Registration form

PROCESS CONTROL $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

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

Address_____

City_____State_____Zip_____

Email_____ Fax (_____) _____

Phone:
Home (_____) _____ Work (_____) _____

Operator ID #_____Exp. Date_____

Class/Grade_____
Your certificate will be emailed to you in about two weeks.

Please circle/check which certification you are applying the course CEU's.
Water Treatment ___ Water Distribution ___ Other _____

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

If you've paid on the Internet, please write your Customer#_____

Please invoice me, my PO#_____

Please pay with your credit card on our website under Bookstore or Buy Now. Or call us and provide your credit card information.

We will stop mailing the certificate of completion so we need either your fax number or e-mail address. We will e-mail the certificate to you, if no e-mail address; we will fax it to you.

DISCLAIMER NOTICE
I understand that it is my responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. I understand State laws and rules change on a frequent basis and I believe this course is currently accepted in my State for CEU or contact hour credit, if it is not, I will not hold Technical Learning College responsible. I also understand that this type of study program deals with dangerous conditions and that I 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. I will call or contact TLC if I need help or assistance and double-check to ensure my registration page and assignment has been received and graded.

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 manual from TLC for an additional $69.95 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.

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.

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.

Do not solely depend on TLC's Approval list for it may be outdated.

A second certificate of completion for a second State Agency $50 processing fee.

All downloads are electronically tracked and monitored for security purposes.

Some States and many employers require the final exam to be proctored.

Process Control Answer Key

Name_____

Phone _____

You are solely responsible in ensuring that this course is accepted for credit by your State. <u>No refunds.</u> 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_____

Do not solely depend on TLC's Approval list for it may be outdated.

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.

Please Circle, Bold, Underline or X, one answer per question.

1. A B C D E F
2. A B C D E F
3. A B C D E F
4. A B C D E F
5. A B C D E F
6. A B C D E F
7. A B C D E F
8. A B C D E F
9. A B C D E F
10. A B C D E F
11. A B C D E F
12. A B C D E F
13. A B C D E F
14. A B C D E F
15. A B C D E F
16. A B C D E F
17. A B C D E F
18. A B C D E F
19. A B C D E F
20. A B C D E F
21. A B C D E F
22. A B C D E F
23. A B C D E F
24. A B C D E F
25. A B C D E F
26. A B C D E F
27. A B C D E F
28. A B C D E F
29. A B C D E F
30. A B C D E F
31. A B C D E F
32. A B C D E F
33. A B C D E F
34. A B C D E F
35. A B C D E F
36. A B C D E F
37. A B C D E F
38. A B C D E F
39. A B C D E F
40. A B C D E F
41. A B C D E F
42. A B C D E F
43. A B C D E F
44. A B C D E F
45. A B C D E F
46. A B C D E F
47. A B C D E F
48. A B C D E F
49. A B C D E F
50. A B C D E F
51. A B C D E F

52. A B C D E F
53. A B C D E F
54. A B C D E F
55. A B C D E F
56. A B C D E F
57. A B C D E F
58. A B C D E F
59. A B C D E F
60. A B C D E F
61. A B C D E F
62. A B C D E F
63. A B C D E F
64. A B C D E F
65. A B C D E F
66. A B C D E F
67. A B C D E F
68. A B C D E F
69. A B C D E F
70. A B C D E F
71. A B C D E F
72. A B C D E F
73. A B C D E F
74. A B C D E F
75. A B C D E F
76. A B C D E F
77. A B C D E F
78. A B C D E F
79. A B C D E F
80. A B C D E F
81. A B C D E F
82. A B C D E F
83. A B C D E F
84. A B C D E F
85. A B C D E F
86. A B C D E F
87. A B C D E F
88. A B C D E F
89. A B C D E F
90. A B C D E F
91. A B C D E F
92. A B C D E F
93. A B C D E F
94. A B C D E F
95. A B C D E F
96. A B C D E F
97. A B C D E F
98. A B C D E F
99. A B C D E F
100. A B C D E F
101. A B C D E F
102. A B C D E F
103. A B C D E F
104. A B C D E F
105. A B C D E F
106. A B C D E F
107. A B C D E F
108. A B C D E F
109. A B C D E F
110. A B C D E F
111. A B C D E F
112. A B C D E F
113. A B C D E F
114. A B C D E F
115. A B C D E F
116. A B C D E F
117. A B C D E F
118. A B C D E F
119. A B C D E F
120. A B C D E F
121. A B C D E F
122. A B C D E F
123. A B C D E F
124. A B C D E F
125. A B C D E F
126. A B C D E F
127. A B C D E F
128. A B C D E F
129. A B C D E F
130. A B C D E F
131. A B C D E F
132. A B C D E F
133. A B C D E F
134. A B C D E F
135. A B C D E F
136. A B C D E F
137. A B C D E F
138. A B C D E F
139. A B C D E F
140. A B C D E F
141. A B C D E F
142. A B C D E F
143. A B C D E F
144. A B C D E F
145. A B C D E F
146. A B C D E F
147. A B C D E F
148. A B C D E F
149. A B C D E F
150. A B C D E F

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

PROCESS CONTROL CEU COURSE
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.

Please fax the answer key to
TLC Western Campus Fax (928) 272-0747
Backup Fax (928) 468-0675

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

Water Treatment Process Control 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 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.**

Contaminant Selection

1. P.L. 104-182 establishes a new process for the EPA to select contaminants for regulatory consideration based on occurrence, health effects, and meaningful opportunity for health risk reduction.
A. True B. False

2. P.L. 104-182 directs the EPA to evaluate contaminants that present the greatest health concern and to regulate contaminants that occur at concentration levels and frequencies of public health concern.
A. True B. False

3. The law also includes a schedule for the EPA to complete regulations for disinfectants and disinfection byproducts (D/DBPs) and Copper.
A. True B. False

4. For each contaminant that the EPA has determined merits regulation, the EPA must set a non-enforceable action levels at a level at which no known or anticipated recommended health effects occur, and which allows an adequate margin of safety.
A. True B. False

5. The EPA must then set an enforceable standard, a maximum contaminant level (MCL), as close to the MCLG as is " feasible " using the best technology, treatment techniques, or other means available (taking costs into consideration).
A. True B. False

6. Each regulation establishing an MCL must list any technologies, treatment techniques, or other means that comply with the MCL and that are affordable for three categories of small public water systems.
A. True B. False

7. The 1996 Amendments authorize the EPA to set a standard at other than the feasible level if the feasible level would lead to an increase in some risks by increasing the concentration of other contaminants or by interfering with the technologies used to comply with other SDWA regulations.
A. True B. False

8. If the EPA determines that the benefits do not justify the costs, the EPA may, with certain exceptions, promulgate a standard that minimizes benefits at a low cost that is justified by the benefits.
A. True B. False

State Primacy
9. The primary enforcement responsibility for public water systems lies with the states, provided they adopt regulations as stringent as the national requirements, adopt authority for administrative penalties, develop adequate procedures for enforcement, maintain records, and create a plan for providing emergency water supplies.
A. True B. False

10. Whenever the EPA finds that a public water system in a state without primary enforcement authority does comply with regulations, the Agency must notify the police and the system and provide assistance to bring the system into compliance.
A. True B. False

11. If the state fails to commence enforcement action within 1 year after the notification, the EPA is authorized to issue an administrative order or bad letter.
A. True B. False

Nonprimacy State
12. Primacy states may establish alternative monitoring requirements to provide interim monitoring relief for systems serving 10,000 or fewer persons for most contaminants, if a contaminant is not detected in the first quarterly sample.
A. True B. False

13. States with approved source water protection programs may adopt alternative monitoring requirements to provide permanent monitoring relief to qualified systems for chemical contaminants.
A. True B. False

Safe Drinking Water Act Terms
14. A public water system that serves _____ service connections used by year-round residents of the area served by the system or regularly serves at least 25 year-round residents.
A. At least 5
B. At least 15
C. 1,000
D. At least 30
E. At least 500
F. None of the Above

15. Class V Underground Injection Control is the process of identifying and inventorying contaminant sources within delineated source water protection areas through recording existing data.
A. True B. False

16. Which of the following bugs is a protozoan associated with the disease cryptosporidiosis in humans?
A. Giardia lamblia
B. Water bear
C. Cryptosporidium
D. Hypoxia
D. Paramecium
E. None of the above

17. Which of the following EPA terms is under section 1452 of the SDWA, the EPA awards capitalization grants to states to develop drinking water revolving loan funds to help finance drinking water system infrastructure improvements?
A. Drinking Water State Revolving Fund
B. Contamination Source Inventory
C. Class V Underground Injection Control
D. Phase I
E. Phase II
F. None of the Above

SDWA Water Quality Information and MCLs
Radionuclides
18. Some people who drink water containing which compound/element in excess of the EPA standard over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer?
A. Lead
B. Fluoride
C. Copper
D. Aluminum
E. Arsenic
F. None of the Above

19. Some people who drink water containing which compound/element in excess of the EPA standard over many years may have an increased risk of getting cancer?
A. Radon gas
B. Beta/photon emitters
C. Radioactive mineral
D. Alpha emitters
E. Combined Radium 226/228
F. None of the Above

20. Which compound/element can dissolve and accumulate in underground water sources, such as wells, and in the air in your home?
A. Radon gas
B. Beta/photon emitters
C. Radioactive material
D. Alpha emitters
E. Combined Radium 226/228
F. None of the Above

21. Which compound/element do communities add to their drinking water to promote dental health?
A. Fluorine
B. Fluoride
C. Floc
D. Chlorine
E. Arsenic
F. None of the Above

22. The EPA has set an enforceable drinking water standard for which compound/element of 4 mg/L, because some people who drink water containing an excess of this level over many years could get bone disease, including pain and tenderness of the bones?
A. Lead
B. Fluoride
C. Intestinal illness
D. Waterborne outbreaks
E. Arsenic
F. None of the Above

23. Which compound/element typically leaches into water from plumbing in older buildings?
A. Lead
B. Fluoride
C. Intestinal illness
D. Waterborne outbreaks
E. Arsenic
F. None of the Above

24. Which secondary standard of 2 mg/L is there to protect against dental fluorosis?
A. Lead D. Florentine
B. Fluoride E. Floraslitic
C. Arsenic F. None of the Above

New EPA Rules
Arsenic
25. Long-term exposure of which compound/element/substance in drinking water to a variety of cancers in humans?
A. Arsenic D. THHMMS
B. Trihalomethanes E. Disinfection byproducts (DBPs)
C. Disinfection F. None of the Above

26. The EPA set a standard limit or the amount of which compound/element/substance in drinking water to 10 ppb?
A. Arsenic D. Copper
B. Trihalomethanes E. Disinfection byproducts (DBPs)
C. Disinfection F. None of the Above

27. Which compound/element/substance is a chemical that occurs naturally in the earth's crust? When rocks, minerals, and soil erode, they release this compound/element/substance into water supplies.
A. Arsenic D. Lead
B. Trihalomethanes E. Radon
C. Disinfection byproducts F. None of the Above

ICR
28. The EPA has collected data required by the Information Collection Rule (ICR) to support future regulation of Microbial contaminants, disinfectants, and disinfection byproducts.
A. True B. False

29. The rule is intended to provide EPA with information on chemical byproducts that form when disinfectants used for microbial control react with chemicals already present in source water (disinfection byproducts (DBPs)); Disease-causing microorganisms (pathogens), including Cryptosporidium; and engineering data to control these contaminants.
A. True B. False

30. Chlorine is the most widely used water disinfectant due to its effectiveness and cost. Using chlorine as a drinking water disinfectant has prevented millions of water borne diseases, such as typhoid, cholera, dysentery, and diarrhea. Most states require community water systems to use chlorination.
A. True B. False

31. All disinfectants form DBPs in one of two reactions: Chorine and chlorine-based compounds react with organics in water causing the chlorine atom to substitute other atoms resulting in?
A. Chlorine D. Halogenated by-products
B. Organic sulfide(s) E. HOCl
C. Calcium carbonate F. None of the Above

32. Oxidation reactions, where chlorine oxidizes _____present in water.

A. Carbon
B. Surface water
C. Compounds
D. Chorine and chlorine-based compounds (halogens)
E. Secondary by-products
F. None of the Above

33. Which of the following rules requires systems using public water supplies from either surface water or groundwater under the direct influence of surface water to disinfect?

A. TTHM and HAA5 Rule
B. DBP MCLs Rule
C. A community water system (CWS)
D. Disinfection byproducts (DBPs) Rule
E. Surface Water Treatment Rule (SWTR)
F. None of the Above

34. The maximum contaminant level (MCL) for the SWTR disinfection set by EPA. At this time, an MCL is set for only_____, and proposed for additional disinfection byproducts.

A. TTHM and HAA5 Rule
B. DBP MCLs Rule
C. A community water system (CWS)
D. Disinfection byproducts (DBPs) Rule
E. Total Trihalomethanes
F. None of the Above

35. Which of the following rules apply to all community and non-community water systems using a disinfectant such as chlorine, chloramines, ozone and chlorine dioxide?

A. TTHM and HAA5 Rule
B. DBP MCLs Rule
C. A community water system
D. Disinfection byproducts (DBPs) Rule
E. Disinfectants and Disinfection Byproducts
F. None of the Above

36. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2) rule applies to all water systems using _____under the influence of a surface water, as well as groundwater/surface water blends.

A. Surface water, groundwater
B. DBP MCLs Rule
C. A community water system (CWS)
D. Disinfection byproducts (DBPs) Rule
E. Total Trihalomethanes
F. None of the Above

37. Which of the following rules began in 2006 with the characterization of raw water Cryptosporidium and E. coli levels?

A. DBPs requirements
B. Disinfectants requirements
C. SDWA in 1996
D. Stage 1 Disinfectant Byproduct Rule
E. The LT2 requirements
F. None of the Above

38. Which of the following rules applies to all public water systems using groundwater?

A. Groundwater Rule
B. Compliance
C. SDWA in 1996
D. Long Term 2 Enhanced Surface Water Treatment Rule (LT2)
E. Interim Enhanced Surface Water Treatment Rule
F. None of the Above

39. Which of the following rules require EPA to develop rules to balance the risks between microbial pathogens and disinfection byproducts?

A. Amendments to the SDWA in 1996
B. Disinfectants
C. SDWA in 1996
D. Stage 1 Disinfectant Byproduct Rule
E. The LT2 requirements
F. None of the Above

40. The Stage 1 Disinfectants and Disinfection Byproducts Rule and _____, announced in December 1998, are the first of a set of rules under the 1996 SDWA Amendments.

A. Groundwater Rule
B. Compliance
C. SDWA in 1996
D. Long Term 2 Enhanced Surface Water Treatment Rule (LT2)
E. Interim Enhanced Surface Water Treatment Rule
F. None of the Above

Public Health Concerns

41. While disinfectants are effective in controlling many microorganisms, they react with natural organic and inorganic matter in source water and distribution systems to form?

A. DBPs
B. Chlorine and chloramine
C. Stage 2 DBPR
D. Classes of DBPs
E. Ultraviolet light
F. None of the Above

42. Which of the following terms have also been shown to cause adverse reproductive or developmental effects in laboratory animals?

A. DBPs
B. Chlorine and chloramine
C. Stage 2 DBPR
D. Classes of DBPs
E. Ultraviolet light
F. None of the Above

43. More than 200 million people consume water that has been disinfected. Because of the large population exposed, health risks associated with _____, even if small, need to be taken seriously.

A. DBPs
B. Chlorine and chloramine
C. Stage 2 DBPR
D. Classes of DBPs
E. Ultraviolet light
F. None of the Above

44. Which of the following rules and Disinfection Byproducts Rule applies to all community and nontransient non-community water systems that treat their water with a chemical disinfectant?

A. Groundwater Rule (GWR)
B. The Stage 1 Disinfectants
C. SDWA in 1996
D. Long Term 2 Surface Water Treatment Rule
E. Interim Enhanced Surface Water Treatment Rule
F. None of the Above

45. Which of the following rules and Disinfection Byproduct Rule updates and supersedes the 1979 regulations for total trihalomethanes?

A. DBPs
B. The Stage 1 Disinfectant
C. SDWA in 1996
D. Stage 1 Disinfectant and Disinfection Byproduct Rule
E. The LT2 requirements
F. None of the Above

Stage 2 DBP Rule Federal Register Notices

46. Which of the following rules is part of the Microbial and Disinfection Byproducts Rules, which are a set of interrelated regulations that address risks from microbial pathogens and disinfectants/disinfection byproducts?

A. Groundwater Rule (GWR)
B. Compliance
C. The Stage 2 DBP rule
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Interim Enhanced Surface Water Treatment Rule
F. None of the Above

47. Which of the following rules focuses on public health protection by limiting exposure to DBPs, specifically total trihalomethanes and five haloacetic acids, which can form in water through disinfectants used to control microbial pathogens?

A. Stage 2 DBPR
B. DBP exposure
C. The Stage 2 DBP rule
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Traditional disinfection practices
F. None of the Above

48. This rule will apply to all community water systems and nontransient non-community water systems that add a primary or residual disinfectant other than _____or deliver water that has been disinfected by a primary or residual disinfectant other than UV.

A. Ultraviolet (UV) light
B. The open-channel system
C. UV rather than ozone
D. UV source
E. UV radiation
F. None of the Above

49. Which of the following rules has been highly effective in protecting public health and has also evolved to respond to new and emerging threats to safe drinking water?

A. Stage 2 DBPR
B. DBP exposure
C. The Stage 2 DBP rule
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Safe Drinking Water Act (SDWA)
F. None of the Above

50. Which of the following terms is one of the major public health advances in the 20th century?

A. Major public health advances
B. The Stage 2 DBPR
C. Disinfection of drinking water
D. Amendments to the SDWA in 1996
E. Primary or residual disinfectant
F. None of the Above

51. There are specific microbial pathogens, such as_____, which can cause illness, and are highly resistant to traditional disinfection practices.

A. Enteric virus(es)
B. Oocyst(s)
C. Cryptosporidium
D. C. perfringens
E. E. coli host culture
F. None of the Above

52. The Stage 1 Disinfectants and Disinfection Byproducts Rule and_____, promulgated in December 1998.

A. Health advances
B. The Stage 2 DBPR
C. This final rule
D. Amendments to the SDWA in 1996
E. Interim Enhanced Surface Water Treatment Rule
F. None of the Above

53. The Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) builds upon the _____to address higher risk public water systems for protection measures beyond those required for existing regulations.

A. Stage 2 DBPR
B. DBP exposure
C. Stage 1 DBPR
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Traditional disinfection practices
F. None of the Above

54. Which of the following rules and the Long Term 2 Enhanced Surface Water Treatment Rule are the second phase of rules required by Congress?

A. Major public health advances
B. The Stage 2 DBPR
C. This final rule
D. Amendments to the SDWA in 1996
E. Primary or residual disinfectant
F. None of the Above

55. Which of the following rules will reduce potential cancer and reproductive and developmental health risks from disinfection byproducts?

A. Stage 1 DBPR
B. DBP exposure
C. Stage 2 Disinfection Byproducts Rule
D. Long Term 2 Enhanced Surface Rule
E. Traditional disinfection practices
F. None of the Above

56. Which of the following terms strengthens public health protection for customers by tightening compliance monitoring requirements for two groups of DBPs, trihalomethanes and haloacetic acids?

A. Major public health advances
B. The Stage 3 DBPR
C. This final rule
D. Amendments to the SDWA in 1996
E. Primary or residual disinfectant
F. None of the Above

57. Which of the following rules targets systems with the greatest risk and builds incrementally on existing rules?

A. Stage 2 DBPR
B. The rule
C. The Stage 1 DBP rule
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Traditional disinfection practices
F. None of the Above

58. Which of the following rules is being promulgated simultaneously with the Long Term 2 Enhanced Surface Water Treatment Rule to address concerns about risk tradeoffs between pathogens and DBPs?

A. Major public health advances
B. The Stage 2 DBPR
C. This final rule
D. Amendments to the SDWA in 1996
E. Primary or residual disinfectant
F. None of the Above

What does the rule require?

59. Which of the following terms systems will conduct an evaluation of their distribution systems, known as an Initial Distribution System Evaluation?

A. Stage 2 DBPR
B. DBP exposure
C. The Stage 1 DBP rule
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Traditional disinfection practices
F. None of the Above

60. Compliance with the maximum contaminant levels for two groups of disinfection byproducts (TTHM and HAA5) will be calculated for each monitoring location in the distribution system. This approach, referred to as the?

A. TTHM and HAA5
B. DBP MCLs
C. Locational running annual average
D. Disinfection byproducts (DBPs)
E. Trihalomethanes and haloacetic acids
F. None of the Above

61. Which of the following rules also requires each system to determine if they have exceeded an operational evaluation level, which is identified using their compliance monitoring results?

A. Stage 2 DBPR
B. DBP exposure
C. The Stage 1 DBP rule
D. Long Term 2 Enhanced Surface Water Treatment Rule
E. Traditional disinfection practices
F. None of the Above

Who must comply with the rule?

62. Which of the following rules will community and nontransient noncommunity water systems that produce and/or deliver water that is treated with a primary or residual disinfectant other than ultraviolet light?

A. DBPs from chlorination
B. Chlorine and chloramine
C. Stage 2 DBPR
D. Classes of DBPs
E. TTHM and HAA5
F. None of the Above

63. Which of the following terms is a public water system that serves year-round residents of a community, subdivision, or mobile home park that has at least 15 service connections or an average of at least 25 residents?

A. Trailer park
B. A non-community water system
C. A community water system (CWS)
D. NTNCWS
E. A nontransient water system
F. None of the Above

64. More than six months of the year, but not as primary residence, such as schools, businesses, and day care facilities?

A. Trailer park
B. A non-community water system
C. A community water system (CWS)
D. NTNCWS
E. A nontransient water system
F. None of the Above

Bacteriological Monitoring Section

65. Which of the following are usually harmless, occur in high densities in their natural environment and are easily cultured in relatively simple bacteriological media?

A. Indicator bacteria
B. Bacteria tests
C. Contaminate
D. Microbiological analysis
E. Presence of an indicator
F. None of the Above

66. Indicators in common use today for routine monitoring of drinking water include total coliforms, fecal coliforms, and?

A. Sample container
B. Bacteria tests
C. Coliform bacteria
D. Escherichia coli (E. coli)
E. Iron bacteria
F. None of the Above

67. According to the text, the routine microbiological analysis of your water is for?

A. Indicator bacteria
B. Bacteria tests
C. Contamination
D. Coliform bacteria
E. Presence of an indicator
F. None of the Above

68. Which of the following terms is used as an indicator organism to determine the biological quality of your water?

A. Microbiological analysis
B. Bac-T
C. Coliform bacteria
D. Escherichia coli (E. coli)
E. Presence of an indicator
F. None of the Above

69. The presence of an indicator or _____in your drinking water is an important health concern.

A. Indicator bacteria
B. Pathogenic bacteria
C. Contaminate
D. Microbiological analysis
E. Presence of an indicator
F. None of the Above

70. Which of the following terms is used to signal possible fecal contamination, and therefore, the potential presence of pathogens?
A. Indicator bacteria
B. Pathogenic bacteria
C. Contaminate
D. Microbiological analysis
E. Presence of an indicator
F. None of the Above

Bacteria Sampling
71. Water samples for this process must always be collected in a sterile container.
A. Indicator bacteria
B. Bacteria tests
C. Contamination
D. Microbiological analysis
E. Presence of an indicator
F. None of the Above

72. Refrigerate the sample and transport it to the testing laboratory within eight hours (in an ice chest). Many labs will accept bacteria samples on Friday. Mailing indicator bacteria is not recommended because laboratory analysis results are not as reliable.
A. True B. False

73. Which bug forms an obvious slime on the inside of pipes and fixtures? A water test is not needed for identification. Check for a reddish-brown slime inside a toilet tank or where water stands for several days.
A. Colonies
B. Algae
C. Coliform bacteria
D. Escherichia coli (E. coli)
E. Iron bacteria
F. None of the Above

74. Which of the following are common in the environment and are generally not harmful, but the presence of these bacteria in drinking water is usually a result of a problem with the treatment system or the pipes which distribute water, and indicates that the water may be contaminated with germs that can cause disease.
A. Diseases
B. Germs
C. Coliform bacteria
D. Escherichia coli (E. coli)
E. Iron bacteria
F. None of the Above

Laboratory Procedures
75. The laboratory may perform the _____ in one of four methods approved by the U.S. EPA and your local environmental or health division.
A. Colilert
B. Coliform
C. Sample time
D. Total coliform analysis
E. Pathogen test
F. None of the Above

Declining Rate
76. According to the text, which of the following terms or methods allows the filter head to increase until the filter becomes plugged with particles and the Head loss is too great to continue operation of the filter?
A. Slow sand/RO
B. Gravity filters
C. Pressure filters
D. Fast sand
E. Declining Rate
F. None of the Above

Loss of Head Indicator
77. Which of the following terms is required to force the water through the filter?
A. Filter run
B. Filtering to waste
C. Flow tube controller
D. Head loss
E. Head
F. None of the Above

78. Which of the following terms should be continuously measured to help determine when the filter should be backwashed?
A. Filter run
B. Filtering to waste
C. Flow tube controller
D. Head loss
E. Head
F. None of the Above

79. Which of the following terms is measured in the difference by a piezometer connected to the filter above the media and the effluent line?
A. Filter run
B. Filtering to waste
C. Flow tube controller
D. Head loss
E. Head
F. None of the Above

In-line Turbidimeter

80. Continuous turbidity monitors provide information about when the filter is approaching this point so that the operators can start the backwash before the turbidity is too great.
A. True B. False

81. Which of the following terms in water is caused by small suspended particles that scatter or reflect light?
A. Shelter bacteria
B. Suspended material
C. Turbidity
D. Floc
E. Breakthrough
F. None of the Above

82. Which of the following terms of the filtered water may shelter bacteria, preventing chlorine from reaching it?
A. Shelter bacteria
B. Suspended material
C. Turbidity
D. Floc
E. Breakthrough
F. None of the Above

83. Which of the following terms of the filtered water is one of the factors that determine the length of a filter run?
A. Shelter bacteria
B. Suspended material
C. Turbidity
D. Floc
E. Breakthrough
F. None of the Above

84. Which of the following terms in water measurements will also indicate whether the coagulation and other treatment processes are operating properly?
A. Shelter bacteria
B. Suspended material
C. Turbidity
D. Floc
E. Breakthrough
F. None of the Above

Filtration Process

85. A rapid sand filter will have a flow of two-to-three gpm/square foot of filter area. The high rate filter may have four-to-six gpm/square foot applied to the surface.
A. True B. False

86. Water from the source or, more commonly, from pre-treatment processes is applied to the top of the filter; it then flows downward. The water level above the filter bed is usually kept at two-to-six feet.
A. True B. False

87. When the filtration is started after being backwashed, there will be great head loss.
A. True B. False

88. Which of the following terms in water is restricted during this time in filters with a control valve installed on the filter effluent pipe?
A. Shelter bacteria
B. Suspended material
C. Turbidity
D. Filter flow
E. All of the above except D
F. None of the Above

89. The control valve prevents filter surges, which could disturb the media and force _____ through the filter.
A. Flow
B. Suspended material
C. Dissolved solids
D. Floc
E. Breakthrough
F. None of the Above

90. Which of the following terms in water rate on a filter depends on the type of filter?
A. Flow
B. Suspended material
C. Turbidity
D. Floc
E. Breakthrough
F. None of the Above

91. Which of the following terms is almost fully closed when a filter is clean so that the desired water level on top of the filter is maintained?
A. Headloss valve
B. Constant rate flow valve
C. Flow restrictor
D. Backwash cycle valve
E. Variable declining rate flow control
F. None of the Above

92. As the filter becomes dirty, the valve opens gradually until the increase in the water level above the filter indicates that the filter needs?
A. Headloss correction
B. Constant rate flow
C. Flow restrictor adjusting
D. Filtration
E. Backwashing
F. None of the Above

93. Which of the following terms the filters are allowed to take on as much water as they can handle?
A. Headloss valve
B. Constant rate flow valve
C. Flow restrictor
D. Backwash cycle valve
E. Variable declining rate flow control
F. None of the Above

94. As the filter becomes dirty, the flow through the filter becomes less and, if the plant has more than one filter, additional _____across the other filters.
A. Headloss
B. Flow redistributes
C. Flow restricting
D. Backwash cycle
E. Media
F. None of the Above

95. Which of the following terms is placed in the filter effluent pipe to prevent a filter inflow that is too great for the filter?
A. Headloss
B. Flow redistributes
C. Flow
D. Backwash cycle
E. Flow restrictor
F. None of the Above

96. The filter eventually fills with suspended material, usually after 15 to 30 hours; it will need to be _____ to clean the media.
A. Bumped D. Backwashed
B. Jetted E. Flow restrictor
C. Air scoured F. None of the Above

Back Washing
97. A normal backwash rate is between 1.2 to 1.5 gpm per square foot of filter surface area.
A. True B. False

98. Proper backwashing is a very important step in the operation of a filter.
A. True B. False

99. The filter will eventually develop additional operational problems, if the filter is not _____ completely,
A. Bumped D. Backwashed
B. Jetted E. Flow restrictor
C. Air scoured F. None of the Above

100. The filter must be cleaned before the next filter run, treated water from storage is used for the backwash cycle. This treated water is taken from elevated storage tanks or pumped in from the raw water reservoir.
A. True B. False

101. Which of the following terms must be expanded to clean the filter during the backwash?
A. Headloss D. Backwash cycle
B. Floc(s) E. Media
C. Flow restricting F. None of the Above

102. Filter expansion causes the filter grains to violently rub against each other, dislodging the _____ from the media.
A. Headloss D. Backwash cycle
B. Floc(s) E. Media
C. Flow restricting F. None of the Above

103. The filter media needs to be agitated by the filter backwash to expand and agitate and suspend the _____in the water for removal.
A. Headloss D. Backwash cycle
B. Floc(s) E. Media
C. Flow restricting F. None of the Above

104. Which of the following filter terms if is too high; media will be washed from the filter into the troughs and out of the filter.
A. Headloss D. Backwash rate
B. Floc(s) E. Media
C. Flow restricting F. None of the Above

105. During filter backwash, the media expands upwards and around the washing arms.
A. True B. False

106. According to the text, a newer method of surface wash involves using _____ before the water wash.
A. Headloss calculation
B. Floc(s) scouring
C. Air scour
D. Backwash cycle
E. Air washing
F. None of the Above

107. Which of the following terms needs two-to-five cubic feet of air per square foot of filter area?
A. Headloss calculation
B. Floc(s) scouring
C. Air scour
D. Backwash cycle
E. Air washing
F. None of the Above

108. Which of the following terms is so high that the filter will no longer produce water at the desired rate?
A. Headloss
B. Floc(s)
C. Flow restricting
D. Backwash rate
E. Flow rate
F. None of the Above

109. Which of the following terms starts to break through the filter and the turbidity in the filter effluent increases; and/or a filter run reaches a given hour of operation?
A. Headloss
B. Floc(s)
C. Flow
D. Backwash rate
E. Media
F. None of the Above

110. If a filter is taken out of service for some reason, it does not need to backwashed prior to be putting on line.
A. True B. False

111. If a filter is not backwashed until the headloss exceeds a certain number of feet, the turbidity may break through and cause the filter to exceed the standard of 0.5 NTU of turbidity.
A. True B. False

112. Filter effluent- turbidity alone can cause high head loss and decreased filter flow rate, causing the pressure in the filter to drop below atmospheric pressure and cause the filter to _____and stop filtering.
A. Prevent headloss
B. Air bind
C. Assist the backwash cycle
D. Lock
E. Bump
F. None of the above

113. According to the text, many filters can operate longer than one week before needing to be?
A. Bumped
B. Jetted
C. Air scoured
D. Backwashed
E. Flow restrictor
F. None of the Above

114. Long filter runs can cause the filter media to pack down so that it is difficult to _____ during the backwash.
A. Control headloss
B. Control floc(s)
C. Expand the bed
D. Backwash cycle
E. All of the Above
F. None of the Above

Backwashing Process

115. The normal method for opening the filter backwash valve involves draining the water level above the filter to a point six inches above the filter media.
A. True B. False

116. When the backwash valve is opened, this action allows backwash water to start flowing into the filter and start?
A. Control headloss D. Some means of controlling the media carryover
B. Crust on the filter E. Carrying suspended material away from the filter
C. Expand the bed F. None of the Above

117. For a filter with an air wash, the filter backwash water and the air wash should not be used together, this could be possible only if the following is installed.
A. Control headloss D. Some means of controlling the media carryover
B. Crust on the filter E. Carrying suspended material away from the filter
C. Expand the bed F. None of the Above

118. When the surface wash is turned on it should be allowed to operate for several minutes to break up?
A. Control headloss D. Some means of controlling the media carryover
B. Crust on the filter E. Carrying suspended material away from the filter
C. Expand the bed F. None of the Above

119. The time elapsed from when the filter wash is started until full flow is applied to the filter should be greater than one minute.
A. True B. False

120. The filter expansion needed will depend on how much agitation is needed to suspend the filter media to?
A. Control headloss D. Some means of controlling the media carryover
B. Crust on the filter E. Remove to suspended material trapped in the filter
C. Expand the bed F. None of the Above

121. According to the text, with a multi-media filter, the rate must be high enough to scrub the interface between the coal and the sand, where the highest amount of suspended solids will be removed from the media.
A. True B. False

122. The best way to determine how long the filter should be washed is to measure the turbidity of the?
A. Backwash water is used D. Too much backwash water is used
B. Backwash water leaving the filter E. Serious damage to the filter underdrain
C. Raw water flow entering the plant F. None of the Above

123. Which of the following statements and it must be treated after use, backwash valves must be opened slowly?
A. Backwash water is used D. Too much backwash water is used
B. Backwash water leaving the filter E. Serious damage to the filter underdrain
C. Raw water flow entering the plant F. None of the Above

124. Opening the valves too rapidly can cause _____, filter gravel, and filter media.

A. Backwash water is used
B. Backwash water leaving the filter
C. Raw water flow entering the plant
D. Too much backwash water is used
E. Serious damage to the filter underdrain
F. None of the Above

Disposal of Filter Backwash Water

125. Water from the filter backwash can be returned directly to the environment.

A. True B. False

126. The supernatant is then pumped back to the head of the treatment plant at a rate not exceeding ten percent of the?

A. Daily flow
B. Backwash water
C. Eliminates the need to obtain
D. Raw water flow entering the plant
E. Amount of solids that must be removed
F. None of the Above

127. The settled material is pumped to a sewer or is treated in the solids-handling process, this conserves most of the backwash water and _____ a pollution discharge permit.

A. Daily flow
B. Backwash water
C. Eliminates the need to obtain
D. Raw water flow entering the plant
E. Amount of solids that must be removed
F. None of the Above

128. Backwash is a very high flow operation, the surges that are created from the backwash coming from the filter?

A. Daily flow
B. Backwash water
C. Return
D. Raw water flow entering the plant
E. Must not be allowed to enter the head of the plant
F. None of the Above

129. According to the text, the spent backwash water must be stored in storage tanks and returned slowly to the treatment process.

A. True B. False

Filter to Waste

130. When filtration is started after backwash, suspended material remains in the filter media until the turbidity in the effluent meets standards. Depending on the type of filter, this may last from 20-40 minutes.

A. True B. False

131. According to the text, wasting is needed as some _____following the backwash.

A. Daily flow
B. Backwash water
C. Return
D. Suspended material remains in the filter media
E. Filtration should always be started
F. None of the Above

132. Which of the following terms should be done slowly after a backwash to prevent breakthrough of suspended material?

A. Daily flow
B. Backwash water
C. Return
D. Suspended material
E. Filtration should always be started
F. None of the Above

Filter Aids

133. A normal dose of polymer for filter aiding will be less than 0.1 ppm, but the exact dose will be decided by the result of a jar test and by experimentation in the treatment plant.
A. True B. False

134. Which of the following terms have very high molecular weight and cause the floc to coagulate and flocculate quickly?
A. Filter medias
B. Sand
C. Filters
D. Filter aids
E. Floc
F. None of the Above

135. Which of the following terms reflects filter use of large volumes of backwash water to be able to remove the floc that has penetrated deeply into the filter bed.
A. Filter backwashing
B. Backwash water leaving the filter
C. Raw water flow entering the plant
D. Too much backwash water is used
E. Serious damage to the filter underdrain
F. None of the Above

136. Which of the following terms reflects a material that adds strength to the floc and prevents its breakup?
A. Filter backwashing
B. Backwash water leaving the filter
C. Raw water flow entering the plant
D. Too much backwash water is used
E. Filter aid
F. None of the Above

137. Which of the following terms are water-soluble, organic compounds that can be purchased in either wet or dry form?
A. Filter medias
B. Activated Carbon
C. Filters
D. Filter aids
E. Floc
F. None of the Above

138. Which of the following terms expresses that the polymer strengthens the bonds and prevents the shearing forces in the filter from breaking the floc apart when used?
A. Filter media
B. Lime
C. Filter
D. Filter aid
E. Floc
F. None of the Above

139. Which of the following terms should be added just ahead of the filter?
A. Filter media
B. Polymer
C. Filter
D. Filter aid
E. Floc
F. None of the Above

140. Which of the following terms if too much is added will cause the bonds to become too strong, which may then cause the filter to plug?
A. Filter media
B. Polymer
C. Filter
D. Filter aid
E. Floc
F. None of the Above

Filter Operating Problems

141. According to the text, there are three major types of filter problems. They can be caused by chemical treatment before the filter, _____, and backwashing of filters.

A. Filter aid
B. Control of filter flow rate
C. Filter media process
D. Turbidity breakthrough
E. Coagulation and flocculation stages
F. None of the above

Chemical Treatment before the Filter

142. Which of the following terms of the water treatment must be monitored continuously?

A. Filter aid
B. Control of filter flow rate
C. Filter media process
D. Turbidity breakthrough
E. Coagulation and flocculation stages
F. None of the above

143. Adjustments for coagulant added must be made frequently to prevent the filter from becoming overloaded, this may cause the filter to prematurely reach its?

A. Filter aid
B. Control of filter flow rate
C. Maximum headloss
D. Turbidity breakthrough
E. Coagulation and flocculation stages
F. None of the above

144. If there is early turbidity breakthrough in the filter effluent, more coagulant may have to be added to the coagulation process.

A. True B. False

145. There may be a need for better mixing during the coagulation or the addition of more?

A. Filter aid
B. Control of filter flow rate
C. Filter media process
D. Turbidity
E. Coagulation and flocculation
F. None of the above

146. If there is a rapid increase in filter head loss, too much coagulant may be clogging the filter.

A. True B. False

Control of Filter Flow Rate

147. When a filter is subjected to rapid changes in flow rate, the turbidity of the effluent will not be affected; the dirtier the coagulation and flocculation stages, the greater the effect.

A. True B. False

148. According to the text, addition of filter aids may also reduce the impact on the filter effluent.

A. True B. False

149. When backwashing a filter and therefore temporarily taking it out of service, the remaining filter(s) must pick up the additional flow, this can cause a change in flow that will cause?

A. Turbidity breakthrough
B. Backwash storage basin
C. Filter media breakthrough
D. Filter aid breakthrough
E. Coagulation and flocculation stages
F. None of the Above

150. If the plant has a _____, this will also prevent surges to the filters.

A. Turbidity breakthrough
B. Backwash storage basin
C. Filter media breakthrough
D. Filter aid breakthrough
E. Coagulation and flocculation stages
F. None of the Above