

**Final Exam**  
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