals
E. Stable rock
F. None of the Above

Methods of Testing Soils:

30. Visual test: If the excavated soil is in clumps, it is _____. If it breaks up easily, not staying in clumps, it is granular.

A. Cohesive
B. Sand
C. Type C
D. Clay
E. Stable rock
F. None of the Above

31. Which of the following terms is a slick paste when wet, meaning it is cohesive. If the clump falls apart in grains, it is granular.

A. Cohesive
B. Sand
C. Type C
D. Clay
E. Stable rock
F. None of the Above

32. Which of the following terms will not crumble into grains, only into smaller chunks?

A. Cohesive
B. Sand
C. Type C soil
D. Clay
E. Stable rock
F. None of the Above

33. Pocket penetrometer test: This instrument is most accurate when soil is?

A. Cohesive
B. Clumpy
C. Dry
D. Cohesion and plastic
E. Nearly saturated
F. None of the Above

Plastic Pipe (PVC)

34. A main advantage is its light weight, allowing for easy installation. _____is its inability to withstand shock loads.

A. Plastic pipe
B. An advantage
C. A disadvantage
D. PVC water main
E. Most common type of pipe
F. None of the Above

35. Since it is non-metallic, a tracer wire must be installed with the _____ so that it can be located after burial.

A. Rubber pipe
B. Highest C Factor
C. Polyvinyl chloride (PVC)
D. PVC water main
E. Most common type of pipe
F. None of the Above

36. The National Sanitation Foundation (NSF) currently lists most brands of _____ as being acceptable for potable water use.

A. Plastic pipe
B. C Factor
C. Poly chloride (PVC)
D. PVC pipe
E. Most common type of pipe
F. None of the Above

37. Which of the following terms will have the highest C Factor of all the above pipes. The higher the C factor the smoother the pipe?
A. Copper pipe D. DI water main
B. PVC pipe E. Most common type of pipe
C. Asbestos F. None of the Above

38. Which of the following terms has seen extensive use in current construction?
A. Copper pipe D. DI water main
B. Plastic pipe E. Most common type of pipe
C. Asbestos F. None of the Above

39. Which of the following terms has several advantages over metal pipe?
A. Copper pipe D. DI water main
B. Plastic pipe E. Most common type of pipe
C. Asbestos F. None of the Above

40. One of the most versatile plastic and polyvinyl resin pipes is the?
A. Black plastic pipe D. Material of choice
B. Highest C Factor E. Most common type of pipe
C. Polyvinyl chloride (PVC) F. None of the Above

41. PVC pipes are made of tough, _____that has an excellent combination of physical and chemical properties.
A. Plastic pipe D. Material of choice
B. Strong thermoplastic material E. Most common type of pipe
C. Polyvinyl chloride (PVC) F. None of the Above

Cast Iron (CIP)
42. This is another type of _____that has been in use for a long time. It is found in diameters from 3" to 48".
A. Type of pipe D. Nearly indestructible by internal or external pressures
B. Advantages of this material E. Piping material
C. Material of choice F. None of the Above

43. Advantages of this _____ are its long life, durability and ability to withstand working pressures up to 350 psi.
A. Type of pipe D. Wrapped with coal-tar impregnated felt
B. Rust proof material E. Shock resistance
C. Material F. None of the Above

44. Disadvantages include the fact that it is heavy, difficult to install and?
A. Does not withstand shock loading D. Nearly indestructible by internal or external pressures
B. Rust proof material E. Another type of piping material
C. Material of choice F. None of the Above

Ductile Iron Pipe (DIP)
45. This was developed to overcome the breakage problems associated with cast iron pipe. It can be purchased in 4" to 45" diameters and lengths of 18' to 20'. Its main advantage is that it is nearly indestructible by?
A. Shock loading D. Internal or external pressures
B. Rust E. Another type of piping material
C. Mutant gophers F. None of the Above

46. It is manufactured by injecting magnesium into molten cast iron. It is sometimes protected from highly corrosive soils by?

A. Eletrocorrosion methods
B. Replacing the soil
C. Galvanization
D. Killing the gophers
E. Wrapping the pipe in plastic sheeting prior to installation
F. None of the Above

Steel Pipe

47. This pipe is often used in water treatment plants and pump stations. It is available in various diameters and in 20' or 21' lengths. Its main advantage is the ability to form it into a variety of shapes. It also exhibits _____ and shock resistance.

A. Strength
B. Advantages
C. Material of choice
D. Good looking
E. Good yielding
F. None of the Above

48. To reduce corrosion problems, steel pipe is usually _____and wrapped with coal-tar impregnated felt.

A. Heated to 3,000 degrees
B. Spray painted
C. Galvanized or dipped in coal-tar enamel
D. Wrapped with gopher felt
E. Shocked
F. None of the Above

Asbestos Cement Pipe (ACP)

49. This pipe is manufactured from Portland cement,_____.

A. Long fibrous asbestos and silica
B. There is advantages of this material
C. Is the material of choice
D. And asbestos fibers
E. Use precautionary measures
F. None of the Above

50. There is some concern regarding the possible release of asbestos fibers in corrosive water and there has been much debate over the?

A. Long fibrous asbestos and silica
B. Advantages of this material
C. Health effects of ingested asbestos
D. Asbestos fibers
E. Precautionary measures
F. None of the Above

51. Which of the following terms is considered a hazardous material, and precautionary measures must be taken to protect water utility workers when cutting, tapping or otherwise handling this type of pipe?

A. Portland cement
B. Asbestos
C. Health effects of ingested asbestos
D. Fiber
E. Long fibrous asbestos and silica
F. None of the Above

Galvanized Pipe

52. Galvanized pipe is commonly used for the water distributing pipes inside a building to supply hot and cold water to the fixtures. This type of pipe is manufactured in 21-ft lengths. It is GALVANIZED (coated with zinc)_____ .

A. To resist corrosion
B. In small-diameter pipes
C. On the outlets
D. Both inside and outside at the factory to resist corrosion
E. In the direction of flow
F. None of the Above

53. Pipe sizes are based on nominal INSIDE diameters. Inside diameters vary with the thickness of the pipe. Outside diameters remain?

A. Different sizes with centers
B. Pipe or nipple usable
C. Standard
D. Constant so that pipe can be threaded for standard fittings
E. One opening is smaller than the other is
F. None of the Above

Copper Pipe or Tubing

54. Copper is one of the most widely used materials for tubing. This is because it does _____and is highly resistant to any accumulation of scale particles in the pipe. This tubing is available in three different types: K, L, and M.

A. Not resist corrosion
B. It is small-diameter pipe
C. Not rust
D. Promote faster installation
E. Works in the direction of flow
F. None of the Above

55. K has the thickest walls, and M, the thinnest walls, with L's thickness in between the other two. The thin walls of copper tubing are soldered to?

A. Copper fittings
B. Pipes or nipples
C. Standard fittings
D. Different sizes with centers
E. Iron pipe
F. None of the Above

56. Soldering allows all the tubing and fittings to be set in place before the joints are finished. Generally, _____.

A. Copper fittings
B. Pipes or nipples
C. Standard fittings
D. Different sizes with centers
E. Faster installation will be the result
F. None of the Above

57. Type K copper tubing is available in either rigid (hard temper) or flexible (soft temper) and is primarily used for _____ in the water distribution systems.

A. Copper fittings
B. Pipe or nipple
C. Standard fittings
D. Different sizes with centers
E. One opening is smaller than the other is
F. None of the Above

Joints and Fittings

58. Fittings vary according to the type of piping material used. The major types commonly used in water service include elbows, tees, unions, couplings, caps, plugs, nipples, reducers, and?

A. Resist corrosion
B. Small-diameter pipe
C. Both outlets
D. Faster installation will be the result
E. In the direction of flow
F. None of the Above

Caps

59. A pipe cap is a fitting with a female thread. It is used like a plug, except that the pipe cap screws on the?

A. Copper fittings
B. Male thread of a pipe or nipple
C. Standard fittings
D. Different sizes with centers
E. One opening is smaller than the other is
F. None of the Above

Couplings

60. Which of the following terms continuing in a straight line in the direction of flow?

A. Resist corrosion
B. Small-diameter pipe
C. Both outlets
D. Faster installation will be the result
E. A run is that portion of a pipe or fitting
F. None of the Above

61. The ECCENTRIC REDUCER has two female threads of different sizes with centers so designed that when they are joined, the two pieces of pipe will not be in line with each other, but they can be installed to provide optimum drainage of the?

A. Copper fittings
B. Pipe or nipple
C. Standard fittings
D. Different sizes
E. One opening
F. None of the Above

Elbows (OR ELLS) 90° AND 45°

62. These fittings (fig. 8-5, close to middle of figure) are used to change the direction of the pipe either 90 or 45 degrees. REGULAR elbows have?

A. Copper fittings
B. Small-diameter pipe
C. Standard fittings
D. Male threads at both outlets
E. Female threads at both outlets
F. None of the Above

63. The REDUCING elbow is similar to the 90-degree elbow except that one opening is smaller than the other is.

A. Copper fittings
B. Male threads at both outlets
C. Standard fittings
D. One female and one male threaded end
E. Female threads at both outlets
F. None of the Above

Nipples

64. These fittings connect underground tanks or hot-water tanks. They are also used with?

A. Copper fittings
B. Pipe or nipple
C. Standard fittings
D. Different sizes with centers
E. Pipes of dissimilar metals
F. None of the Above

Tees

65. A common type of pipe tee is the STRAIGHT tee, which has a straight-through portion and?

A. A 90-degree takeoff on one side
B. Male threads at both outlets
C. Dead ends
D. Different sizes with centers
E. Female threads at both outlets
F. None of the Above

66. Another common type is the REDUCING tee, similar to the straight tee just described, except that one of the?

A. Copper fittings
B. Male threads at both outlets
C. Standard fittings
D. Threaded openings is of a different size than the other
E. Female threads at both outlets
F. None of the Above

Water Main Installation

67. Installation of new or replacement pipe sections should be in accordance with?

A. Kickers
B. Good construction practices
C. Dead ends
D. Regardless of the type of pipe
E. Distribution system rules
F. None of the Above

68. The line must be buried a minimum of 30" below the ground surface to prevent freezing. The line must be bedded and backfilled properly insuring protection from weather and?

A. Flushing
B. Kickers
C. Surface loadings
D. Constant evaluation of the system
E. New installations or repaired sections
F. None of the Above

69. Also, thrust blocking at all bends, tees, and valves is essential to hold the pipe in place and?
A. Prevent separation of line sections
B. Valves and fittings
C. Dead ends
D. Regardless of the type of pipe
E. Distribution system
F. None of the Above

70. Disinfection of new installations or repaired sections is required prior to placing them in service. This can be accomplished by filling the line with a 25 mg/1 _____and allowing it to stand for 24 hours.
A. Elemental chlorine
B. Free chlorine solution
C. Chlorine residual
D. Chlorine disinfectant(s) (s) means plural or singular usage
E. Chlorine-based process
F. None of the above

71. Which of the following terms used in the waterworks industry are made of cast iron, steel, brass, stainless and fiberglass?
A. Kickers
B. Valves and fittings
C. Dead ends
D. Regardless of the type of pipe
E. Distribution system components
F. None of the Above

72. Which of the following terms should be placed throughout the system to enable problem areas to be isolated and repaired with minimal service disruption?
A. Gate valves
B. Air relief valves
C. Line valves
D. Fire Hydrants
E. New installations
F. None of the Above

73. Which of the following terms should be installed at high points in the system. Valves should be installed with valve boxes and covers?
A. Gate valves
B. Air relief valves
C. Line valves
D. Fire Hydrants
E. New installations
F. None of the Above

74. Regardless of the _____installed, certain maintenance routines should be performed on the distribution system to maintain water quality and optimal service.
A. Gate valves
B. Air relief valves
C. Dead end lines
D. Fire Hydrants
E. Type of pipe
F. None of the Above

75. Flushing at blowoffs on _____and at fire hydrants throughout the system should be done at least twice per year.
A. Gate valves
B. Air relief valves
C. Dead end lines
D. Fire Hydrants
E. Type of pipe
F. None of the Above

76. Flushing is needed to remove stagnant water in _____and to remove accumulated sediment that results from turbidity, iron, manganese, etc.
A. Gate valves
B. Air relief valves
C. Dead end
D. Fire Hydrants
E. Type of pipe
F. None of the Above

77. To do an adequate job of flushing, the flow should reach a velocity of at least 2.5 feet per second, known as the “minimum cleansing velocity” of the system (at_____).

A. Gate valves
B. Air relief valves
C. Dead end
D. Hydrant locations
E. Pipe capacity
F. None of the Above

78. These tests can help determine if _____is decreasing over time due to internal corrosion or deposits.

A. Gate valves
B. Various locations
C. Dead end
D. Hydrant locations
E. Pipe capacity
F. None of the Above

79. Pressure tests should be done at _____in the distribution system several times per year.

A. Gate valves
B. Various locations
C. Dead end
D. Hydrant locations
E. Pipe capacity
F. None of the Above

Backflow Review Statements

80. Backsiphonage Backflow: What does a backsiphonage condition usually cause? _____ or negative pressure on the service or supply side.

A. Backflow device
B. A cross-connection.
C. An undesirable effect
D. Reduced pressure
E. A continuous positive pressure
F. None of the Above

81. Backflow: What does a double check valve backflow assembly provide effective protection from?

A. Cross-connections
B. Contamination
C. Cross-connection failures
D. Highest downstream outlet
E. Pollution
F. None of the Above

82. Backflow: What is equipment that utilizes water for cooling, lubrication, washing or as a solvent always susceptible to?

A. Backflow device
B. A cross-connection
C. An undesirable effect
D. Public potable (drinking) water supply
E. A continuous positive pressure
F. None of the Above

83. Backflow: What is the definition of ‘backflow’? _____that causes water or mixtures of water and other liquids, gases, or substances to flow back into the distribution system.

A. Cross-connections
B. A relief valve
C. Cross-connection Failure
D. Highest downstream outlet
E. A reverse flow condition
F. None of the Above

84. Backflow Condition: _____is essential for preventing a backflow condition or event.

A. Backflow device
B. A cross-connection
C. An undesirable effect
D. Public potable (drinking) water supply
E. A continuous positive pressure in a distribution system
F. None of the Above

85. _____: What might be the source of an organic substance causing taste and odor problems in a water distribution system?

A. Cross-connections
B. Backflow or Cross-connection Failure
C. Cross-connection Failure
D. Highest downstream outlet
E. Distribution system failure
F. None of the Above

86. _____: To stop or prevent the occurrence of, the unnatural act of reversing the normal direction of the flow of liquid, gases, or solid substances back in to the public potable water supply.

A. Backflow device
B. Cross-connection
C. An undesirable effect
D. Public potable (drinking) water supply
E. Continuous positive pressure
F. None of the Above

87. Backflow: _____must be maintained to ensure adequate customer service during peak flow periods.

A. Cross-connections
B. A relief valve
C. Cross-connection Failure
D. Highest downstream outlet
E. Minimum water pressure
F. None of the Above

88. Backflow or cross-connection. To reverse the natural and normal directional flow of a liquid, gases, or solid substances back into the public potable (drinking) water supply. This is normally?

A. Backflow device
B. A cross-connection
C. An undesirable effect
D. Public potable (drinking) water supply
E. A continuous positive pressure
F. None of the Above

89. Backflow: What is the difference between a reduced pressure principle backflow device and a double check backflow device? The RP has?

A. Cross-connection
B. A relief valve
C. Cross-connection failure
D. Continuous positive pressure
E. Check valve
F. None of the Above

90. Backflow: What is the maximum time period between having a backflow device tested by a certified backflow tester?

A. 1 year
B. 2 years
C. 10 years
D. 3 years
E. 5 years
F. None of the Above

91. Backflow: What must an operator ensure when installing a pressure vacuum breaker backflow device? It must be at least 12 inches above the?

A. Cross-connection
B. A relief valve
C. Highest mountain
D. Highest downstream outlet
E. Lowest downstream outlet
F. None of the Above

Water System Design and Valves System Elements

The elements of a water distribution system include: distribution mains, arterial mains, storage reservoirs, and system accessories. These elements and accessories are described as follows:

92. Which of the following terms are the pipelines that make up the distribution system. Their function is to carry water from the water source or treatment works to users.

A. Branch mains
B. Water mains
C. Distribution system
D. Distribution mains
E. Pipelines
F. None of the Above

93. Which of the following terms are distribution mains of large size. They are interconnected with smaller distribution mains to form a complete gridiron system?
A. A complete gridiron system D. Arterial mains
B. Water system E. Water valves
C. Distribution system F. None of the Above

94. Which of the following terms are structures used to store water. They also equalize the supply or pressure in the distribution system?
A. Branch mains D. Storage reservoirs
B. Water mains E. Tanks
C. Distribution system F. None of the Above

95. A common example of a storage reservoir is?
A. An aboveground water storage tank D. Storage reservoir
B. Water mains E. Tanks
C. Distribution system F. None of the Above

Distribution Valves
96. The purpose of installing _____in water mains at various locations within the distribution system is to allow sections of the system to be taken out of service for repairs.
A. Branch mains D. The number of valves
B. Shutoff valves E. Pipelines
C. Distribution system F. None of the Above

97. Which of the following terms should be installed at intervals not greater than 5,000 feet in long supply lines and 1,500 feet in main distribution loops or feeders?
A. A complete gridiron system D. Valve boxes
B. Water system E. Valves
C. Storage reservoirs F. None of the Above

98. All _____ connecting to feeder mains or feeder loops should have valves installed as close to the feeders as practical. In this way, branch mains can be taken out of service without interrupting the supply to other locations.
A. Branch mains D. The number of valves
B. Water mains E. Pipelines
C. Storage reservoirs F. None of the Above

99. In the areas of greatest water demand, or when the dependability of the distribution system is particularly important, _____ spacing of 500 feet may be appropriate.
A. A complete gridiron system D. Valve boxes
B. Water main E. Valve
C. Fire hydrant F. None of the Above

100. Which of the following terms omitted from the line is usually the one that principally supplies flow to the intersection.
A. Branch main D. The number of valves
B. Water main E. Pipeline
C. Valve F. None of the Above

101. Shutoff valves should be installed in standardized locations, so they can be easily found in emergencies. _____ should be installed in valve boxes.

A. Stops
B. Operator rookies
C. Fire hydrants
D. Tees
E. Water valves
F. None of the Above

102. For large shutoff valves, it may be necessary to surround the valve operator or _____or manhole to allow repair or replacement.

A. Branch mains
B. Water mains
C. Water valves
D. The number of valves
E. Entire valve within a vault
F. None of the Above

Classification of Valves

103. There are two major classifications of _____: Rotary and Linear.

A. Gate valves
B. OS & Y
C. Water valves
D. Globe(s) or Globe valves
E. Entire valve within a vault
F. None of the Above

104. Which of the following terms are used when a straight-line flow of fluid and minimum flow restriction are needed?

A. Gate valves
B. OS & Y
C. Water valves
D. Globe(s) or Globe valves
E. Entire valve within a vault
F. None of the Above

105. The gate is usually wedge-shaped. When the valve is wide open the gate is fully drawn up into the?

A. Valve bonnet
B. Flow regulation
C. Gate valve(s)
D. The bonnet
E. Stem
F. None of the Above

(s) Means plural or singular usage

106. The control of flow is difficult because of the_____, and the flow of fluid slapping against a partially open gate can cause extensive damage to the valve.

A. Valve bonnet
B. Flow regulation
C. Gate valve(s)
D. The bonnet
E. Valve's design
F. None of the Above

(s) Means plural or singular usage

107. Except as specifically authorized, _____ should not be used for throttling.

A. Valve bonnet
B. Flow regulation
C. Gate valve(s)
D. The bonnet
E. Stem
F. None of the Above

(s) Means plural or singular usage

Common Rotary Valves

Globe Valve Rotary Valve

108. It is primarily used for flow regulation, and works similar to a?

A. Globe(s) or Globe valves
B. Flow regulation
C. Gate valves
D. The bonnet
E. OS & Y
F. None of the Above

109. A _____ spring loaded disc resulting with most advanced design features provides the ultimate in dependable, economical flow control.
A. Globe(s) or Globe valves D. The bonnet
B. Flow regulation E. Check Valve
C. Gate valves F. None of the Above

110. Globe valves should usually be installed with the inlet below the?
A. Globe(s) or Globe valves D. The bonnet
B. Flow regulation E. Check Valve
C. Valve seat F. None of the Above

111. Globe valves, per se, are not suitable for throttling service. The valve should be welded onto the line with the?
A. Disc in the fully closed position D. Bonnet (s) Means plural or singular usage
B. Flow regulation E. Check Valve
C. Valve seat F. None of the Above

112. Installation upside down is not recommended because it causes dirt to accumulate in the?
A. Disc in the fully closed position D. Bonnet (s) Means plural or singular usage
B. Flow regulation E. Check Valve
C. Valve seat F. None of the Above

Globe Valve Problems and Solutions
113. If the _____is improperly lubricated or damaged: disassemble the valve and inspect the stem. Acceptable deviation from theoretical centerline created by joining center points of the ends of the stem is 0.005"/ft of stem. Inspect the threads for any visible signs of damage.
A. Disc D. Bonnet
B. Valve stem E. Check Valve
C. Valve seat F. None of the Above

114. If the valve packing compression is too tight: Verify the _____torque and adjust if necessary.
A. Disc D. Bonnet
B. Valve stem E. Packing bolt
C. Valve seat F. None of the Above

115. Foreign debris is trapped on threads and/or in the_____: This is a common problem when valves are installed outdoors in sandy areas and areas not cleaned before operating.
A. Disc D. Packing area
B. Valve stem E. Packing bolt
C. Valve seat F. None of the Above

116. Always inspect threads and _____ for particle obstructions, even seemingly small amounts of sand trapped on the drive can completely stop large valves from cycling.
A. Disc D. Packing area
B. Valve stem E. Packing bolt
C. Valve seat F. None of the Above

117. With the line pressure removed from the valve, disconnect the actuator, gear operator, or handwheel and inspect the drive nut, _____, bearings and yoke bushing.
A. Disc D. Packing area
B. Stem E. Packing bolt
C. Valve seat F. None of the Above

118. Contaminated parts should be cleaned with a lint-free cloth using alcohol, varsol or equivalent. All parts should be re-lubricated before re-assemble. If the valves are installed outdoors in a sandy area, it may be desirable to cover the?
A. Disc D. Packing area
B. Valve stem E. Packing bolt
C. Valve seat F. None of the Above

119. If the _____are faulty or damaged: If you suspect that the valve components are damaged or faulty contact specialized services or an outside contractor.
A. Disc D. Valve components
B. Valve stem E. Packing bolt
C. Valve seat F. None of the Above

120. If a larger handwheel is installed, the person operating the valve must be careful not to over-torque the _____ when closing it.
A. Disc D. Valve components
B. Valve stem E. Packing bolt
C. Valve F. None of the Above

Ball or Corporation Stop Rotary Valve Small Valves 2 inch and smaller
121. Most ball valves are the quick-acting type. They require only a 90-degree turn to either completely open or close the valve. However, many are operated by?
A. Gearing D. An annual valve exercising program
B. Small handwheel E. Planetary gears
C. Ball housing F. None of the Above

122. This type of gearing allows the use of a relatively _____and operating force to operate a fairly large valve.
A. Gearing D. An annual valve exercising program
B. Small handwheel E. Planetary gears
C. Ball housing F. None of the Above

123. Some ball valves also contain a swing check located within the ball to give the valve a?
A. Gearing D. Check valve feature
B. Small handwheel E. Planetary gears
C. Ball housing F. None of the Above

124. Brass or zinc is common for body, brass or iron for stem, brass or iron for ball, aluminum, stainless steel, or iron for handle including a Teflon seal in the?
A. Gearing D. An annual valve exercising program
B. Small handwheel E. Planetary gears
C. Ball housing F. None of the Above

125. Flush the pipeline before installing the valve. Debris allowed to remain in the _____ (such as weld spatters, welding rods, bricks, tools, etc.) can damage the valve. After installation, cycle the valve a minimum of three times and re-torque bolts as required.
A. Ball valve(s) D. Ball housing
B. Check valve feature E. Planetary gears
C. Gate valve(s) F. None of the Above

126. Ensure that the valve is in the open position and the inside of the body bore of the valve body/body end is coated with a suitable?
A. Spatter guard D. Ball housing
B. Check valve feature E. Planetary gears
C. Gate valve(s) F. None of the Above

More on Water Distribution Valves

127. Water distribution valves are provided in the design of the water systems to allow for the isolation and shut-off of water when emergency conditions occur. It is important to recognize that these valves are a critical link in the management of emergencies that occur in the distribution system. Additionally, these valves are_____.
A. Usually operated infrequently D. In an annual valve exercising program
B. Valve a check valve feature E. In the ball housing
C. Gate valve(s) F. None of the Above

128. Therefore, the establishment of _____is essential to the viability of an utility emergency operations plan.
A. Ball valve(s) D. An annual valve exercising program
B. Valve a check valve feature E. Teflon seal in the ball housing
C. Gate valve(s) F. None of the Above

129. Emergency operations of _____presumes that the system operators are familiar with the exact locations of many key water valves within the water system.
A. Ball valve(s) D. Key water valves within the water system
B. Water valves E. An inspection
C. Gate valve(s) F. None of the Above

130. Of equal importance is the knowledge that when these valves need to be operated in order to isolate a section of the_____, they will operate and close effectively in order to prevent a large loss of the water recourse and excessive property damage.
A. Ball valve(s) D. Key water valves within the water system
B. Routine valve E. Distribution system
C. Gate valve(s) F. None of the Above

131. Which of the following terms should be conducted on the water system valves and the following tasks should be accomplished: The accuracy of all valves and valve boxes are verified against existing records. If inconsistencies are found, the records are updated to reflect accurate information.
A. Ball valve(s) D. Key water valves within the water system
B. Routine valve inspections E. An inspection
C. Gate valve(s) F. None of the Above

132. Which of the following terms is performed on each valve stem and nut to determine if any damage exists.

A. Ball valve(s)
B. Routine valve inspections
C. Gate valve(s)
D. Key water valves within the water system
E. An inspection
F. None of the Above

133. Which of the following terms and the number of turns necessary to accomplish a full closing is recorded?

A. The valve is fully closed
B. The valve is re-opened
C. Exercising of all valves
D. The valve box and cover is cleaned
E. An inspection
F. None of the Above

134. _____, and the system flows are re-established.

A. The valve is fully closed
B. The valve is re-opened
C. Exercising of all valves
D. The valve box and cover is cleaned
E. An inspection
F. None of the Above

135. _____, inspected for damaged and painted blue.

A. The valve is fully closed
B. The valve is re-opened
C. Exercising of all valves
D. The valve box and cover is cleaned
E. An inspection
F. None of the Above

136. Many valve manufacturers recommend that the?

A. The valve is fully closed
B. The valve is re-opened
C. Exercising of all valves
D. The valve box and cover is cleaned
E. Inspection
F. None of the Above

Water Meters

137. A master meter should be installed on each source, with _____placed at each point of use.

A. Many distribution systems
B. A master meter
C. Multiple directions
D. Water mains in a loop or grid
E. Service meters
F. None of the Above

138. Totals from the master meters should be compared to totals from the service meters to compute the amount of water lost in the distribution system. This information is important in locating and?

A. Any force
B. Other fluids
C. Many distribution systems
D. Eliminating leaks and unauthorized taps
E. Undesirable tastes and odors
F. None of the Above

139. Which of the following terms users tend to water freely and have little incentive to repair plumbing leaks?

A. Many distribution systems
B. A master meter
C. Un-metered water
D. Water mains in a loop or grid
E. Trunk and branches of a tree
F. None of the Above

Tree System

140. Older water systems frequently were expanded without planning and developed into a treelike system. This consists of a _____that decreases in size as it leaves the source and progresses through the area originally served.

A. A treelike system D. Smaller pipelines
B. Master meter E. Undesirable tastes and odors
C. Single main F. None of the Above

141. Smaller pipelines branch off _____and divide again, much like the trunk and branches of a tree.

A. A treelike system D. Smaller pipelines
B. Master meter E. The main
C. Single main F. None of the Above

142. There are many dead ends in the system where water remains for long periods, causing undesirable tastes and odors in?

A. A treelike system D. Smaller pipelines
B. Master meter E. Nearby service lines
C. Single main F. None of the Above

143. The most reliable means to provide water for firefighting is by designing redundancy into the system. There are several advantages gained by laying out water mains in_____ , with feeder and distributor mains interconnecting at roadway intersections and other regular intervals.

A. A treelike system D. Smaller pipelines
B. Master meter E. A loop or grid
C. Single main F. None of the Above

Friction Loss

145. Water will still be distributed through the system if a single section fails. The damaged section can be isolated and the remainder of the system will still carry?

A. Any force D. Friction loss
B. Water or air E. Undesirable tastes and odors
C. Water F. None of the Above

146. Water supplied to fire hydrants will feed from multiple directions. Thus during periods of peak fire flow demand, there will be less impact from "_____" in water mains as the velocity within any given section of main will be less since several mains will be sharing the supply.

A. Any force D. Friction loss
B. Water or air E. Undesirable tastes and odors
C. Water F. None of the Above

Pressure

147. By a fluid, we have a material in mind like _____, two very common and important fluids. Water is incompressible, while air is very compressible, but both are fluids.

A. Any force D. Friction loss
B. Water or air E. Undesirable tastes and odors
C. Water F. None of the Above

148. Water has a definite volume; air does not. _____; that is, layers of them slide very easily on one another, and they quickly assume their permanent shapes when disturbed by rapid flows.

A. But they are no less fluids
B. Water and air have low viscosity
C. Air is very compressible
D. Such a force is proportional to the area on which it is exerted
E. The pressure must be the same in all directions
F. None of the Above

149. A fluid is a substance that cannot exert any permanent forces tangential to a boundary. Any force that it exerts on a boundary must be?

A. But they are no less fluids
B. Water and air have low viscosity
C. Air is very compressible
D. Normal to the boundary
E. The pressure must be the same in all directions
F. None of the Above

150. In order for any small element of the fluid to be in equilibrium, the pressure must be the same in all directions, and if no other forces are acting on the body of the fluid,_____.

A. But they are no less fluids
B. Water and air have low viscosity
C. Air is very compressible
D. Such a force is proportional to the area on which it is exerted
E. The pressure must be the same at all neighboring points
F. None of the Above

You are finished with your assignment. Please fax or email your answer key and registration page to us and call us later to ensure we received it.