Registration Form

Pretreatment 101 CEU Training Course

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_____

Please circle/check which certification you are applying the course CEU's.
Pretreatment ___ Collection___ Wastewater Treatment ___

Other _____

Technical Learning College TLC PO Box 3060, Chino Valley, AZ 86323
Toll Free (866) 557-1746 Fax (928) 272-0747 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 fully understand that this type of study program deals with dangerous, changing conditions and various laws and that I will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable in any fashion for any errors, omissions, advice, suggestions or neglect contained in this CEU education training course or for any violation or injury, death, neglect, damage or loss of your license or certification caused in any fashion by this CEU education training or course material suggestion or error or my lack of submitting paperwork. It is my responsibility to 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. It is my responsibility to ensure all information is correct and to abide with all rules and regulations.

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. If the course is not accepted for CEU credit, we will give you the course free if you ask your State to accept it for credit.

State Approval Listing URL…

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

You can obtain a printed version of the course manual from TLC for an additional $169.95 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.

Do not solely depend on TLC's Approval list for it may be outdated.

Some States and many employers require the final exam to be proctored.
http://www.abctlc.com/downloads/PDF/PROCTORFORM.pdf

All downloads are electronically tracked and monitored for security purposes.

Texas Students Only

Acknowledgement of Notice of Potential Ineligibility for License

You are required to sign and return to TLC or your credit will not be reported.

Name: _____

Date of Birth:_____

Email Address: _____

By signing this form, I acknowledge that Technical Learning College notified me of the following:

- the potential ineligibility of an individual who has been convicted of an offense to be issued an occupational license by the Texas Commission on Environmental Quality (TCEQ) upon completion of the educational program;
- the current TCEQ Criminal Conviction Guidelines for Occupational Licensing, which describes the process by which the TCEQ's Executive Director determines whether a criminal conviction:
- renders a prospective applicant an unsuitable candidate for an occupational license;
- warrants the denial of a renewal application for an existing license; or
- warrants revocation or suspension of a license previously granted.
- the right to request a criminal history evaluation from the TCEQ under Texas Occupations Code Section 53.102; and
- that the TCEQ may consider an individual to have been convicted of an offense for the purpose of denying, suspending or revoking a license under circumstances described in Title 30 Texas Administrative Code Section 30.33.

Enrollee Signature: _____ Date: _____

Name of Training Provider/Organization: Technical Learning College

Contact Person: Melissa Durbin Role/Title: Dean

For Texas TCEQ Wastewater Licensed Operators Important Information

Wastewater/Collections Rule Changes (Texas Only)

Rule Changes and Updates for Domestic Wastewater Systems

On Nov. 4, 2014, TCEQ commissioners adopted revisions to 30 Texas Administrative Code (TAC), Chapter 217, Design Criteria for Domestic Wastewater Systems, and "re-adopted" previously repealed rules in 30 TAC, Chapter 317, Design Criteria Prior to 2008.

Some of the changes to Chapter 217 include:

- Adding new definitions and clarifying existing definitions;
- Adding design criteria and approval requirements for rehabilitation of existing infrastructure;
- Adding design criteria for new technologies, including cloth filters and air lift pumps;
- Making changes to reflect modern practices, standards and trends;
- Modifying rule language to improve readability and enforceability; and
- Modifying the design organic loadings and flows for a new wastewater treatment facility.

SUBCHAPTER A: ADMINISTRATIVE REQUIREMENTS §§217.1 - 217.18

Effective December 4, 2015 §217.1. Applicability. (a) Applicability. (1) This chapter applies to the design, operation, and maintenance of: (A) domestic wastewater treatment facilities that are constructed with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (B) treatment units that are altered, constructed, or re-rated with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (C) collection systems that are constructed with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (D) collection system units that are altered, constructed, or re-rated with plans and specifications received and approved by the executive director after the effective date of the amendments to this chapter; (E) existing domestic wastewater treatment facilities that do not have a current Texas Pollutant Discharge Elimination System permit or a Texas Land Application Permit and are required to have an active wastewater permit; (F) existing wastewater treatment facilities and collection systems that never received approval for plans and specifications from the executive director; and (G) collection system rehabilitation projects covered in §217.56(c) and §217.69 of this title (relating to Trenchless Pipe Installation; and Maintenance, Inspection, and Rehabilitation of the Collection System). (2) Domestic wastewater treatment facilities, treatment units, collection systems, and collection system units with plans and specifications approved by the executive director that were received on or after August 28, 2008 and before the effective date of this chapter must comply with the rules in this chapter, as they existed immediately before the effective date of the amendments to this chapter.

The rules in Texas Commission on Environmental Quality Page 2 Chapter 217 - Design Criteria for Domestic Wastewater Systems effect immediately before the effective date of the amendments to this chapter are continued in effect for that purpose. (3) This chapter does not apply to: (A) the design, installation, operation, or maintenance of domestic wastewater treatment facilities, treatment units, collection systems, or collection system units with plans

and specifications that were approved by the executive director on or before August 27, 2008, which are governed by Chapter 317 of this title (relating to Design Criteria Prior to 2008) or design criteria that preceded Chapter 317 of this title; and (B) systems regulated by Chapter 285 of this title (relating to On-Site Sewage Facilities); or collection systems or wastewater treatment facilities that collect, transport, treat, or dispose of wastewater that does not have the characteristics of domestic wastewater, although the wastewater may contain domestic wastewater.
(b) The executive director may grant variances from new requirements added by the amendments of this chapter to a person who proposes to construct, alter, or re-rate a collection system or wastewater treatment facility if the plans and specifications for the project are submitted within 180 days after the date the amendments to this chapter are effective, provided the plans and specifications comply with the rules in effect immediately prior to the amendment. Adopted November 4, 2015 Effective December 4, 2015

The link to the rules is available on the TCEQ website at
https://www.tceq.texas.gov/rules/indxpdf.html

For Texas Students Only….

Please sign and date this notice

Printed Name

_____

Signature Date

_____

CERTIFICATION OF COURSE PROCTOR

Technical Learning College requires that our students who takes a correspondence or home study program course must pass a proctored course reading, quiz and final examination. The proctor must complete and provide to the school a certification form approved by the commission for each examination administered by the proctor.

Instructions. When a student completes the course work, fill out the blanks in this section and provide the form to the proctor with the examination.

Name of Course:_____

Name of Licensee:_____

Instructions to Proctor. After an examination is administered, complete and return this certification and examination to the school in a sealed exam packet or in pdf format.

I certify that:

1. I am a disinterested third party in the administration of this examination. I am not related by blood, marriage or any other relationship to the licensee which would influence me from properly administering the examination.
2. The licensee showed me positive photo identification prior to completing the examination.
3. The enclosed examination was administered under my supervision on _____. The licensee received no assistance and had no access to books, notes or reference material.
4. I have not permitted the examination to be compromised, copied, or recorded in any way or by any method.
5. Provide an estimate of the amount of time the student took to complete the assignment.

Time to complete the entire course and final exam. _____

Notation of any problem or concerns:

Name and Telephone of Proctor (please print):

_____

_____

Signature of Proctor

Pretreatment 101 Answer Key

Name _____ Phone_____

Did you check with your State agency to ensure this course is accepted for credit? No refunds.

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 course 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, underline, bold or X only one correct answer

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

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462. A B C D	474. A B C D	486. A B	498. A B C D
463. A B C D	475. A B C D	487. A B	499. A B
464. A B C D	476. A B C D	488. A B C D	500. A B

Amount of Time for Course Completion – How many hours you spent on course?

Must match State Hour Requirement _____ (Hours)

I understand that I am 100 percent responsible to ensure that TLC receives the Assignment and Registration Key and that it is accepted for credit by my State or Providence. I understand that TLC has a zero tolerance towards not following their rules, cheating or hostility towards staff or instructors. I need to complete the entire assignment for credit. There is no credit for partial assignment completion. My exam was proctored. 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. I will not hold TLC liable for any errors, injury, death or non-compliance with rules. I will abide with all federal and state rules and rules found on page 2.

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

_____

Signature

Please write down any questions you were not able to find the answers or that have errors.

This course contains general EPA's CWA federal rule requirements. Please be aware that each state implements wastewater/safety/environmental/building regulations that may be more stringent than EPA's regulations. Check with your state pretreatment/environmental/health agency for more information. These rules change frequently and are often difficult to interpret and follow. Be careful to not be in non-compliance and do not follow this course for proper compliance.

When Finished with Your Assignment...

REQUIRED DOCUMENTS
Please scan the **Registration Page, Answer Key, Proctoring report, Survey and Driver's License** and email these documents to info@TLCH2O.com.

IPhone Scanning Instructions
If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX
If you are unable to scan and email, please fax these documents to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**

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

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

PRETREATMENT 101 CEU TRAINING 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.

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

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

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

How did you hear about this Course? _____

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.

_____

_____

Pretreatment 101 CEU Training Assignment

You will have 90 days from the start of this assignment to finish it. Only one answer per question. Please utilize the Answer Key. Please fax or e-mail your completed answer key and registration form to TLC.

You are expected to circle or mark the correct answer on the enclosed answer key. Please include your name and address on your exam. The answer key is in the front. There are no intentional trick questions. (s) means the answer may be plural or singular in nature.

You can e-mail or fax your Answer Key along with the Registration Form to TLC.

Please write down any questions you were not able to find the answers or that have errors.

Clean Water Act (Rule) Summary

33 U.S.C. s/s 1251 et seq. (1977)

1. Which of the following has clarified and expanded permit requirements under the Clean Water Act for 19,000 municipal sanitary sewer collection systems in order to reduce sanitary sewer overflows?

A. OSHA
B. Clean water legislation
C. Environmental Protection Agency (EPA)
D. None of the above

2. The requirements will help communities improve some of water quality standards–by requiring facilities to develop and implement new capacity, management, operation, and maintenance programs and public notification programs.

A. True B. False

3. The Clean Water Act is a _____ amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the United States.

A. 1977
B. 1999
C. 2009
D. None of the above

4. Which of the following gave the authority to set effluent standards on an industry basis and continued the requirements to set water quality standards for all contaminants in surface waters?

A. EPA
B. Congress
C. Public notification program(s)
D. None of the above

5. The _____makes it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a permit (NPDES) is obtained under the Act?

A. CWA C. OSHA
B. EPA D. None of the above

6. The CWA provisions for the delegation by EPA of many permitting, administrative, and enforcement aspects of the law to state governments. In _____with the authority to implement CWA programs, the EPA still retains oversight responsibilities.

A. POTW's areas
B. Some counties
C. States
D. None of the above

7. Which of the following's primary objective is to restore and maintain the integrity of the nation's waters?

A. Clean Water Act
B. Clean water legislation
C. EPA oversight responsibilities
D. None of the above

National Pollutant Discharge Elimination System (NPDES) Permit Program Section

National Pollutant Discharge Elimination System (NPDES) Permit Program

8. The Clean Water Act compels that all point source wastewater dischargers obtain and comply with an _____.

A. NPDES permit
B. NPDES Watershed Strategy
C. Specific discharge limit
D. None of the above

9. NPDES permits requires the discharges from_____, other wastewater treatment facilities, industrial facilities, concentrated animal feeding operations, aquiculture, and other "point source" dischargers.

A. Storm sewer overflows
B. All point source" dischargers
C. Publicly owned wastewater treatment facilities
D. None of the above

10. The NPDES program controls wet weather discharges such as stormwater discharges from industrial activities and municipal stormwater discharges including urban storm-water runoff, combined sewer overflows, and _____.

A. Storm sewer overflows
B. Other "point source" dischargers
C. Violations of permit conditions
D. None of the above

11. Which of the following were developed to ensure that such discharges to receiving waters are protective of human health and the environment? They establish specific discharge limits, monitoring, and reporting requirements and may require that dischargers undertake measures to reduce or eliminate pollution to receiving waters.

A. NPDES permit(s)
B. NPDES Watershed Strategy
C. Specific discharge limits
D. None of the above

12. Violations of permit conditions are enforceable under the.

A. OSHA
B. SDWA
C. Clean Water Act
D. None of the above

13. The EPA uses a variety of techniques to monitor permittee compliance status, including on-site inspections and review of data submitted by permittees. NPDES permits are issued for a term of _____years (or less).

A. 10
B. 3
C. 5
D. None of the above

State NPDES Programs

14. NPDES Watershed Permitting a _____was developed to ensure that the NPDES Program protects watersheds as effectively as possible.

A. Storm sewer overflows
B. NPDES Watershed Strategy
C. Violations of permit conditions
D. None of the above

15. Chief among the NPDES program's responsibilities is the effective implementation of EPA's_____, including stormwater management and the control of combined sewer and sanitary sewer overflows.
A. NPDES permits C. Specific discharge limits
B. Wet-weather strategies D. None of the above

Stormwater Management
16. Which of the following from many sources are largely uncontrolled, for this reason, the mandate of the Stormwater Program is particularly challenging?
A. Storm sewer overflows C. Violations of permit conditions
B. Stormwater discharges D. None of the above

17. Amendments to the Clean Water Act established a two-phased approach to address stormwater discharges. Phase 1, currently being implemented, requires permits for separate storm water systems serving large and medium-sized communities (those with over _____ inhabitants), and for stormwater discharges associated with industrial and construction activity involving at least five acres.
A. 100,000 C. 50,000
B. 250,000 D. None of the above

18. Phase 2 will address remaining stormwater discharges. This new regulatory approach would require permits for municipalities in urban areas with populations under _____, and smaller construction sites.
A. 100,000 C. 50,000
B. 250,000 D. None of the above

Combined Sewer Overflows (CSOS)
19. A combined sewer overflow is a discharge from a sewer system that is designed to carry _____in the same pipe to a sewage treatment plant.
A. Excess wastewater C. Sanitary wastewater and stormwater
B. A combined sewer overflow D. None of the above

20. In periods of rainfall or snowmelt, a combined sewer system can discharge _____ directly to rivers, lakes, and estuaries, causing health and environmental hazards because treatment plants cannot handle the extra flow.
A. Excess wastewater C. Decentralized sewer flow
B. A combined sewer overflow D. None of the above

Whole Effluent Toxicity (WET)
21. WET is the total toxic effect of an effluent measured by _____.
A. Biological toxicity test C. Identification of specific toxicants
B. Effluent toxicants D. None of the above

22. A WET test takes the _____on exposed test organisms without requiring the identification of specific toxicants.
A. WET test endpoint C. Effect of all toxicants
B. Effluent toxicants D. None of the above

(s) means the answer may be plural or singular in nature.

23. WET duplicates to the greatest extent possible the actual environmental exposure of aquatic life to _____.
A. WET test endpoint C. Identification of specific toxicants
B. Effluent toxicants D. None of the above

24. WET tests use the same essential procedures as those used to create _____ .
A. WET test endpoint C. Water quality criteria
B. Effluent toxicants D. None of the above

25. NPDES permit limits for WET typically are conveyed either as a concentration of effluent in clean water that must not result in an unacceptable _____ or a number of toxic units (such as 3 TU) which corresponds to an effluent concentration.
A. WET test endpoint C. Identification of specific toxicants
B. Effluent toxicants D. None of the above

WET Limits
26. WET monitoring requirements instead of WET limits are often included in NPDES to generate toxicity data for use in making future decisions about whether WET needs to be controlled at_____ .
A. A particular discharge point C. Identification of specific toxicants
B. Effluent toxicants D. None of the above

Pretreatment
27. The National Pretreatment Program is a joint effort of federal, state, and local regulatory environmental agencies established to protect _____.
A. Pollutants C. Industrial discharges
B. Water quality D. None of the above

28. The National Pretreatment Program is designed to reduce the level of pollutants discharged by industry and other _____into municipal sewer systems, and thereby, reduce the amount of pollutants released into the environment through wastewater.
A. Pollutants C. Non-domestic wastewater sources
B. Water quality D. None of the above

29. The purpose of the program is to protect the Publicly Owned Treatment Works (POTW) from pollutants that may interfere with plant operation, prevent _____from being introduced into the POTW, and to improve opportunities for the POTW to reuse wastewater and biosolids that are generated.
A. Untreated pollutants C. Industrial discharges
B. Water quality D. None of the above

30. The General Pretreatment Regulations oblige POTWS that meet certain requirements to develop local pretreatment programs to control _____ into their municipal sewer systems. These programs must be approved by either EPA or the state acting as the pretreatment Approval Authority.
A. Pollutants C. Industrial discharges
B. Water quality D. None of the above

Types of Regulated Pollutants

31. Which of the following are primarily grouped into organics (including pesticides, solvents, polychlorinated biphenyls (PCBS), and dioxins) and metals (including lead, silver, mercury, copper, chromium, zinc, nickel, and cadmium)?

A. Pathogens C. Conventional pollutants
B. Toxic Pollutants D. None of the above

32. Which of the following are any additional substances that are not conventional or toxic that may require regulation?

A. Non-conventional pollutants C. Conventional pollutants
B. Toxic Pollutants D. None of the above

33. Which of the following are a group of more than 126 pollutants that have been found to be harmful to animal or plant life by certain pathways of exposure?

A. Pathogens C. Conventional pollutants
B. Toxic Pollutants D. None of the above

34. Which of the following are contained in the sanitary wastes of households, businesses, and industries?

A. Pathogens C. Conventional pollutants
B. Toxic Pollutants D. None of the above

35. Which of the following include human wastes, ground-up food from sink disposals, and laundry and bath waters?

A. Pathogens C. Conventional pollutants
B. Toxic Pollutants D. None of the above

36. Which of the following are organisms that cause disease in humans?

A. Pathogens C. Conventional pollutants
B. Toxic Pollutants D. None of the above

37. Which of the following include nutrients such as nitrogen and phosphorus?

A. Non-conventional pollutants C. Conventional pollutants
B. Toxic Pollutants D. None of the above

Objectives of the pretreatment program:

38. Manage pollutant discharges into a POTW to improve opportunities for reuse of POTW wastewater and residuals (sewage sludge).

A. True B. False

39. Avoid introducing pollutants into a POTW which could cause worker health or safety concerns, or that could pose a potential endangerment to the public or to the environment.

A. True B. False

40. Protect publicly owned treatment works (POTW) from pollutants that may cause interference with sewage treatment plant operations.

A. True B. False

41. Prevent introducing pollutants into a POTW that could cause pass through of untreated pollutants to receiving waters.

A. True B. False

42. Specific prohibitions forbid eight categories of pollutant discharges as follows: Discharges containing pollutants which create a fire or explosion hazard in the CMOM, including but not limited to, wastestreams with a closed cup flashpoint of more than 140°F using the test methods specified in 40 CFR §261.21.
A. True B. False

43. Discharges containing pollutants causing corrosive structural damage to the POTW, but in no case discharges with a pH lower than _____, unless the POTW is specifically designed to accommodate such discharge(s)?
A. 4.0 C. 7.0
B. 5.0 D. None of the above

44. Which of the following containing pollutants in amounts causing obstruction to the flow in the POTW resulting in interference?
A. Pass through C. Interference
B. Discharges D. None of the above

45. Which of the following of any pollutants released at a flow rate and/or concentration that will cause interference with the POTW?
A. Pass through C. Interference
B. Discharges D. None of the above

46. Discharges of petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause?
A. Pass through C. Interference or pass through
B. Discharges D. None of the above

47. Which of the following may result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems?
A. Pass through C. Interference
B. Discharges D. None of the above

48. Which of the following are except at discharge points designated by the POTW?
A. Discharge of specific pollutants C. Discharges of trucked or hauled pollutants
B. Categorical pretreatment standards D. None of the above

Physical-Chemical Treatment
49. After treatment is complete, _____ is discharged to the receiving stream, typically a creek, river, lake, estuary or ocean.
A. Effluent C. Conventional pollutants
B. Waste solids D. None of the above

50. Both primary and secondary treatment processes generate waste solids, known as_____.
A. Effluent C. Sewage sludge or biosolids
B. Solids D. None of the above

(s) means the answer may be plural or singular in nature.

51. Which of the following from the treatment process may be used productively, disposed of in a landfill or incinerated in a dedicated sewage sludge incinerator with the ash also disposed of in a landfill?
A. Sludges C. Conventional pollutants
B. Pollutants into POTWs D. None of the above

52. POTWs are designed to treat typical household wastes and biodegradable commercial and biodegradable industrial wastes. The Clean Water Act (CWA) and the EPA define the contaminants from these sources as _____.
A. Effluent C. Conventional pollutants
B. Toxics in industrial waste D. None of the above

Discharge to POTW
53. POTWs are not designed to treat toxics in_____. As such, these discharges, from both industrial and commercial sources, can cause serious problems.
A. Toxics in industrial waste C. Conventional pollutants
B. Industrial waste D. None of the above

54. The undesirable outcome of _____can be prevented using treatment techniques or management practices to reduce or eliminate the discharge of contaminants.
A. Discharges C. Unconventional pollutants
B. Waste solids D. None of the above

As noted in 40CFR §403.2, the objectives of the National Pretreatment Program are to:
55. Prevent the introduction of pollutants into POTWs that will interfere with the operation of a POTW, including interference with its use or disposal of municipal sludge;
Prevent the introduction of _____into POTWs that will pass through the treatment works or otherwise be incompatible with such works;
A. Toxics in industrial waste C. Pollutants
B. Pollutants into POTWs D. None of the above

56. Improve opportunities to recycle and reclaim municipal and industrial wastewaters and _____.
A. Effluent C. Sludges
B. Waste solids D. None of the above

Definitions
57. Which of the following inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal, and- therefore is a cause of a violation of any NPDES permit requirement or of the prevention of sewage sludge use or disposal in compliance with any applicable requirements?
A. Pass through C. Corrosion of collection system and treatment plant
B. Interference D. None of the above

58. Which of the following can occur from volatilization of toxic chemicals in the POTW collection system or treatment plant, or through incineration of sewage sludge?
A. Interference C. Groundwater pollution
B. Air pollution D. None of the above

59. Which of the following from acidic discharges or discharges containing elevated levels of sulfate?
A. Pass through C. Corrosion of collection system and treatment plant
B. Interference D. None of the above

60. Which of the following is a discharge which can be alone or in conjunction with a discharge or discharges from other sources?
A. Pass through C. Corrosion of collection system and treatment plant
B. Interference D. None of the above

61. Which of the following can occur from leaks in the collection system or pollutants from contaminated sewage sludge?
A. Interference C. Groundwater pollution
B. Pass Through D. None of the above

62. Which of the following is a discharge that exits the POTW into waters of the U.S. in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any NPDES permit requirement?
A. Interference C. Groundwater pollution
B. Pass Through D. None of the above

63. Which of the following can make waters unswimmable or unfishable in direct contrast to the goals of the CWA, or, these discharges can interfere with the biological activity of the treatment plant causing sewage to pass through the treatment plant untreated or inadequately treated?
A. Pass through C. Corrosion of collection system and treatment plant
B. Interference D. None of the above

National Pretreatment Program - Introduction

64. The National Pretreatment Program identifies specific requirements that apply to all IUs, additional requirements that apply to all SIUs, and certain requirements that only apply to _____.
A. A permit C. Pass through and interference
B. CIUs D. None of the above

Prohibited Discharge Standards

65. Prohibited discharge standards are somewhat general, national standards are applicable to_____, regardless of whether or not the POTW has an approved pretreatment program or the industrial user has been issued a permit.
A. A permit C. All industrial users to a POTW
B. All SIUs D. None of the above

66. Prohibited discharge standards are designed to protect against pass through and interference, _____, and to promote worker safety and beneficial biosolids use.
A. A permit C. Protect the POTW collection system
B. All SIUs D. None of the above

Categorical Pretreatment Standards

67. Categorical Pretreatment Standards are limitations on pollutant discharges to publicly owned treatment works (POTWs), promulgated by the EPA in accordance with Section _____ of the Clean Water Act that apply to specific process wastewaters of particular industrial categories.

A. 113 C. 513
B. 307 D. None of the above

68. These are national, technology-based standards that apply regardless of whether or not the POTW has _____or the industrial user has been issued a permit.

A. A permit C. An approved pretreatment program
B. All SIUs D. None of the above

69. The national pretreatment program objectives are achieved by applying and enforcing three types of pretreatment standards: General and specific prohibitions, Categorical pretreatment standards and Local limits.

A. True B. False

70. All three types of standards can be required by EPA, the state, and local government, even though they are developed at different levels of government (i.e., federal, state, and local).

A. True B. False

71. Pretreatment standards and requirements can be articulated as numeric limits, narrative prohibitions, and best management practices.

A. True B. False

72. BMPs exist for forestry, agriculture, stormwater and many other sectors. (BMPs The most effective and practical ways to control pollutants and meet environmental quality goals. BMPs exist for forestry, agriculture, stormwater and many other sectors.).

A. True B. False

73. IUs should be cognizant of the standards that apply to them. The control authority, in the case of a POTW with an approved pretreatment program, or the Approval Authority, in the case of a POTW without an approved pretreatment program. [paraphrased from 40 CFR 403.3(f)] is responsible for identifying standard(s) applicable to each IU and applying the most stringent requirements where multiple provisions exist.

A. True B. False

Section 101 of the Clean Water Act (CWA)

74. To restore and maintain the chemical, physical, and biological integrity of the Nation's waters:
It is the national goal that the discharge of pollutants into the navigable waters be eliminated by _____.

A. 2025 C. 1985
B. 1999 D. None of the above

75. It is the national policy that the discharge of _____ in toxic amounts be prohibited;

A. Toxic pollutants C. Both point and nonpoint sources of pollution
B. Sources of pollutants D. None of the above

76. It is the national policy that Area wide waste treatment management planning processes be developed and implemented to assure adequate control of _____ in each State;
A. Discharge of toxic pollutants C. Both point and nonpoint sources of pollution
B. Sources of pollutants D. None of the above

77. It is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the _____into the navigable waters, waters of the contiguous zone, and the oceans; and
A. Discharge of pollutants C. Both point and nonpoint sources of pollution
B. Sources of pollutants D. None of the above

78. It is the national policy that programs for the control of _____be developed and implemented in an expeditious manner so as to enable the goals to be met through the control of both point and nonpoint sources of pollution.
A. Discharge of toxic pollutants C. Nonpoint sources of pollution
B. Sources of pollutants D. None of the above

National Pretreatment Program Section

The General Pretreatment Regulations

79. The General Pretreatment Regulations establish responsibilities of_____, industry and the public to implement Pretreatment Standards to control pollutants which pass through or interfere with POTW treatment processes or which may contaminate sewage sludge.
A. Control Authority C. Federal, State, and local government
B. Local municipalities D. None of the above

80. The General Pretreatment Regulations apply to all non-domestic sources that introduce pollutants into a POTW. These sources of "indirect discharge" are more commonly referred to as_____.
A. Industrial users (IUs) C. POTW
B. SIUs as opposed to IUs D. None of the above

81. Many of the General Pretreatment Regulations apply to SIUs as opposed to IUs, because control of _____should provide adequate protection of the POTW.
A. Industrial users (IUs) C. POTW
B. SIUs D. None of the above

82. An IU that discharges an average of _____gallons per day or more of process wastewater to the POTW;
A. 25,000 C. 1 million
B. 10,000 D. None of the above

83. An IU that contributes a process wastestream making up _____ percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant;
A. 5 C. 25
B. 10 D. None of the above

84. An IU designated by the _____ as such because of its reasonable potential to adversely affect the POTW's operation or violate any pretreatment standard or requirement; or an IU subject to Federal categorical pretreatment standards.
A. POTW C. Control Authority
B. Local municipalities D. None of the above

85. Unlike other environmental programs that rely on Federal or State governments to implement and enforce specific requirements, the Pretreatment Program places the majority of the responsibility upon _____.
A. POTW C. Control Authority
B. Local municipalities D. None of the above

86. Specifically, section 403.8(a) of the General Pretreatment Regulations states that any _____ with a total design flow greater than 5 million gallons per day (MGD) and smaller POTWs with SIUs must establish a local pretreatment program.
A. POTW C. Control Authority
B. Local municipalities D. None of the above

87. As of early 2011, 1,600 POTWs are required to have local programs, this represents only about _____ percent of the total treatment plants nationwide
A. 25 C. 75
B. 15 D. 50

88. POTWs account for more than _____ percent (i.e., approximately 30 billion gallons a day) of the national wastewater flow treated by POTWs
A. 25 C. 75
B. 80 D. 50

Control Authority
89. The General Pretreatment Regulations define the term "_____" as a POTW that administers an approved pretreatment program since it is the entity authorized to control discharges to its system.
A. Local municipalities C. Approval Authority
B. Control Authority D. None of the above

90. Which of the following must establish a local pretreatment program to control discharges from non-domestic sources?
A. Local municipalities C. Approval Authority
B. All Control Authorities D. None of the above

POTW Pretreatment Program Requirements
91. The actual requirement for a POTW to develop and implement a local pretreatment program is a _____.
A. POTW reporting concern C. Condition of its NPDES permit
B. Program requirement D. None of the above

92. Once the Approval Authority determines that a POTW needs a pretreatment program, the _____ is modified to require development of a local program and submission of the program to the Approval Authority for review and approval. Consistent with §403.8(f), POTW pretreatment programs must contain the six minimum elements.

A. POTW Reporting
B. POTW's NPDES permit
C. Condition of its NPDES permit
D. None of the above

93. In addition to the six specific elements, pretreatment program submissions must include:
A statement from the City Solicitor (or the like) declaring the _____to carry out program requirements;

A. POTW Reporting
B. POTW has adequate authority
C. Condition of its NPDES permit
D. None of the above

94. Which of the following is found to be complete proceed to the public notice process, Public Participation and POTW Reporting?

A. Pretreatment program submissions
B. Carry out program requirements
C. Condition of its NPDES permit
D. None of the above

95. Upon program approval, the Approval Authority is responsible for modifying the POTW's NPDES permit to require implementation of the _____.

A. Discharge of any pollutant(s)
B. Approved pretreatment program
C. Worker health and safety
D. None of the above

96. Once approved, the Approval Authority oversees POTW pretreatment program implementation via receiving annual reports and_____.

A. Discharge of any pollutant(s)
B. Approved pretreatment program
C. Conducting periodic audits and inspections
D. None of the above

Prohibited Discharge Standards

97. All IUs, whether or not subject to any other National, State, or local pretreatment requirements, are subject to the general and specific prohibitions identified in 40 CFR §§403.5(a) and (b), respectively. General prohibitions forbid the _____to a POTW that cause pass through or interference.

A. Obstruction
B. Interference with the POTW
C. Discharge of any pollutant(s)
D. None of the above

98. Specific prohibitions forbid eight categories of pollutant discharges as follows:
Discharges containing pollutants which create a fire or explosion hazard in the POTW, including but not limited to, wastestreams with a closed cup flashpoint of less than _____ using the test methods specified in 40 CFR §261.21;

A. 43°C (108°F)
B. 140°F (60°C)
C. 40°C (104°F)
D. None of the above

99. Discharges containing pollutants causing corrosive structural damage to the POTW, but in no case discharges with a _____, unless the POTW is specifically designed to accommodate such discharges;

A. pH higher than 5.0
B. pH lower than 5.0
C. pH lower than 7.0
D. None of the above

100. Discharges containing pollutants in amounts causing _____to the flow in the POTW resulting in interference;
A. Obstruction C. Interference or pass through
B. Interference with the POTW D. None of the above

101. Which of the following released at a flow rate and/or concentration that will cause interference with the POTW?
A. Discharge points C. Discharges of any pollutants
B. Interference with the POTW D. None of the above

102. Discharges of heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds _____ unless the Approval Authority, upon request of the POTW, approves alternative temperature limits;
A. 43°C (108°F) C. 40°C (104°F)
B. 140°F (60°C) D. None of the above

103. Discharges of petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause _____;
A. Discharge points C. Interference or pass through
B. Interference with the POTW D. None of the above

104. Discharges which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause _____;
A. Discharge of any pollutant(s) C. Acute worker health and safety problems
B. Approved pretreatment program D. None of the above

105. Which of the following except at discharge points designated by the POTW?
A. Discharge points C. Discharges of trucked or hauled pollutants
B. Interference with the POTW D. None of the above

Categorical Standards
106. Categorical pretreatment standards are national, uniform, technology-based standards that apply to discharges to POTWs from specific industrial categories and limit the?
A. Discharge of specific pollutants C. Discharges of trucked or hauled pollutants
B. Categorical pretreatment standards D. None of the above

107. Which of the following terms for both existing and new sources (are promulgated by the EPA pursuant to Section 307(b) and (c) of the CWA?
A. Discharge of specific pollutants C. Discharges of trucked or hauled pollutants
B. Categorical pretreatment standards D. None of the above

Categorical Pretreatment Standards - Sampling
108. Categorical Pretreatment Standards are technology-based standards for a selected group of industries established by EPA under authority of the_____.
A. Control Authority C. CWA
B. Technology-based standards D. None of the above

109. Categorical Pretreatment Standards are developed on the basis of industry-wide studies of current treatment practices for pollution control (e.g., treatment technology) and, therefore, establish _____for the regulated industrial categories.

A. Effluent limits
B. Monitoring waiver(s)
C. National baseline pollution control requirements
D. None of the above

110. Pretreatment Standards are generally promulgated for b_____. These standards could be the same or different.

A. Control Authority
B. Technology-based standards
C. Both existing sources and new sources.
D. None of the above

111. If an Industrial User is subject to categorical Pretreatment Standards, the permit writer must include effluent limits based on these_____.

A. Monitoring requirement(s)
B. Monitoring waiver(s)
C. Standards in the user's permit
D. None of the above

112. In certain situations, the Control Authority may have the option to authorize a CIU to forgo sampling for a pollutant not expected to be present [40 CFR 403.12(e)(2)]. Before implementing that option, the Control Authority must have the legal authority to implement the_____.

A. Control Authority
B. Technology-based standard
C. Provision
D. None of the above

113. If the Control Authority has determined that a _____ is appropriate, the permit must still contain the applicable effluent limitations for the pollutants with waived monitoring requirements.

A. Monitoring requirement(s)
B. Monitoring waiver(s)
C. Effluent limits
D. None of the above

114. Furthermore, any grant of a monitoring waiver by the Control Authority must be included as a condition in the user's permit along with the requirements to submit the certification statement outlined at 40 CFR 403.12(e)(2)(v) with_____.

A. Each user self-monitoring report
B. Technology-based standards
C. Both existing sources and new sources.
D. None of the above

115. The permit must include the notification requirement that if a pollutant with waived _____ is found to be present or is expected to be present according to changes that occur in the user's operations, the user must immediately notify the Control Authority and comply with the monitoring requirements of 40 CFR 403.12(e)(1).

A. Monitoring requirement(s)
B. Monitoring waiver(s)
C. Effluent limits
D. None of the above

116. To include all relevant categorical Pretreatment Standards in the permit, the permit writer must be familiar with specific categorical Pretreatment Standards to which the Industrial User is subject and follow the rules to apply_____.

A. Categorical Pretreatment Standards
B. Technology-based standards
C. Both existing sources and new sources.
D. None of the above

(s) means the answer may be plural or singular in nature.

Rules for Applying Categorical Pretreatment Standards

117. Categorical standards apply directly to specific wastestream or at the end of treatment of that wastestream. When the designated sampling location described in the permit contains a categorically-regulated wastestream and one or more other wastestreams not regulated by the same categorical standard, an _____must be calculated.

A. Categorically-regulated wastestream
B. Mass or equivalent concentration limits
C. Alternative categorical limit
D. None of the above

118. If _____have both the daily maximum and the monthly average categorical Pretreatment Standards, both limits must be included in the permit.

A. Effluent limits
B. Categorical Pretreatment Standard(s)
C. An alternative categorical limit
D. None of the above

119. Limitations on all pollutants regulated by the categorical Pretreatment Standards must be included in the permit. Note, however, that some of the categorical regulations allow the use of indicator pollutants (e.g., oil and grease monitoring in lieu of TTO monitoring for dischargers subject to 40 CFR Part 467, Aluminum Forming) or allow exemptions from monitoring for certain pollutants (usually requiring_____).

A. Categorically-regulated wastestream
B. Periodic certification of non-use
C. Industrial User's control mechanism
D. None of the above

120. Any grant of a _____by the Control Authority must be included in the Industrial User's control mechanism.

A. Categorically-regulated wastestream
B. Mass or equivalent concentration limits
C. Monitoring waiver
D. None of the above

121. Upon approval of a monitoring waiver, the _____must include the requirement for the user to submit the certification statement at 40 CFR 403.12(e)(2)(v).

A. Industrial User's control mechanism
B. Categorical Pretreatment Standard(s)
C. Alternative categorical limit
D. None of the above

122. The Control Authority has the option of converting production-based categorical Pretreatment Standards to equivalent _____.

A. Categorically-regulated wastestream
B. Mass or equivalent concentration limits
C. Industrial User's control mechanism
D. None of the above

123. The Control Authority has the option of converting _____that are expressed in terms of concentration to equivalent mass limits. [Note: This provision must be incorporated into the pretreatment program in accordance with 40 CFR Part 403 before implementation.]

A. A monitoring waiver
B. Categorical Pretreatment Standards
C. An alternative categorical limit
D. None of the above

124. The Control Authority has the option of converting flow-based mass limits for facilities in the Organic Chemicals, Plastics, and Synthetic Fibers, and Pesticide Chemicals categories to_____.

A. Categorically-regulated wastestream
B. Mass or equivalent concentration limits
C. Concentration-based limits
D. None of the above

125. Categorical Pretreatment Standards establish the compliance date(s) by which Industrial Users covered by the _____must be in compliance. The Control Authority cannot extend these federally promulgated dates in the permit.

A. Monitoring waiver C. Alternative categorical limit
B. Standard(s) D. None of the above

Rules for Production-Based Categorical Pretreatment Standards

126. Incorporating production-based categorical Pretreatment Standards in permits involves special considerations. The standards are expressed in terms of an allowable pollutant mass discharge per unit of production, such as pounds of pollutant per _____ pounds of product produced.

A. 2,000 C. 1,000
B. 500 D. None of the above

127. The standards can be placed in the permit verbatim from the regulations. The permit should then require the Industrial User to submit actual production data from the date(s) on which the compliance samples were collected and to calculate the actual mass of pollutant(s) discharged, on the_____, to evaluate compliance for that specific day.

A. Equivalent limits C. Daily maximum and monthly average limits
B. Basis of flow and concentration D. None of the above

128. Often, it might be impractical or difficult for the Control Authority to independently determine or verify compliance because the production rate and the _____and pollutant concentration must be known.

A. Equivalent limits C. Daily maximum and monthly average limits
B. Wastestream flow D. None of the above

129. The Control Authority has the option of using_____.

A. Equivalent wet limits C. Equivalent mass or concentration limits
B. Compliance for that specific day D. None of the above

130. Such limits use an industry's _____and flow rates to derive the corresponding daily maximum and monthly average limits.

A. Equivalent limits C. Daily maximum and monthly average limits
B. Long-term average daily production D. None of the above

131. The Industrial User permit may function as the legal document for the conversion of production-based standards to equivalent mass or_____ . These equivalent limits are deemed Pretreatment Standards under section 307(b) of the CWA and are federally enforceable.

A. Equivalent limits C. Concentration limits
B. Compliance for that specific day D. None of the above

132. It is critical when converting _____to equivalent mass or concentration limits that the permit writer correctly calculate the equivalent limits and document the calculations.

A. Equivalent limits C. Daily maximum and monthly average limits
B. Production-based standards D. None of the above

A Permit Containing Equivalent Limits Must Clearly Specify:
The flow and production rates upon which the limits are based; The requirement that the Industrial User report a reasonable measure of its long-term production rate in each periodic compliance report;

133. The requirement that the Industrial User notify the Control Authority of significant changes in long-term flow and production rates within _____ days of knowing that they will change in the next calendar month;
A. 2 C. 3 to 5
B. 5 D. None of the above

134. Determining the appropriate production rate is one of the critical factors in deriving equivalent limits. EPA recommends using a production figure that approximates the long-term average. Data for a day, week, month, or year that are unusually high or low should not be used; _____ years of data should be reviewed to determine the appropriate long-term average.
A. 2 C. 3 to 5
B. 5-7 D. None of the above

135. After reviewing 5 years of data, the permit writer could select the highest yearly average (provided that this value does not vary by more than _____ percent to the most recent annual average).
A. 30 C. 20
B. 50 D. None of the above

POTW Pretreatment Program Responsibilities Section

Legal Authority

136. POTWs seeking pretreatment program approval must develop policy and procedures for program implementation and establish the _____ to implement and enforce program requirements.
A. State authority C. Legal authority
B. State law D. None of the above

137. The General Pretreatment Regulations do not provide Control Authorities with the legal authority to carry out their pretreatment programs; rather, the regulations set forth the _____with pretreatment programs.
A. Legal authority is detailed C. Legal authority to implement
B. Minimum requirements for POTWs D. None of the above

138. A Control Authority's legal authority actually derives from _____. Therefore, State law must confer the minimum Federal legal authority requirements on a Control Authority.
A. Legal authority C. Legal authority to implement
B. State law – Or local law D. None of the above

139. Where deficient, State law must be modified to grant the _____. In order to apply regulatory authority provided by State law, it is generally necessary for the Control Authority to establish local regulations to legally implement and enforce pretreatment requirements.
A. Local regulations C. Pretreatment programs
B. Minimum requirements D. None of the above

140. Where the Control Authority is a municipality, legal authority is detailed in a Sewer Use Ordinance (SUO), which is usually part of_____.
A. City or county code C. Legal authority to implement
B. State law D. None of the above

141. The EPA's 2007 guidance, EPA Model Pretreatment Ordinance provides a model for POTWs that are required to develop _____.
A. Local regulations C. Pretreatment programs
B. Minimum requirements for POTWs D. None of the above

142. As POTW service areas expand, new contributions may arise from "extra jurisdictional" IUs located outside of the_____.
A. Legal authority is detailed C. Control Authority's legal jurisdiction
B. State law D. None of the above

143. Multijurisdictional arrangements need special legal/contractual mechanisms to ensure _____to implement and enforce program requirements in these other jurisdictions.
A. Local regulations C. Adequate authority
B. Minimum requirements for POTWs D. None of the above

144. Some state statutes may deliver _____(i.e., a Control Authority is automatically allowed to regulate extra jurisdictional IUs contributing to their system).
A. Legal authority is detailed C. Legal authority to implement
B. General extraterritorial powers D. None of the above

145. The degree to which authorities are granted may be somewhat limited, thereby, restricting a Control Authority's ability to implement and enforce_____.
A. Local regulations C. A program
B. Minimum requirements for POTWs D. None of the above

146. The start of an independent organization (by affected municipalities or the State) which is authorized to administer and enforce _____for the entire area in which it provides services is common in areas where multiple POTWs each serve various jurisdictions.
A. Control Authority C. An approved pretreatment program
B. Extra jurisdictional IUs D. None of the above

147. Affected Control Authorities may opt to enter into agreements requiring each municipality to implement and enforce the approved pretreatment program covering_____.
A. All IUs within their jurisdiction C. Various jurisdictions
B. Extra jurisdictional IUs D. None of the above

148. The Control Authority must retain the means to regulate _____ where the contributing jurisdiction's efforts are inadequate. It is essential that agreements clearly define the roles of each party.
A. Control Authority C. Multiple POTWs each serve various jurisdictions
B. Extra jurisdictional IUs D. None of the above

149. Where extra jurisdictional IUs lie in_____, a Control Authority may annex or utility annex the service area.
A. Unincorporated areas C. Multiple POTWs each serve various jurisdictions
B. Extra jurisdictional IUs D. None of the above

Contracts

150. A Control Authority may enter into a contract with_____, although contracts generally limit the enforcement capabilities of the Control Authority. As such, contracts should only be pursued when all other means fail.

A. An extra jurisdictional IU
B. Jurisdictional boundaries of the POTW
C. Might be subject to the pretreatment program
D. None of the above

151. Since procedures for obtaining jurisdiction, creating sanitary districts, annexing service areas, etc. vary among states, Control Authority personnel should consult with _____ to thoroughly examine options allowed.

A. Permittee C. Their legal staff
B. SIU D. None of the above

Industrial Waste Surveys

152. As part of program development and maintenance, _____require Control Authorities to identify and locate all IUs that might be subject to the pretreatment program.

A. Nature of wastes discharged C. The Federal regulations
B. Jurisdictional boundaries of the POTW D. None of the above

153. While the General Pretreatment Regulations do not specify how a _____ is to accomplish this, it is beneficial to conduct an initial in-depth survey, and then institute measures to update the list continuously.

A. Control Authority C. IWS
B. Jurisdiction D. None of the above

154. Control Authorities must ensure that the entire service area is reviewed. This may include IUs located_____.

A. Outside the jurisdictional boundaries of the POTW
B. Inside the jurisdictional boundaries of the POTW
C. Might be subject to the pretreatment program
D. None of the above

155. Once_____ are identified, the Control Authority must classify these users to determine if pretreatment standards and requirements should apply to these facilities.

A. Control Authority C. IUs
B. Jurisdiction D. None of the above

156. Normally, the Control Authority develops and distributes an Industrial Waste Survey (IWS) questionnaire to the identified IUs. The IWS questionnaire requests information regarding IU activities and the _____.

A. Nature of wastes discharged C. Pretreatment program
B. Jurisdictional boundaries of the POTW D. None of the above

157. The Control Authority may opt to send a detailed IWS questionnaire initially or conduct the survey in two phases (i.e., send a screener requesting basic information to eliminate obvious facilities and then send a detailed IWS to those facilities with greater potential to be_____).

A. Control Authority C. SIUs
B. Jurisdiction D. None of the above

158. Key to the _____ is to identify facilities that are subject to categorical standards (i.e., CIUs) or otherwise have the potential to impact the POTW (i.e., SIUs).
A. Control Authority C. IWS
B. Jurisdiction D. None of the above

Permitting
159. The General Pretreatment Regulations require all IUs be controlled through permit, order, or similar means to ensure _____ with applicable pretreatment standards and requirements.
A. Compliance C. Verify information
B. Explicit requirements D. None of the above

160. _____issued are site specific and tailored to the unique circumstances of the IU.
A. Permittee C. SIU permits
B. SIU D. None of the above

161. _____must establish clear and explicit requirements for the permittee, to include using such terms such as “shall” and “must” in lieu of vague terms such as “recommend” or “may”.
A. Compliance C. Verify information
B. Permit conditions D. None of the above

162. The Control Authority must document its decision-making process when developing permits to ensure defensibility and enforceability. Adherence to sound, documented procedures will prevent any arbitrary and capricious claims by the _____.
A. Permittee C. Control Authority
B. SIU D. None of the above

Phase I
163. As part of Phase I, Control Authorities may _____contained in the permit application, perform an inspection of the IU for confirmation of facts, tally data, and potentially sample and analyze the IU’s wastestream.
A. Compliance C. Review and verify information
B. Explicit requirements D. None of the above

164. Control Authority personnel, effective communication, and _____ cooperation are essential to collection of complete and accurate information.
A. Permittee C. Control Authority
B. SIU D. None of the above

165. Phase II requires that the Control Authority interpret data and other information and document the permit decision-making rationale, preferably in a permit fact sheet. Although the contents of a fact sheet will vary by permittee, fact sheets should provide_____.
A. Compliance C. A justification of all permitting decisions
B. Explicit requirements D. None of the above

166. Typical components of a fact sheet are provided. Completed fact sheets should be included as part of the permit and provided to the _____ to document the soundness of permitting decisions.
A. Permittee C. Control Authority
B. SIU D. None of the above

167. After all permitting decisions are made; the Control Authority must incorporate those decisions into a permit. The permit, signed by_____, is provided to the Permittee for comment and after comments are addressed, a final permit is issued to the IU.
A. Permittee C. The specified Control Authority official
B. SIU D. None of the above

168. While many comments may be easily addressed/resolved by the Control Authority, occasionally resolution must be obtained through a formal adjudicatory hearing process where both the Permittee and Control Authority present their case to_____.
A. Permittee C. Control Authority
B. A third party D. None of the above

Non-SIUs
169. Many POTWs also control contributions from _____using various means, such as through general permits issued to an entire industrial sector. These types of control mechanisms may not necessarily require compliance with specific pollutant limitations.
A. Permittee C. Non-SIUs
B. SIU D. None of the above

Wastewater Priority Pollutants
170. The concentrations of various substances in _____in dissolved, colloidal or suspended form are typically low but vary considerably.
A. These 126 pollutants C. Water
B. New industrial users D. None of the above

171. Priority Pollutants refer to a list of 129 specific pollutants that includes heavy metals and specific organic chemicals. The priority pollutants are a subset of "_____ " as defined in the Clean Water Act (USA).
A. POTWs C. Priority Pollutants
B. Toxic pollutants D. None of the above

172. Which of the following with an approved pretreatment program must develop local limits for arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver and zinc?
A. Each POTW C. Priority pollutant producers
B. All industrial users D. None of the above

173. The POTW must also identify all _____and evaluate the need for limits for these pollutants.
A. Other pollutants of concern C. Priority Pollutants
B. New industrial users D. None of the above

174. Concentrations of various substances is defined as any pollutant limited in the POTW's NPDES permit or found in the collection system in sufficient quantity to have a reasonable potential to cause pass through or interference at the treatment plant, pose a threat to worker health and safety, or to cause other problems within the collection system or at the treatment plant, such as explosions or obstruction of wastewater flow.
A. True B. False

(s) means the answer may be plural or singular in nature.

175. The priority pollutant scans performed periodically by POTWs with approved pretreatment programs are useful in identifying?
A. Pollutants of concern C. Priority Pollutants
B. New industrial users D. None of the above

176. Many POTWs have surcharge programs for?
A. Conventional pollutants C. Local limits
B. All industrial users D. None of the above

177. A POTW should set absolute upper limits for _____in its sewer use ordinance (SUO) or industrial user (IU) permits, based on total plant capacity.
A. Conventional pollutants C. Priority Pollutants
B. All industrial users D. None of the above

178. Which of the following can stimulate the growth of algae and other aquatic plants?
A. Excess nutrients C. Carbon, nitrogen and phosphorus
B. Industrial discharges D. None of the above

179. When these plants die and decompose, they may reduce the amount of _____ in the water.
A. Nutrients C. Carbon, nitrogen and phosphorus
B. Oxygen D. None of the above

180. Which of the following can also get into wastewater from industrial discharges, common household detergents and cleaners, runoff from streets and lawns and air pollutants that fall to the ground?
A. Nutrients C. Carbon, nitrogen and phosphorus
B. Heavy Metal D. None of the above

181. Treatment plants cannot remove all _____ from the wastewater.
A. Nutrients C. Carbon, nitrogen and phosphorus
B. Industrial discharges D. None of the above

182. "Heavy Metal" in the water treatment field refers to heavy, dense, _____that occur only at trace levels in water, but are very toxic and tend to accumulate.
A. Nutrients C. Metallic elements
B. Heavy Metal D. None of the above

183. Which of the following include DDT, Aldrin, Chlordane, Endosulfan, Endrin, Heptachlor, and Diazinon. Surprisingly, concentrations of pesticides in urban runoff may be equal or greater than the pesticides in agricultural runoff?
A. Nutrients C. Typical pesticides and herbicides
B. Industrial discharges D. None of the above

184. Which of the following spilled or released petroleum products (from oil spills or discharge of oil production brines) and combustion products that are found in urban runoff?
A. PAHs C. Inorganics
B. Priority Pollutants D. None of the above

185. The Priority Pollutants are a set of _____EPA regulates, and for which EPA has published analytical test methods.
A. Chemical pollutants C. Sampling requirements for inorganics
B. Chemical standards D. None of the above

186. Which of the following lists is more practical for testing and for regulation in that chemicals are described by their individual chemical names?
A. Organics C. List of toxic pollutants more usable
B. Priority Pollutant D. None of the above

187. Which of the following contains hundreds of compounds; there is no test for the group as a whole, nor is it practical to regulate or test for all of these compounds?
A. Priority Pollutants C. The list of toxic pollutants
B. Chemical standard D. None of the above

Enforcement Section

188. In addition to requirements for permitting, sampling, and inspecting IUs, the General Pretreatment Regulations also require Control Authorities to_____, and respond to instances of IU noncompliance in a timely, fair, and consistent manner.
A. Review IU reports and plans C. All violations that must be resolved
B. Political and economic pressures D. None of the above

189. Which of the following is a critical element of the Pretreatment Program, but in the past extenuating circumstances may have prevented POTWs from taking adequate enforcement?
A. Enforce against IUs C. Enforcement of pretreatment requirements
B. Halt or prevent such a discharge D. None of the above

190. Which of the following is from local officials could keep POTW personnel from taking appropriate actions? After this was identified as a major concern, the EPA promulgated regulations in 1990 (55 FR 30082) that require all POTWs with approved pretreatment programs to adopt and implement an Enforcement Response Plan (ERP).
A. IU noncompliance C. All violations that must be resolved
B. Political and economic pressures D. None of the above

191. The ERP regulations, at 40 CFR §403.8(f)(5), established a framework for POTWs to formalize procedures for investigating and responding to_____.
A. Instances of IU noncompliance C. Pretreatment effluent limit
B. Halt or prevent such a discharge D. None of the above

192. With an approved ERP in place, _____on a more objective basis and minimize outside pressures.
A. POTWs can enforce against IUs C. Pretreatment effluent limit
B. Halt or prevent such a discharge D. None of the above

IU Compliance

193. To evaluate IU compliance, Control Authorities must first identify applicable requirements for each IU. In general, IU reports and _____are the basis for POTW evaluation of IU compliance.
A. IU noncompliance C. All violations that must be resolved
B. POTW monitoring activities D. None of the above

194. Discharge permit limit exceedances, discrepancies, deficiencies, and lateness are _____that must be resolved.

A. IU noncompliance
B. Political and economic pressures
C. All violations
D. None of the above

Definition of Significant Noncompliance (SNC) An IU is in SNC if its violation meets one or more of the following criteria (40 CFR 403.8(f)(2)(vii):

195. Which of the following represents wastewater discharge limits, defined here as those in which sixty-six percent or more of all of the measurements taken during a six-month period exceed (by any magnitude**)** the daily maximum limit or the average limit for the same pollutant parameter?

A. IU noncompliance
B. Chronic violations
C. All violations that must be resolved
D. None of the above

196. Which of the following is defined here as those in which thirty-three percent or more of all of the measurements for each pollutant parameter taken during a six-month period equal or exceed the product of the daily maximum or the average limit multiplied by the applicable TRC (TRC = 1.4 for BOD 5 , TSS, fats, oil, and grease, and 1.2 for all other pollutants except pH)?

A. Self-monitoring requirements
B. Technical Review Criteria (TRC) violations
C. Imminent endangerment to human health
D. None of the above

197. Any other violation of a pretreatment effluent limit (daily maximum or longer-term average) that the Control Authority determines has caused, alone or in combination with other discharges, _____ (including endangering the health of POTW personnel or the general public);

A. Enforce against IUs
B. Interference or pass through
C. Pretreatment effluent limit
D. None of the above

198. Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment or has resulted in the POTW's exercise of its _____under 40 CFR § 403.8(f)(1)(vi)(B) of this section to halt or prevent such a discharge;

A. Self-monitoring requirements
B. Emergency authority
C. Imminent endangerment to human health
D. None of the above

199. Failure to meet, within _____ days after the schedule date, a compliance schedule milestone contained in a local control mechanism or enforcement order for starting construction, completing construction, or attaining final compliance;

A. 90
B. 10
C. 30
D. None of the above

200. Failure to provide, within _____ days after the due date, required reports such as baseline monitoring reports, 90-day compliance reports, periodic self-monitoring reports, and reports on compliance with compliance schedules;

A. 90
B. 30
C. 10
D. None of the above

201. Which of the following that the Control Authority determines will adversely affect the operation or implementation of the local pretreatment program?
A. Any other violation or group of violations
B. Halt or prevent such a discharge
C. Pretreatment effluent limit
D. None of the above

Summary
202. Along with establishing self-monitoring requirements, the _____must specify reporting requirements in the permit.
A. Permit writer
B. Person responsible
C. Industrial User's reporting requirements
D. None of the above

203. At least once every _____ months, SIUs are required to submit a characterization of their discharge.
A. 3
B. 6
C. 12
D. None of the above

These periodic compliance reports must contain the following:
204. The concentration, or production and mass, of regulated pollutants in the_____.
A. Industrial User's effluent
B. Regulated pollutants
C. BMP or pollutant prevention requirements
D. None of the above

205. The measured or estimated _____for the reporting period.
A. Average and maximum flow rates
B. Regulated pollutants
C. BMP or pollutant prevention requirements
D. None of the above

206. Documentation to evaluate _____with any BMP or pollutant prevention requirements.
A. Industrial User report continuing compliance
B. Regulated pollutants
C. Compliance
D. None of the above

207. In cases where the Control Authority conducts all the sampling and analysis and the Control Authority collects the flow data, the Control Authority might determine that the _____ does not need to submit a monitoring report.
A. Control Authority
B. Person responsible
C. Industrial User
D. None of the above

208. If the Control Authority has chosen this alternative and is collecting all the data that would ordinarily be required from the Industrial User and at a frequency that would be expected of the user if it were conducting self-monitoring, the _____may waive the requirement that the Industrial User report continuing compliance [40 CFR 403.12(g)].
A. Control Authority
B. Regulated pollutants
C. BMP or pollutant prevention requirements
D. None of the above

209. Even if the Control Authority has decided to waive an Industrial User's continued compliance reporting requirements, the Industrial User is still required to submit documentation required by the Control Authority to determine compliance with any _____.
A. Industrial User report continuing compliance
B. BMP or pollution prevention alternatives
C. BMP or pollutant prevention requirements
D. None of the above

210. Which of the following should review this table and include applicable reporting requirements in each permit? These reporting requirements can be placed in the permit together with any additional local reporting conditions.
A. The permit writer
B. Who is responsible for signing
C. What types of information
D. None of the above

211. The Control Authority must require appropriate reporting from _____.
A. Control Authority C. Industrial Users
B. Person responsible D. None of the above

212. When drafting an Industrial User's reporting requirements, the permit should contain the following information in sufficient descriptive detail:
Which of the following are to be contained in each report (e.g., analytical data, flow data, or production data)?
A. How the reports can be submitted C. What types of information
B. Who is responsible for signing D. None of the above

213. When each report is to be submitted to the _____ (specifying the dates and frequency for submission)
A. Control Authority C. Industrial User's reporting requirements
B. Person responsible D. None of the above

214. Which of the following and certifying the reports?
A. How the reports can be submitted C. What types of information
B. Who is responsible for signing D. None of the above

215. Where the reports are to be sent, including the Control Authority's address and, if appropriate, the name of the _____ for receiving each report
A. Control Authority C. Industrial User
B. Person responsible D. None of the above

216. Which of the following to the Control Authority?
A. How the reports can be submitted C. What types of information
B. Who is responsible for signing D. None of the above

Pretreatment and Wastewater Sampling Section

Pretreatment Sampling

217. Sampling is the most suitable method for verifying compliance with _____.
A. Monitoring locations C. Pretreatment standards
B. Permitted discharge limits D. None of the above

218. Which of the following are chosen by the Control Authority and must be such that compliance with permitted discharge limits can be determined?
A. Monitoring locations C. Pretreatment standards
B. Permitted discharge limits D. None of the above

219. Where possible, the Control Authority should not designate _____ that are confined spaces or that are difficult to access or difficult to place the automated sampling equipment.
A. Monitoring locations C. Pretreatment standards
B. Permitted discharge limits D. None of the above

220. Control Authorities should measure flow to allow for collection of flow-proportioned composite samples, which are required, unless _____is not feasible.
A. Grab samples C. Sampling for such pollutants
B. Flow-proportional samples D. None of the above

221. Which of the following are preferred over time composite samples particularly where the monitored discharge is intermittent or variable?
A. Grab samples C. Sampling for such pollutants
B. Flow-proportional composite samples D. None of the above

222. Which of the following dictate the preparation protocols, equipment, and collection bottles to be used to avoid contamination of samples or loss of pollutants through improper collection?
A. Lab reports C. Desired analyses
B. Field measurement records D. None of the above

223. Which of the following as pH, cyanide, oil and grease, flashpoint, and volatile organic compounds require manual collection of grab samples?
A. Sample grabs C. Sampling for such pollutants
B. Flow composite samples D. None of the above

224. Similar to composite samples, _____ must be representative of the monitored discharge and are to be collected from actively flowing wastestreams.
A. Grab samples C. Sampling for such pollutants
B. Flow-proportional composite samples D. None of the above

225. Which of the following or the nature of the discharge may require collection of and hand-composting of more than one grab sample to accurately assess compliance?
A. Fluctuations in flow C. Sampling for such pollutants
B. Flow-proportional composite samples D. None of the above

226. Which of the following Control Authorities should develop and implement standard operating procedures and policies detailing sample collection and handling protocols in accordance with 40 CFR Part 136?
A. Admissible evidence
B. To ensure defensibility of data
C. Handling protocols in accordance with 40 CFR Part 136
D. None of the above

227. Which of the following may require information regarding sample location, condition of and programmed settings for sampling equipment, wastewater meter readings, and information for such parameters as pH and temperature that require analysis in the field?
A. Lab reports C. Desired analyses
B. Field measurement records D. None of the above

228. Which of the following serve as a link between field personnel and the laboratory and contain information regarding sample matrix, type, and handling?
A. Admissible evidence
B. Chain of custody forms
C. Handling protocols in accordance with 40 CFR Part 136
D. None of the above

229. Which of the following should contain the minimum information specified in 40 CFR §403.12(o)(1)(ii-iv) as well as any additional information necessary to demonstrate compliance with 40 CFR Part 136 requirements?
A. Lab reports C. Desired analyses
B. Field measurement records D. None of the above

230. Which of the following prompt recording of information necessary for demonstrating compliance with applicable requirements will aid in ensuring it can be used as admissible evidence in enforcement proceedings or in judicial actions?
A. Admissible evidence C. Use of standardized forms
B. Chain of custody forms D. None of the above

Types of Samples
231. Which of the following use depends largely on the types of analyses to be run, and the nature of the wastestream being sampled?
A. The sampling method C. Blanks
B. Duplicate samples D. None of the above

232. Which of the following is an individual sample collected in less than 15 minutes without regard for flow or time of day.
A. The volume of sample C. Proportional composite sampling
B. A grab sample D. None of the above

233. Which of the following would then be taken by means of time proportional composite sampling methods or by hand compositing will provide a representative sample of the effluent being discharged?
A. An analysis C. Samples
B. Duplicate samples D. None of the above

234. Which of the following can be collected by any of these methods is dependent on the number and types of analyses that must be performed?
A. The volume of sample C. Proportional composite sampling
B. Concentration of pollutants D. None of the above

235. Hand compositing is a series of time proportional grab samples which are collected and composited by hand.
A. True B. False

236. Generally, there are four types of samples that are collected by the POTW's Sampling Section: grab, time proportional composites, flow proportional composites, and hand composites.
A. True B. False

237. pH, cyanide, oil and grease, sulfide, and volatile organics must be collected as composite samples.
A. True B. False

Wastewater Grab Samples

238. Grab samples are individual samples collected in less than 3 minutes without regard to flow or time of day.

A. True B. False

239. Which of the following are normally taken manually, but can be pumped?

A. Grab samples C. Flow proportional composites
B. Hand composites D. None of the above

A grab sample is usually taken when a sample is needed to:

240. Provide information about _____of pollutants at a specific time.

A. The volume of sample C. An instantaneous concentration
B. Concentration of pollutants D. None of the above

241. Quantify the _____in a non-continuous discharge.

A. Pollutants C. Taste test
B. Duplicate samples D. None of the above

242. Corroborate _____ if the waste is not highly variable.

A. The volume of sample C. Proportional composite sampling
B. Composite samples D. None of the above

243. Which of the following are not amenable to compositing such as pH, temperature, dissolved oxygen, chlorine, purgeable organics and sulfides, oil and grease, coliform bacteria, and sulfites?

A. Quantity of pollutants C. Monitor parameters
B. Hand composites D. None of the above

Timed Composites

244. Which of the following are usually taken in instances where the intention is to characterize the wastes over a period of time without regard to flow?

A. Timed samples C. Time proportional composite sampling methods
B. Hand composites D. None of the above

245. Which of the following consist of a series of equal volume grab samples taken at regular intervals?

A. Timed composite samples C. Time proportional composite sampling methods
B. Hand composites D. None of the above

Flow Proportional Composites

246. Which of the following consist of: a series of grab samples whose volumes are equal in size and proportion to the flow at the time of sampling?

A. Sample preservation C. Flow proportional composite samples
B. Duplicate samples D. None of the above

247. Which of the following are taken at varying time intervals, or continuous samples taken over a period of time based on the flow?

A. The volume of sample C. Samples
B. Concentration of pollutants D. None of the above

248. Which of the following are taken at varying time intervals are most often collected by the sampling inspectors?
A. The volume of sample C. Proportional composite sampling
B. Equal volume samples D. None of the above

Hand Compositing
249. Hand compositing is a series of time proportional grab samples that are collected and composited by hand. Provided the _____ and are collected at even intervals, the results should be the same as if done by an automatic sampler (i.e., flow proportional composite sampling).
A. Represent the entire tank C. One hand composite per batch discharge
B. Sample volumes are equal D. None of the above

250. A specific instance where this sampling method may be used is in metal plating shops that have_____.
A. Represent the entire tank C. Batch discharges from the treatment tank
B. Sample volumes are equal D. None of the above

251. Provided the tank contains a homogeneous mixture, _____are taken of equal amounts and at evenly spaced intervals of time during discharge, to accurately represent the entire tank. This should represent the waste characteristics of the entire batch discharge to the sewer.
A. A minimum of four grab samples C. One hand composite per batch discharge
B. Sample volumes are equal D. None of the above

252. One hand composite per batch discharge would be equivalent to a _____taken at other types of facilities.
A. Represent the entire tank C. One hand composite per batch discharge
B. 24-hour composite sample D. None of the above

253. The sampling data would be compared with the _____or local limits where applicable.
A. Represent the entire tank C. Average daily categorical standards
B. Sample volumes are equal D. None of the above

Industrial Users - Permitted/Nonpermitted (Example Procedure)
254. Which of the following within an industry vary with each industry depending on the nature of the process and location of pretreatment facilities?
A. The sampling point(s) C. Routine QA/QC measures
B. Duplicate samples D. None of the above

Wastewater Sample Preservation
255. One or more unstable pollutants that require immediate analysis or preservation until _____ can be made.
A. An analysis C. Routine QA/QC measures
B. Average daily categorical standards D. None of the above

256. Sample preservation is needed for composite samples, for example, which may be stored for as long as 24 hours prior to transferring them to the laboratory.
A. True B. False

Lab Section

257. In chemistry, pH is a measure of the acidity or basicity of an aqueous solution. Solutions with a pH greater than 7 are said to be acidic and solutions with a pH less than 7 are basic or alkaline.
A. True B. False

258. Pure water has a pH very close to?
A. 7 C. 7.7
B. 7.5 D. None of the Above

259. _____ are determined using a concentration cell with transference, by measuring the potential difference between a hydrogen electrode and a standard electrode such as the silver chloride electrode.
A. Primary pH standard values C. pH measurement(s)
B. Alkalinity D. None of the Above

260. Mathematically, pH is the negative logarithm of the activity of the (solvated) hydronium ion, more often expressed as the measure of the?
A. Electron concentration C. Hydronium ion concentration
B. Alkalinity concentration D. None of the Above

261. Which of the following terms for aqueous solutions can be done with a glass electrode and a pH meter, or using indicators?
A. Primary sampling C. Determining values
B. Measurement of pH D. None of the Above

262. The pH scale is logarithmic and therefore pH is?
A. An universal indicator C. An excess of alkaline earth metal concentrations
B. A dimensionless quantity D. None of the Above

263. Measuring alkalinity is important in determining a stream's ability to neutralize acidic pollution from rainfall or wastewater. It is one of the best measures of the sensitivity of the stream to acid inputs. There can be long-term changes in the _____ of rivers and streams in response to human disturbances.
A. Acid C. pH measurement(s)
B. Alkalinity D. None of the Above

264. pH is defined as the decimal logarithm of the reciprocal of the_____, $a_{H}+$, in a solution.
A. Hydrogen ion activity C. Brønsted–Lowry acid–base theory
B. Acid-base behavior D. None of the Above

265. Which of the following terms may be used to measure pH, by making use of the fact that their color changes with pH?
A. Indicators C. A set of non-linear simultaneous equations
B. Spectrophotometer D. None of the Above

266. Alkalinity is the name given to the quantitative capacity of an aqueous solution to neutralize an?
A. Acid C. Bond formation
B. Base D. None of the Above

267. Which of the following terms of the color of a test solution with a standard color chart provides a means to measure pH accurate to the nearest whole number?
A. Universal indicator C. Visual comparison
B. Colorwheel measurement D. None of the Above

268. The calculation of the pH of a solution containing acids and/or bases is an example of a chemical speciation calculation, that is, a mathematical procedure for calculating the concentrations of all chemical species that are present in the solution. The complexity of the procedure depends on the?
A. Nature of the solution C. Alkaline earth metal concentrations
B. pH D. None of the Above

269. Under normal circumstances this means that the concentration of hydrogen ions in acidic solution can be taken to be equal to the concentration of the acid. The pH is then equal to minus the logarithm of?
A. The concentration value C. A set of non-linear simultaneous equations
B. The pH D. None of the Above

270. Alkalinity of water is its acid-neutralizing capacity. It is the sum of all the titratable bases. The measured value may vary significantly with the?
A. End-point pH C. pH measurement(s)
B. Alkalinity D. None of the Above

271. For strong acids and bases no calculations are necessary except in extreme situations. The pH of a solution containing a weak acid requires the solution of a quadratic equation. The pH of a solution containing a weak base may require the?
A. Solution of a cubic equation C. Excess of alkaline earth metal concentrations
B. Non-linear simultaneous equations D. None of the Above

272. Alkalinity is a measure of this missing term and can be interpreted in terms of specific substances only when the chemical composition of the sample is known.
A. Universal indicator C. Excess of alkaline earth metal concentrations
B. An aggregate property of water D. None of the Above

273. More precise measurements are possible if the color is measured spectrophotometrically, using a?
A. Universal indicator C. Set of non-linear simultaneous equations
B. Colorimeter of spectrophotometer D. None of the Above

274. For strong acids and bases no calculations are necessary except in extreme situations. The pH of a solution containing a weak acid requires?
A. The concentration value C. Excess of alkaline concentrations
B. The solution of a quadratic equation D. None of the Above

275. Alkalinity in excess of which term is significant in determining the suitability of water for irrigation?
A. 8 C. Alkaline earth metal concentrations
B. pH of 7 D. None of the Above

276. The calculation of the pH of a solution containing acids and/or bases is an example of a _____ calculation, that is, a mathematical procedure for calculating the concentrations of all chemical species that are present in the solution
A. Chemical speciation C. Visual comparison
B. Spectrophotometer D. None of the Above

277. Since pH is a logarithmic scale, a difference of one pH unit is equivalent to _____ difference in hydrogen ion concentration
A. 1 C. 10
B. .5 D. None of the Above

278. Which of the following terms measurements is used in the interpretation and control of water and wastewater treatment processes?
A. Acid C. Hydrogen bond formation
B. Alkalinity D. None of the Above

279. Which of the following terms are compounds that, for practical purposes, are completely dissociated in water?
A. Strong acids and bases C. Strong bases and weak acids
B. Chemical ions in chains D. None of the Above

280. The pH of a solution containing a _____ may require the solution of a cubic equation.
A. Strong acids and bases C. Weak base
B. Strong base D. None of the Above

281. Sodium hydroxide, NaOH, is an example of a?
A. Weak base C. Strong acid
B. Strong base D. None of the Above

Collection Systems Section

Collection System Defined

282. Centralized systems do not connect to a public sewer system. Wastewater may be treated on site or may be discharged to a private treatment plant.
A. True B. False

283. Large-scale public sewer systems (municipal wastewater treatment plants) are centralized systems.
A. True B. False

284. Homes and other buildings that are not served by public sewer systems depend on _____ septic systems to treat and dispose of wastewater.
A. Decentralized C. Remote
B. Centralized D. None of the above

285. Most decentralized systems are _____ systems (wastewater is treated underground near where it is generated).
A. Decentralized C. Onsite
B. Centralized D. None of the above

286. Centralized systems are more inexpensive, allow for greater control, require fewer people, and produce only one discharge to monitor instead of several. However, _____systems can be useful, and this option should be evaluated on a case-by-case basis.
A. Decentralized C. Onsite
B. Centralized D. None of the above

287. Which of the following are the most common wastewater treatment system used in rural areas?
A. Decentralized C. Onsite
B. Centralized D. None of the above

288. Wastewater in _____ systems can also be treated by a small, private wastewater treatment plant. These plants can have similar treatment processes and equipment as centralized systems but on a smaller scale.
A. Decentralized C. Onsite
B. Centralized D. None of the above

289. Which of the following are designed to collect both sanitary wastewater and storm water runoff?
A. Combined sewer systems C. Wastewater management
B. Wastewater collection system D. None of the above

290. Which of the following systems can be a single septic system and drainfield serving one residence or a large soil absorption system serving an entire subdivision?
A. Decentralized C. Onsite
B. Centralized D. None of the above

291. During wet weather, the combined sanitary waste and _____ can overflow and discharge untreated wastewater directly to a surface water through a combined sewer overflow (CSO).
A. Storm water C. POTW
B. Combined sewers D. None of the above

292. During dry weather, _____ carry sanitary waste to a POTW.
A. Storm water C. POTW
B. Combined sewers D. None of the above

Collection System Operators' Purpose
293. Collection system operators are charged with protecting public health and the environment, and therefore must have documented proof of their certifications in the respective _____.
A. POTW C. Wastewater management system
B. Wastewater collection system D. None of the above

294. Collection system operators ensure that the system pipes remain clear and open. They eliminate obstructions and are constantly striving to improve flow characteristics. They keep the wastewater moving underground, unseen and unheard.
A. True B. False

Understanding Gravity Sanitary Sewers

295. Which of the following is determined largely by population served, density of population, and water consumption?

A. Design C. Inflow
B. Flow D. None of the above

296. Sanitary sewers should be designed for?

A. Peak flow of population C. SSOs, surcharged lines, basement backups
B. Flow velocities D. None of the above

297. Which of the following is strongly discouraged and should be designed separate from the sanitary system?

A. Stormwater inflow C. Low pressure
B. Both wet and dry weather flows D. None of the above

298. Most of the time the flow surface is exposed to the atmosphere within the sewer and it functions as?

A. An open channel C. Flow velocities and design depths of flow
B. Peak flow of population D. None of the above

299. Which of the following creates low pressure in the sewer system?

A. Surcharge C. Dry weather flows
B. Stormwater inflow D. None of the above

300. In order to plan a sewer system, many factors are considered. The purpose of this topic is to aid in the understanding of?

A. I/I C. Flow velocities and design depths of flow
B. Peak flow of population D. None of the above

Sewer System Capacity Evaluation - Testing and Inspection

301. The collection system owner or operator should have a program in place to periodically evaluate this _____ in both wet and dry weather flows and ensure the capacity is maintained as it was designed.

A. Design flow(s) C. Capacity of the sewer system
B. Stormwater inflow D. None of the above

302. The capacity evaluation program evaluation starts with an inventory and characterization of the?

A. System components C. Flow velocities and design depths of flow
B. Stormwater inflow D. None of the above

303. The system then undergoes general inspection which serves to continuously update and add to the?

A. Design flow(s) C. Inventory information
B. Sewer system D. None of the above

Capacity Limitations

304. The next stage in the capacity evaluation is to identify the location of wet weather related _____, surcharged lines, basement backups, and any other areas of known capacity limitations.

A. Peak flow of population
B. Wastewater
C. SSOs
D. None of the above

Flow Monitoring

305. Which of the following may also be performed for billing purposes, to assess the need for new sewers in a certain area, or to calibrate a model?

A. I/I
B. Flow measurement
C. Flow velocities and design depths of flow
D. None of the above

Flow Monitoring Plan

306. Checks should include taking independent water level, cleaning accumulated debris and silt from the flow meter area, downloading data, and checking the desiccant and battery state. Records of each inspection should be maintained.

A. True B. False

Flow Measurements

307. Many collection system owners or operators add a third classification: rainfall induced infiltration (RII).

A. True B. False

308. Base flow is generally taken to mean the wastewater generated without any?

A. Deposition of solids
B. Infiltration
C. Any I/I component
D. None of the above

309. Which of the following is the seepage of groundwater into pipes or manholes through defects such as cracks, broken joints, etc?

A. Velocity
B. Infiltration
C. Blockage(s)
D. None of the above

310. Which of the following is the water that enters the sewer through direct connections such as roof leaders, direct connections from storm drains or yard, area?

A. Stoppages
B. Infiltration
C. Inflow
D. None of the above

311. Although not from piped sources, _____ tends to act more like inflow than infiltration.

A. RII
B. Infiltration
C. Inflow
D. None of the above

312. Other methods of inspecting flows may be employed, such as visually monitoring manholes during low-flow periods to determine areas with?

A. Infiltration
B. RII
C. Excessive I/I
D. None of the above

Infiltration and Inflow Sub-Section

313. Which of the following occurs when groundwater enters the sewer system through cracks, holes, faulty connections, or other openings?

A. Inflow C. Maximum flow capacity of wastewater
B. Infiltration D. None of the above

314. Which of the following occurs when surface water such as storm water enters the sewer system through roof downspout connections, holes in manhole covers, illegal plumbing connections, or other defects?

A. Inflow C. Maximum flow capacity of wastewater
B. Infiltration D. None of the above

315. The sanitary sewer collection system and treatment plants have this _____ that can be handled.

A. I/I C. Maximum flow capacity of wastewater
B. Infiltration D. None of the above

Determining I/I

316. Flow monitoring and flow modeling provide measurements and data used to determine estimates of?

A. I/I C. Maximum flow capacity of wastewater
B. Infiltration D. None of the above

317. Measurements taken before and after a precipitation event indicate the extent that this term is increasing total flow.

A. I/I C. Maximum flow capacity of wastewater
B. Infiltration D. None of the above

Identifying sources of I/I

318. Visual inspection - accessible pipes, gutter and plumbing connections, and manholes are visually inspected for?

A. Excessive I/I C. Faults
B. High wet weather flows D. None of the above

319. Smoke testing – smoke is pumped into sewer pipes. Its reappearance aboveground indicates points of ?

A. I/I C. Illegal plumbing, drains, and roof downspouts
B. Stormwater and rainwater D. None of the above

320. Dye testing – Dye is used at suspected _____ sources.

A. I/I C. Stormwater and rainwater
B. High wet weather flows D. None of the above

321. Which of the following are also sometimes identified when sewer backups or overflows bring attention to that part of the system?

A. Excessive I/I C. Faults
B. Sources of I/I D. None of the above

Repairing I/I Sources

322. Repair techniques include manhole wall spraying, Insituform pipe relining, manhole frame and lid replacement, and disconnecting?

A. High wet weather flows C. Illegal plumbing, drains, and roof downspouts
B. Stormwater and rainwater D. None of the above

Efficient Identification of Excessive I/I

323. The owner or operator should have in place a program for the efficient identification of?

A. Excessive I/I C. Faults
B. Sources of I/I D. None of the above

324. Areas with high wet weather flows should then be subject to?

A. High wet weather flows C. Inspection and rehabilitation activities
B. Stormwater and rainwater D. None of the above

Sewer System Testing

325. Sewer system testing techniques are often used to identify leaks that allows this term into the sewer system and determine the location of illicit connections and other sources of stormwater inflow?

A. Exfiltration C. Unwanted infiltration
B. Sources of I/I D. None of the above

326. Two commonly implemented sewer testing techniques include?

A. I/I C. Smoke testing and dyed water testing
B. Stormwater and rainwater D. None of the above

327. Which of the following is a relatively inexpensive and quick method of detecting sources of inflow in sewer systems?

A. Electric probe C. Smoke testing
B. Sound D. None of the above

328. Which of the following can be identified when smoke escapes through them?

A. Tees C. Sources of inflow
B. Cockroaches D. None of the above

329. Building inspections are sometimes conducted as part of a smoke testing program and, in some cases, may be the only way to find?

A. Gutters C. Illegal connections
B. Stormwater Manholes D. None of the above

330. If traces of the smoke or its odor enter the building, it is an indication that this term may also be entering.

A. Smoke C. Gases from the sewer system
B. Sources of I/I D. None of the above

Dye Testing

331. Dyed water testing may be used to establish this term to the sewer.

A. Potential problem areas C. Connection of a fixture or appurtenance
B. I/I problems D. None of the above

(s) means the answer may be plural or singular in nature.

332. Which of the following can be used to identify structurally damaged manholes that might create potential I/I problems?
A. Dyed water testing C. Smoke testing
B. Prober D. None of the above

Sewer System Inspection
333. Which of the following and pipelines are the first line of defense in the identification of existing or potential problem areas?
A. Visual inspection of manholes C. The presence of roots
B. Potential problem areas D. None of the above

334. Visual inspections provide additional information concerning the accuracy of system mapping, the presence and?
A. Potential problem areas C. The presence of roots
B. Degree of I/I problems D. None of the above

Closed Circuit Television (CCTV) Inspections
335. Which of the following may be done on a routine basis as part of the preventive maintenance program, as well as part of an investigation into the cause of I/I?
A. Lamping C. CCTV inspections
B. Sonar D. None of the above

336. A benefit of which of the following is that a permanent visual record is captured for subsequent reviews?
A. Sewer system cleaning C. CCTV inspection
B. Trenchless technologies D. None of the above

Sewer Flow Measurements
337. Which of the following is the water that enters the sewer through direct connections such as roof leaders, direct connections from storm drains or yard, area, and foundation drains, the holes in and around the rim of manhole covers, etc?
A. RII C. Infiltration
B. Inflow D. None of the above

338. Which of the following is stormwater that enters the collection system through defects that lie so close to the ground surface that they are easily reached?
A. RII C. Infiltration
B. Inflow D. None of the above

339. Which of the following performed for the purpose of quantifying I/I are typically separated into three components: base flow, infiltration, and inflow?
A. Base flow C. Flow Measurements
B. Infiltration D. None of the above

340. Which of the following is generally taken to mean the wastewater generated without any I/I component?
A. Base flow C. Flow Measurements
B. Infiltration D. None of the above

341. Which of the following is the seepage of groundwater into pipes or manholes through defects such as cracks, broken joints, etc?
A. RII C. Infiltration
B. Inflow D. None of the above

342. Smoke Testing is achieved by forcing a non-toxic smoke into the sewer system and looking for locations where it is improperly exiting.
A. True B. False

343. Locations that are smoking are considered illegal connections in that they allow stormwater directly or indirectly to enter the sanitary sewer system.
A. True B. False

344. Normal illegal connections found are roof drains tied directly into the system, abandoned customer sewer lines that were not properly capped, as well as an occasional broken sewer line.
A. True B. False

Sewer Flow Capacity
345. Most sewers are designed with the capacity to flow quarter full for less than 15 inches in diameter; larger sewers are designed to flow at half flow.
A. True B. False

346. The minimum velocity is necessary to prevent the?
A. Deposition of solids C. Stoppages
B. Infiltration D. None of the above

Sewer Line Mapping
347. Which of the following and repairs are unlikely if mapping is not adequate?
A. Introduction of flows C. Efficient collection system maintenance
B. Inspection D. None of the above

348. Collection system maps should have a numbering system which uniquely identifies all manholes and?
A. Engineering endeavors C. Quality sanitary sewer designs
B. Sewer cleanouts D. None of the above

349. Which of the following should have permanently assigned numbers and never be renumbered. Maps should also indicate the property served and reference its cleanout?
A. Introduction of flows C. Manholes and sewer cleanouts
B. Inspection D. None of the above

350. Which of the following should indicate the diameter, the length between the centers of manholes, and the slope or direction of flow?
A. Engineering endeavors C. Quality sanitary sewer designs
B. Sewer line maps D. None of the above

351. All maps should have this term and was drafted and the date of the last revision?
A. Overflow points C. Date the map
B. Introduction of flows D. None of the above

352. Maps may come in different sizes and scales to be used for different purposes. Detailed local maps may be used by maintenance or repair crews to perform the duties. However, these detailed local maps should be keyed to one overall map that shows the entire system.
A. True B. False

Geographic Information System (GIS)
353. If a GIS program is being used by the owner or operator, the reviewer should ask if the program is capable of accepting information from the?
A. Overflow points C. Owner or operator's management program
B. Inspection D. None of the above

354. Reviewers should check to see that maps and plans are available to the personnel in the office and to field personnel or contractors involved in all?
A. Engineering endeavors C. Quality sanitary sewer designs
B. Sewer line maps D. None of the above

New Sewer Construction
355. The owner or operator should release strict control over the introduction of flows into the system from new construction.
A. True B. False

356. Which of the following keep costs and problems associated with operations, maintenance, and construction to a minimum?
A. Engineering endeavors C. Sanitary sewer designs / Quality
B. Sewer cleanouts D. None of the above

357. The owner or operator should have standards for new construction, procedures for reviewing designs and protocols for inspection, start-up, testing, and approval of new construction. The procedures should provide documentation of all activities, especially inspection.
A. True B. False

Collection Systems O&M Section
358. Which of the following activities of wastewater collection systems on a trouble or emergency basis has been the usual procedure and policy in many systems?
A. Routine preventative C. Operation and maintenance
B. Routine operations D. None of the above

359. Which of the following activities of the collection system has been delayed or omitted, primarily for political or financial reasons?
A. Routine preventative C. Planned operation and preventive maintenance
B. Routine operations D. None of the above

360. Which of the following activities for wastewater collection lines shall be performed by the system's personnel and outside contractors?
A. Routine preventative / Operations and Maintenance C. Capital designs
B. Non-routine operations D. None of the above

361. Which of the following activities including cleaning, and removing roots from small and large diameter lines?
A. Routine preventative C. Routine operations and maintenance
B. Routine operations D. None of the above

362. The system's goal should be a minimum of cleaning between _____% of the sewers every year.
A. 10-20 C. 30-40
B. 20-30 D. None of the above

Sewer Cleaning and Inspection
363. As sewer system networks age, the risk of deterioration, this _____, and collapses becomes a major concern.
A. Sanitary sewer overflow(s) C. Blockages
B. Rehabilitation D. None of the above

364. Which of the following are essential to maintaining a properly functioning system; these activities further a community's reinvestment into its wastewater infrastructure?
A. CCTV inspection(s) C. Cleaning and inspecting sewer lines
B. Inspection program(s) D. None of the above

Inspection Techniques
365. Which of the following are required to determine current sewer conditions and to aid in planning a maintenance strategy?
A. Documentation of inspections C. Cleaning and inspecting sewer lines
B. Inspection programs D. None of the above

Most sewer lines are inspected using one or more of the following techniques:
366. Which of the following are the most frequently used most cost efficient in the long term, and most effective method to inspect the internal condition of a sewer?
A. Television (TV) inspections C. Inspection program(s)
B. Lamping D. None of the above

367. Which of the following in smaller sewers are attached to a sled, to which a parachute or droge is attached and floated from one manhole to the next?
A. Slick C. The cable and camera
B. Kite D. None of the above

368. Which of the following produce a video record of the inspection that can be used for future reference?
A. CCTV inspection(s) C. Polaroid still photographs
B. Inspection program(s) D. None of the above

369. Which of the following are vital in fully understanding the condition of a sewer system?
A. Visual inspections C. Walk-through or internal inspection
B. Operators D. None of the above

370. Which of the following should pay specific attention to sunken areas in the groundcover above a sewer line and areas with ponding water?
A. Cameras C. Sonar
B. Operators D. None of the above

371. For large sewer lines, a _____ is recommended. This inspection requires the operator to enter a manhole, the channel, and the pipeline, and assess the condition of the manhole frame, cover, and chimney, and the sewer walls above the flow line.
A. Visual inspections C. Walk-through or internal inspection
B. Operators D. None of the above

372. Which of the following of manholes and pipelines are comprised of surface and internal inspections?
A. Visual inspections C. Walk-through or internal inspection
B. Operators D. None of the above

Smoke Testing of Sewers is Done to Determine:
373. Location of _____ due to settling of foundations, manholes and other structures
A. Broken sewers C. Illegal connections
B. Diversion points D. None of the above

374. Location of uncharted manholes and _____
A. Broken sewers C. Illegal connections
B. Diversion points D. None of the above

375. _____ that buildings or residences are connected to the sanitary sewer
A. Dye testing C. Illegal connections
B. Proof D. None of the above

376. _____ such as roof leaders or downspouts, yard drains and industrial drains
A. Broken sewers C. Illegal connections
B. Diversion points D. None of the above

377. _____ can be used to verify connections of drains to sanitary or storm sewers.
A. Dye testing C. Illegal connections
B. Proof D. None of the above

378. _____ can be used to verify the findings of smoke testing.
A. Dye testing C. Illegal connections
B. Proof D. None of the above

Identify the Cleaning Method
379. Directs high velocities of water against pipe walls. Removes debris and grease build-up, clears blockages, and cuts roots within small diameter pipes. Efficient for routine cleaning of small diameter, low flow sewers.
A. Jetting C. Kites, Bags, and Poly Pigs
B. Flushing D. None of the above

380. Round, rubber-rimmed, hinged metal shield that is mounted on a steel framework on small wheels. The shield works as a plug to build a head of water. Scours the inner walls of the pipe lines. Effective in removing heavy debris and cleaning grease from line.
A. Scooter C. Mechanical Rodding
B. Hydraulic Balling D. None of the above

381. Similar in function to the ball. Rigid rims on bag and kite induce a scouring action. Effective in moving accumulations of decayed debris and grease downstream.
A. Jetting C. Kites, Bags, and Poly Pigs
B. Flushing D. None of the above

382. Most effective in lines up to 12 inches in diameter. Uses an engine and a drive unit with continuous rods or sectional rods. As blades rotate they break up grease deposits, cut roots, and loosen debris.
A. Scooter C. Mechanical Rodding
B. Hydraulic Balling D. None of the above

383. Partially removes large deposits of silt, sand, gravel, and some types of solid waste. Cylindrical device, closed on one end with 2 opposing hinged jaws at the other. Jaws open and scrape off the material and deposit it in the bucket.
A. Jetting C. Bucket Machine
B. Flushing D. None of the above

384. A threaded rubber cleaning ball that spins and scrubs the pipe interior as flow increases in the sewer line. Removes deposits of settled inorganic material and grease build-up. Most effective in sewers ranging in size from 5-24 inches.
A. Scooter C. Mechanical Rodding
B. Hydraulic Balling D. None of the above

385. Introduces a heavy flow of water into the line at a manhole. Removes floatables and some sand and grit. Most effective when used in combination with other mechanical operations, such as rodding or bucket machine cleaning.
A. Jetting C. Kites, Bags, and Poly Pigs
B. Flushing D. None of the above

Sewer – Hydraulic Cleaning Sub-Section

386. The purpose of sewer cleaning is to remove accumulated material from the sewer. Cleaning helps to prevent?
A. Velocity C. Blockage(s)
B. Infiltration D. None of the above

387. Which of the following in gravity sewers are usually caused by a structural defect, poor design, poor construction, an accumulation of material in the pipe?
A. Stoppages C. Inflow
B. Infiltration D. None of the above

388. Protruding traps may catch debris, which then causes a further buildup of?
A. Velocity C. Blockage(s)
B. Solids D. None of the above

Sewer Cleaning Methods

389. Mechanical cleaning uses physical devices to scrape, cut, or pull?
A. Infiltration C. Sewer cleaning
B. Material from the sewer D. None of the above

390. Chemical cleaning can facilitate the control of odors, grease buildup, root growth, corrosion, and insect and?
A. Deposition of solids C. Rodent infestation
B. Infiltration D. None of the above

Sewer Cleaning Records
391. Which of the following identified should include those due to grease or industrial discharges, hydraulic bottlenecks in the collection system, areas of poor design?
A. Both infiltration and inflow or I/I C. General I/I source areas
B. Potential problem areas D. None of the above

392. The owner or operator should also be able to identify the number of stoppages experienced per mile of sewer pipe. If the system is experiencing a steady increase in stoppages, the reviewer should try to determine the cause (i.e., lack of preventive maintenance funding, deterioration of the sewers due to age, an increase in?
A. Grease producing activities C. Maximum flow capacity of wastewater
B. Breakdown or malfunction D. None of the above

Sewer Maintenance - Advantages and Disadvantages
Advantages and Disadvantages
393. According to the text, one benefit of implementing a sewer maintenance program is the reduction of?
A. SSOs C. Fire hazard
B. Rehabilitation D. None of the above

Visual Inspection
394. In smaller sewers, the scope of problems does provide information needed to make decisions on?
A. SSOs C. Sewer line cleaning
B. Rehabilitation D. None of the above

395. Sewer line cleaning is prioritized based on the age of the pipe and the frequency of the problems within it, many cities use rodding and?
A. Visual inspection(s) C. Pressurized cleaning methods to maintain the pipes
B. Rehabilitation D. None of the above

396. Which of the following are rarely used because cleaning by this method tends to be time consuming?
A. Bucket machine(s) C. Scooter
B. Jetting D. None of the above

397. Most cities that use chemicals into the cleaning program may hire an expert crew, adopting a new program, and instituting a detention time to ensure the?
A. Results C. Cost
B. Chemicals' effectiveness D. None of the above

Sewer System Rehabilitation
398. The collection system owner or operator should have a?
A. Sewer system program C. Sewer rehabilitation program
B. Problem solving program D. None of the above

399. There are many rehabilitation methods; the choice of methods depends on pipe size, type, location, dimensional changes, sewer flow, material deposition, surface conditions, and?
A. A serious source of I/I C. Severity of I/I
B. Non-structural repairs D. None of the above

CMOM - "Capacity, Management, Operation and Maintenance" Section

What are Sanitary Sewer Overflows?

400. Sanitary Sewer Overflows (SSOs) are discharges of raw sewage from?
A. Deteriorating Sewer Systems C. Municipal sanitary sewer systems
B. Pipe Failure(s) D. None of the above

401. Which of the following can release untreated sewage into basements or out of manholes and onto city streets, playgrounds, and into streams before it can reach a treatment facility?
A. Pipe Failure(s) C. SSOs
B. Destructive compounds D. None of the above

Why are SSOs a Problem?

402. Many municipalities have asked for national consistency in the way permits are considered for wastewater discharges, including _____, and in enforcement of the law prohibiting unpermitted discharges.
A. Deteriorating Sewer System C. Badly connected sewer service lines
B. SSOs D. None of the above

Controlling Fats, Oils, and Grease Discharges from Food Service Establishments
All of the answers must be in accordance to the Course Manual.

403. Commercial food preparation establishments with inadequate grease controls is the primary method that FOG gets into our sewer collection system.
A. True B. False

404. Sewer backups and overflows will occur on streets, properties and even in customers' homes and/or businesses are caused because of improper disposal of fats, oils and grease.
A. True B. False

405. Ponds, streams or rivers will be contaminated due to _____ and will also impact the environment negatively.
A. Sewer backup(s) C. Management Practices (MPs)
B. Overflow(s) D. None of the above

Food Service Establishments (FSEs)

406. Because of the amount of grease used in cooking, _____are a significant source of fats, oil and grease (FOG).
A. Sewer system infiltration C. Food Service Establishments (FSEs)
B. Customer(s) Inflow D. None of the above

407. To assist improper handling and disposal of FOG _____ are generally developed to assist restaurants and other FSEs with instruction and compliance.
A. CSO/SSO C. POTW Commercial FOG Program
B. POTWs D. None of the above

(S) means the answer may be plural or singular in nature.

408. According to the text, the _____ can handle properly disposed wastes, but to work effectively, sewer systems need to be properly maintained, from the drain to the treatment plant.
A. Vactor C. POTW's sewer system
B. Honey pumpers D. None of the above

409. Because our sewer system is fragile, the sewer system cannot handle liquid waste, and therefore should not be put down the drain.
A. True B. False

410. Various businesses and individuals to need to be responsible in maintaining the POTW system because repeated repairs are disruptive to residences and businesses alike. Proper sewer disposal by commercial establishments is required by _____.
A. Law C. POTW's recommendations
B. Best management advice (BMAs) D. None of the above

Environmental problem with FOG sewers
411. Grease balls are formed by various solids that enters the sewer system eventually solidifies. The various sizes of these grease balls can range in size from molecules to grapes and must be removed periodically.
A. True B. False

412. Customer(s) complaints about the maintenance of the collection systems and/or treatment plants is the best method handle or treat FOG effectively.
A. True B. False

413. The repair or replacement of their damaged property caused by FOG creating _____ can also cost customers thousands of dollars for the repair or replacement of their damaged property.
A. Infiltration C. Exfiltration
B. Sewer backup(s) D. None of the above

Controlling FOG discharges
414. According to the text, FOG wastes are generated at _____ as byproducts from food preparation activities.
A. FSEs C. Customer service
B. POTWs D. None of the above

415. There are generally two FOG captured on-site broad categories:
A. Yellow grease and grease trap waste C. Soft and Hard
B. White grease and grease waste D. None of the above

416. Food service establishments can adopt a variety of _____or install interceptor/collector devices to control and capture the FOG material before discharge to the collection system.
A. Customer service C. Best management practices
B. POTWs Rules D. None of the above

Keeping Fats, Oils, and Grease out of the Sewer System

417. Manholes can overflow into parks, yards, streets, and storm drains, allowing FOG to contaminate local waters, including drinking water. Exposure to untreated wastewater is a public-health hazard and is an_____. FOG discharged into septic systems and drain fields can cause malfunctions, resulting in more frequent tank pump-outs and other expenses.

A. EPA violation C. EPA NOV recommendation
B. OSHA violation D. None of the above

418. When FOG is poured down kitchen drains it accumulate inside sewer pipes. As the FOG builds up, it restricts the flow in the pipe and can cause_____.

A. Infiltration C. Exfiltration
B. Overflow and clogging D. None of the above

Residential and Commercial Guidelines

419. _____into homes create a health hazard as well as an unpleasant mess that can cost hundreds and sometimes thousands of dollars to clean up.

A. Sewage backflow C. Sewer backups
B. Trash and debris D. None of the above

420. According to the text, serious environmental and health conditions are created and can enter certain parts of the POTW, _____can enter storm drains and flow directly into water bodies and onto beaches creating problems.

A. Sewage backups C. FOG
B. Trash and debris D. None of the above

421. Storm sewers need to be kept clean and car washing can often results in _____ entering the storm sewers.

A. Sewage backups C. Soap and oil residue(s)
B. Health hazard(s) D. None of the above

422. _____ enters into storm sewers from run-off from your sprinkler, watering hose, or from the rain can carry yard waste.

A. Fertilizer C. Petroleum-based oil(s)
B. Negligence D. None of the above

423. Littering can cause _____ to clog catch basins and storm drains.

A. Sewage backups C. Trash and debris
B. Health hazard(s)) D. None of the above

424. One million gallons of water can be easily contaminated by simply poring _____ down a storm drain could contaminate up to

A. A gallon of oil C. Dye
B. FOG D. None of the above

Using best management practices can:

425. Expensive bills for plumbing, property repairs and losing revenue to emergency shutdowns caused by sewage backups can be lessened by proper sewer maintenance and compliance.

A. True B. False

426. _____ is the primary cause of sewer problems; this in turn causes the likelihood of lawsuits by nearby businesses over sewer problems.
A. Backup C. FOG Violation(s)
B. Negligence D. None of the above

427. Workers or the public can be exposed to _____during a problem, it is best to reduce exposure, thus limiting some lawsuits.
A. Spoil C. Raw sewage
B. FOG buildup D. None of the above

428. It is best that the customer increases the number of times they pump and clean their grease interceptors or traps if they are likely to present the system a problem.
A. True B. False

429. In order to lessen the likelihood of surcharges from the sewer authority or chargebacks for repairs to sewer pipes are most likely attributable to customer's _____.
A. Health hazard(s) C. FOG
B. Soap and oil residue(s D. None of the above

Industrial Uses (Fats, Oils, and Grease)
Proper Disposal Methods:
Ways in which a customer can reduce the amounts of FOG that enters the sewer system is by doing the following:

430. Properly maintained and regularly cleaned_____, on a regular basis. (Usually every 6 months they should be pumped out).
A. Grease interceptors or traps C. Tallow bins
B. Infiltration row D. None of the above

431. It is best to _____from dishes and pans into a garbage bag before placing them into your dishwasher or sink.
A. First freeze the grease C. Scrape grease and food residue
B. Wipe small amounts D. None of the above

Inspection Checklists
432. _____are comprehensive, dynamic, utility specific programs for better managing, operating and maintaining sanitary sewer collection systems, investigating capacity constrained areas of the collection system, and responding to SSOs.
A. POTWs C. Pretreatment Program regulations
B. CMOM programs D. None of the above

433. _____who adopt FOG reduction activities, as part of their CMOM program activities are likely to reduce the occurrence of sewer overflows and improve their operations and customer service.
A. Customer service C. Collection system owners or operators
B. EPA D. None of the above

434. EPA identified typical numeric local limits controlling oil and grease in the range of _____mg/L to _____ mg/L with 100 mg/L as the most common reported numeric pretreatment limit.
A. 500 to 750 C. 50 to 450
B. 10 to 100 D. None of the above

435. Controlling FOG discharges will help _____ prevent blockages that affect CSOs and SSOs, which cause public health and water quality problems.
A. POTWs C. Pretreatment Program regulations
B. FSEs D. None of the above

436. Controlling FOG discharges from FSEs is an essential element in controlling CSOs and SSOs and ensuring the proper operations for many _____.
A. POTWs C. Pretreatment Program regulations
B. FSEs D. None of the above

437. _____provides regulatory tools and authority to state and local POTW pretreatment programs for eliminating pollutant discharges that cause interference at POTWs, including interference caused by the discharge of Fats, Oils, and Grease (FOG) from food service establishments (FSE).
A. POTWs C. The National Pretreatment Program
B. FSEs D. None of the above

Safety Section

Confined Space Entry Program - Purpose
Scope
438. According to the text, you are required to recognize _____ associated with confined spaces.
A. Internal configurations C. The dangers and hazards
B. Permit-Required Confined Spaces D. None of the above

Definitions
Confined space:
439. A confined space is large enough or so configured that an employee can _____.
A. Have sufficient oxygen C. Recognize serious safety or health hazards
B. Bodily enter and perform work D. None of the above

440. A confined space has limited or restricted means for _____.
A. An internal configuration C. Hazardous atmosphere
B. Entry or exit D. None of the above

441. A confined space is not designed for _____.
A. An internal configuration C. Continuous employee occupancy
B. Hazardous atmospheres D. None of the above

442. A permit required confined space (permit space) contains or has a potential to contain a _____.
A. Recognized internal configuration C. Entry or exit
B. Hazardous atmosphere D. None of the above

443. A permit required confined space (permit space) contains a material that has _____.
A. Authorized entrants C. The potential for engulfing an entrant
B. Hazardous atmospheres D. None of the above

444. A permit required confined space (permit space) has an internal configuration such that _____ could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
A. An entrant C. An internal configuration
B. Hazardous atmosphere D. None of the above

445. A permit required confined space (permit space) contains any other recognized serious safety or _____.
A. Engulfing problems C. Health hazard
B. Strange atmospheres D. None of the above

446. Each _____ must be marked "Confined Space - Entry Permit Required".
A. Permit-Required Confined Space C. Entry or exit
B. Hazardous atmosphere D. None of the above

Confined Space Hazards
447. Fatalities and injuries constantly occur among construction workers who are required to enter _____.
A. An internal configuration C. Confined spaces
B. Hazardous atmosphere D. None of the above

448. Workers encounter both inherent and _____ within confined workspaces.
A. An internal configuration C. Hazardous atmosphere
B. Induced hazards D. None of the above

Inherent Hazards
449. _____ are associated with specific types of equipment and the interactions among them. These hazards can be electrical, thermal, chemical, mechanical, etc.
A. Inherent hazards C. Recognized serious safety or health hazards
B. Hazardous atmospheres D. None of the above

450. Inherent hazards include high voltage, radiation generated by equipment, _____, omission of protective features, high or low temperatures, high noise levels, and high-pressure vessels and lines.
A. Defective design C. An internal configuration
B. Hazardous atmosphere D. None of the above

451. Inherent hazards usually cannot be eliminated without degrading or shutting down the system or equipment. Therefore, emphasis must be placed on _____.
A. Hazard control methods C. Continuous employee occupancy
B. Hazardous atmospheres D. None of the above

Induced Hazards

452. _____ result from a multitude of incorrect decisions and actions that occur during the actual construction process.

A. Induced hazards C. Build-up of explosive gases
B. Below-grade locations D. None of the above

453. Some examples of induced hazards are: omission of protective features, physical arrangements that may cause unintentional worker contact with electrical energy sources, oxygen-deficient atmospheres created at the bottom of pits or shafts, lack of safety factors in structural strength, and _____.

A. Common confined spaces C. Extreme temperatures
B. Flammable atmospheres D. None of the above

Typical Examples of Confined Workspaces

454. Confined workspaces in construction contain _____.

A. Purging agents C. Both inherent and induced hazards
B. Below-grade location D. None of the above

Vaults

455. Workers must enter _____ found on the construction jobsite to perform a number of functions.

A. Common confined spaces C. A variety of vaults
B. Hazards D. None of the above

456. The restricted nature of vaults and their frequently _____ are reasons that vaults have an assortment of safety and health problems.

A. Purged atmosphere C. Explosive atmosphere
B. Below-grade location D. None of the above

Oxygen-Deficient Atmosphere

457. The ever-present possibility of _____ is one of the major problems confronting construction workers while working in vaults.

A. A common confined space C. An oxygen-deficient atmosphere
B. Vaults D. None of the above

Explosive or Toxic Gases, Vapors, or Fumes

458. _____ produce toxic fumes which are confined in the limited atmosphere of a confined space.

A. Purging agents C. Welding and soldering
B. Below-grade locations D. None of the above

Materials Falling In and On

459. According to the text, a _____ normally considered a problem associated with confined spaces is material or equipment which may fall into the vault.

A. Common confined space C. Oxygen-deficient atmosphere
B. Hazard D. None of the above

460. If the _____ were removed, materials could fall into the vault, causing injury to the workers inside.

A. Purging agents C. Explosive gases
B. Manhole covers D. None of the above

Manholes

461. Manholes are necessary to provide a means of entry into and exit from vaults, tanks, and pits, but these confined spaces may present _____ which could cause injuries and fatalities.

A. Serious hazards C. Sumps
B. Ventilation ducts D. None of the above

462. _____ are associated with manholes. For example, workers could fall into manholes when covers are missing.

A. Nitrogen purges C. A variety of hazards
B. Collection places D. None of the above

Pipe Assemblies

463. The pipe assembly is one of the _____ encountered throughout the construction site,

A. Electrical shock risks C. Most frequently unrecognized types of confined spaces
B. Ventilation ducts D. None of the above

464. Once inside a pipe assembly, workers are faced with _____, often caused by purging with argon or another inert gas.

A. Nitrogen purge or dry air C. Potential oxygen-deficient atmospheres
B. Collection places D. None of the above

Tanks

465. Tanks are _____ that are used for a variety of purposes, including the storage of water and chemicals.

A. Nitrogen purge locations C. Another type of confined workspace
B. Collection places D. None of the above

466 Heat in tanks may cause _____, particularly on a hot day.

A. Heat prostration C. Problems with pumps
B. Equipment failure D. None of the above

467. The _____ often requires workers to climb ladders to reach high places on the walls of the tank.

A. Electrical shock potential C. Nature of the tank's structure
B. Ventilation duct D. None of the above

Unusual Conditions

Confined Space within a Confined Space

468. The _____ associated with the outer confined space and those of the inner confined space both require testing, monitoring, and control.

A. Potential hazards C. Manholes
B. Access passages D. None of the above

469. Often, only the outer space is evaluated for potential hazards. Workers are also faced with _____ when they enter the inner space.

A. Poor lighting C. Potentially hazardous conditions
B. Excavations D. None of the above

470. Workers entering a vessel inside an access pit should do so only after both spaces have been evaluated and _____.
A. Purged C. Proper control measures established
B. Accessed D. None of the above

Hazards in One Space Entering another Space
471. According to the text, during an examination of _____, situations are often encountered which are not always easy to evaluate or control.
A. Tanks C. Confined spaces in construction
B. Excavations D. None of the above

472. In a situation where hazards in one space may enter another, a serious problem is that workers working in the "safe" area are not aware of the _____.
A. Oxygen Level C. Hazards leaking into their area
B. Access passages D. None of the above

Permitted Confined Space Entry Program
473. Subpart P (of OSHA's Construction Regulations) applies to all _____ in the earth's surface.
A. Open excavations C. Pits
B. Vaults D. None of the above

Permit Required Confined Space Entry General Rules
474. According to the text, only authorized and trained employees may enter a _____ or act as safety watchmen/attendants.
A. Hazard C. Confined space
B. Pipe D. None of the above

475 Employees are not permitted to smoke _____ or near the entrance/exit area.
A. Near air and oxygen monitors C. In a confined space
B. During a side entry D. None of the above

476. A watchmen or attendant must be present at all times during _____.
A. Confined space entries C. Air monitoring
B. Access passages D. None of the above

477. According to the text, constant visual or voice communication will be maintained between the safety watchmen and employees entering _____.
A. Inner spaces C. A confined space
B. Access passages D. None of the Above

478. According to the text, no _____ will be made or work conducted below the level of any hanging material or material that could cause engulfment.
A. Monitoring of entrant status C. Identification of authorized entrants
B. Bottom or side entry D. None of the above

479. _____ is required before workers are allowed to enter any permit-required confined space. Oxygen levels in the confined space must be between 19.5 and 23.5 percent.
A. Air and oxygen monitoring C. Communication
B. A supervisor D. None of the above

480. Air and oxygen monitoring will check the levels of oxygen, explosive gasses, and carbon monoxide. Entry will not be permitted if explosive gas is detected above one-half the _____.
A. Nitrogen level C. Lower Explosive Limit (LEL)
B. Argon level D. None of the above

481. When covers are removed, all _____ will be protected by a barricade to prevent injuries to others.
A. Air and oxygen monitoring C. Openings to confined spaces
B. Side entries D. None of the above

Permit Required Confined Space Entry General Rules
Confined Space Entry Permits
482. According to the text, Confined Space Entry Permits must be completed before any employee _____.
A. Begins work C. Enters a permit-required confined space
B. Leaves the permit space D. None of the above

483. _____ will expire before the shift is completed or if any pre-entry conditions change.
A. Air and oxygen monitoring C. Confined Space Entry Permits
B. Project schedules D. None of the above

484. _____ will be maintained on file for 12 months.
A. Air and oxygen monitoring data C. Confined Space Entry Permits
B. Project schedules D. None of the above

Confined Space Training and Education
485. According to the text, OSHA's General Industry Regulation, §1910.146 Permit-required confined spaces, contains requirements for practices and procedures to protect employees in general industry from the hazards of entry into permit-required confined spaces. This regulation does not apply to construction.
A. True B. False

486. According to the text, OSHA's Construction Safety and Health Regulations Part 1926 do not contain a permit-required confined space regulation. Subpart C, §1926.21 Safety training and education specifies training for personnel who are required to enter confined spaces and defines a "confined or enclosed space."
A. True B. False

§1926.21 Safety training and education. (Partial)

487. §1926.21(b)(6)(i) states: All employees required to enter into confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas.
A. True B. False

488. According to §1926.21(b)(6)(ii), "_____" means any space having a limited means of egress, which is subject to the accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere.
A. Confined or enclosed space C. Hazardous work area
B. Confined space hazard D. None of the above

489. According to §1926.21(b)(6)(ii), _____ include, but are not limited to, storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, sewers, underground utility vaults, tunnels, and pipelines.
A. Confined or enclosed spaces C. Hazardous work areas
B. Confined space hazards D. None of the above

490. OSHA's Construction Regulations also contain requirements dealing with _____ in underground construction, underground electric transmission and distribution work, excavations, and welding and cutting.
A. Confined or enclosed spaces C. Hazardous work areas
B. Confined space hazards D. None of the above

491. American National Standard ANSI Z117.1-1989, Safety Requirements for Confined Spaces, provides _____ to be followed while entering, exiting and working in confined spaces at normal atmospheric pressure.
A. Guidelines C. Minimum safety requirements
B. Suggestions D. None of the above

TRAINING FOR AUTHORIZED ENTRANTS

492. Each worker must be trained to recognize hazards before entering and must understand the need to perform _____ to determine if it is safe to enter.
A. A permit review C. Appropriate testing
B. Plan review D. None of the above

493. Each worker must be taught how to properly use all personal protective equipment required for entry or rescue. Workers must also be taught how to properly use _____ and shields.
A. Air monitors C. Protective barriers
B. Tripods D. None of the above

494. Each worker must be trained to evacuate the confined space as rapidly as possible without help whenever ordered by the attendant, whenever _____, or whenever workers recognize the warning signs of exposure to substances in the confined space.
A. The shift ends C. An automatic evacuation alarm is activated
B. The attendant leaves D. None of the above

Toxic Atmospheres

495. The entire spectrum of gases, vapors, and finely-divided airborne dust in industry can be regarded as _____.

A. High charges of static electricity
B. Toxic in a confined space
C. Spontaneous chemical reactions
D. None of the above

496. The sources of toxic atmospheres encountered may arise from: 1. The manufacturing process; 2. The product stored; or 3. The _____ in the confined space.

A. Toxic fumes
B. Operation performed
C. Decomposition of organic matter
D. None of the above

497. Mechanical and/or human error during loading, unloading, formulation, and production may produce toxic gases that are _____.

A. Found in tanks
B. Reactive
C. Not part of the planned operation
D. None of the above

498. Carbon monoxide (CO) is an odorless, colorless gas that is formed from _____ such as wood, coal, gas, oil, and gasoline.

A. Decomposition of organic matter
B. CO_2
C. Incomplete combustion of organic materials
D. None of the above

499. Carbon monoxide (CO) is a hazardous gas that is usually not found in a confined space.

A. True B. False

500. CO is an insidious toxic gas because of its poor warning properties. CO may be fatal at as little as 1000 ppm or 10% in air, and is considered dangerous at 200 ppm or 2%.

A. True B. False

When Finished with Your Assignment...

REQUIRED DOCUMENTS

Please scan the **Registration Page, Answer Key, Proctoring report, Survey and Driver's License** and email these documents to info@TLCH2O.com.

IPhone Scanning Instructions

If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX

If you are unable to scan and email, please fax these documents to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**