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Continuing Education Course #488  
Water Distribution CIP Management

1. Which is NOT a main component of a water distribution system?
  - a. Service lines
  - b. Interceptors
  - c. Water mains
2. Which does "CIP" NOT normally stand for?
  - a. Customer Improvement Program
  - b. Capital Improvement Program
  - c. Capital Improvement Plan
3. Why should hydraulic restrictions be corrected?
  - a. Allow pipe isolation
  - b. Reduce pumping energy
  - c. Prevent environmental releases
4. Why should structural failures be prevented?
  - a. Prevent sediment buildup
  - b. Prevent pipe collapses
  - c. Avoid tuberculation
5. Which is NOT a cause for water loss?
  - a. Firefighting water demand
  - b. Unapproved connections
  - c. Leaks
6. Which pipe material is considered to have the shortest lifespan?
  - a. Galvanized steel
  - b. Ductile iron
  - c. PVC
7. Which is a problem NOT caused by tuberculation?
  - a. Hydraulic restriction
  - b. Biogrowth
  - c. External corrosion
8. Which is NOT a reason to combine water improvements with a road project?
  - a. Save on pavement restoration costs
  - b. Save on traffic control costs
  - c. Faster installation

9. What is 40 CFR?
- a. Minimum temperature for potable water supply
  - b. Title 40 of the Code of Federal Regulations
  - c. Maximum concentration of iron in ppm
10. Which is a term used for managing infrastructure to minimize cost while delivering desirable service levels?
- a. Asset Management
  - b. Data Management
  - c. O&M
11. Which is a key element of asset management?
- a. Run-to-failure management
  - b. Condition assessment
  - c. Pipe flushing
12. Which is the EPA recommended percent of useful life for replacing or rehabilitating components?
- a. 60%
  - b. 70%
  - c. 80%
13. Which is NOT commonly included in a Master Plan Report?
- a. Board's Budget Guidance
  - b. Condition Assessment Results
  - c. Recommended Improvements
14. Which is a good first step in project selection?
- a. Obtain a "wish list" from O&M staff
  - b. Compare cost estimates to budgets
  - c. Schedule out projects
15. What can be done with a project that has high costs that exceed the annual budget?
- a. Split into multiple smaller projects
  - b. Modify cost estimate to hide costs
  - c. Ignore budget
16. Which is an example of how GIS can assist in asset management?
- a. Budget projections
  - b. Regulations tracking
  - c. Map of break history
17. Which type of hydraulic model assumes flow in = flow out?
- a. Steady-state model
  - b. Dynamic model
  - c. CFD model
18. Which database can be used for real-time modeling?
- a. Hierarchical
  - b. SCADA
  - c. NoSQL
19. Which is a definition of water loss?

- a. Supplied water that does not reach authorized users
  - b. Unbilled, unmetered water use
  - c. Unauthorized consumption
20. Which is NOT a common approach for water loss control?
- a. DMAs
  - b. Recirculation
  - c. Pressure management
21. What is a water balance?
- a. Breakdown of water consumption and loss
  - b. Raw water versus water supplied
  - c. Breakdown of authorized consumption
22. Which type of pipe is typically more challenging to inspect internally?
- a. Gravity sewer
  - b. Interceptor sewer
  - c. Water main
23. What does COF stand for?
- a. Correction of failure
  - b. Common overflow
  - c. Consequence of failure
24. Which type of risk is commonly considered more important?
- a. COF
  - b. LOF
25. How is a CIPP liner for a water main different than a sewer?
- a. No difference
  - b. NSF certified
  - c. Smaller diameter

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