

# Assessing Non-Revenue Water with the AWWA Water Audit Method

## FINAL ASSESSMENT

The test pool is comprised of 20 to 30 questions, participants receive 10 questions that are randomly selected. They have three tries to pass the test and must have a 70% passing score to be able to print a certificate.

### Question 01: Pick One

In the AWWA Water Balance diagram each box represents \_\_\_\_\_?

Points Choices

- 0 a. the average system pressure
- 0 b. loss percentage
- 0 c. the annual cost of loss
- 10 d. an annual water volume

### Question 02: Pick One

The AWWA standard water audit is compiled on a(n) \_\_\_\_\_ basis.

Points Choices

- 0 a. monthly
- 0 b. quarterly
- 0 c. bimonthly
- 10 d. annual

### Question 03: Pick One

For most water utilities in the USA the AWWA Free Water Audit Software works in units of:

Points Choices

- 0 a. Mega-litres
- 0 b. Barrels
- 10 c. Million Gallons
- 0 d. Gallons

### Question 04: Pick One

As defined by the Water Balance, Non-revenue Water is comprised of apparent losses plus real losses plus \_\_\_\_\_:

Points Choices

- 0 a. Billed metered consumption
- 10 b. Unbilled Authorized Consumption
- 0 c. Unbilled metered consumption
- 0 d. Volume from Own Sources

**Question 05: Pick One**

TRUE or FALSE: All water utilities have some volume of Non-revenue Water?

Points Choices

- 10 True
- 0 False

**Question 06: Pick One**

Apparent Losses are:

Points Choices

- 0 a. Physical losses of water
- 10 b. Non-physical, or "paper," losses

**Question 07: Pick One**

Erroneous billing adjustments are part of which of the below components of Apparent Losses?

Points Choices

- 10 a. Systematic data handling error
- 0 b. Customer metering inaccuracies
- 0 c. Unauthorized consumption

**Question 08: Pick One**

Apparent Losses should be valued at which of the below cost rates?

Points Choices

- ☐ a. Variable Production Cost
- ☐ 10 b. Customer Retail Unit Charge
- ☐ 0 c. Depreciation Cost
- ☐ 0 d. Capital Renewal Cost

**Question 09: Pick One**

When assigning a cost to Apparent Losses which of the below are the only charges that apply?

Points Choices

- ☐ 10 a. A volumetric charge representative of the amount of water consumed
- ☐ 0 b. A capital improvement charge
- ☐ 0 c. A fixed charge
- ☐ 0 d. Sewer and/or stormwater charges

**Question 10: Pick One**

The water audit for a water utility revealed that the Apparent Loss volume for last year was 3.0 million gallons. The utility uses a single-rate Customer Retail Unit Charge of \$4.95 per thousand gallons. Calculate the value of missing revenue due to Apparent Losses in the system and select the answer from the below choices.

Points Choices

- ☐ 10 a. \$14,850
- ☐ 0 b. \$ 14.85
- ☐ 0 c. \$ 1,485
- ☐ 0 d. \$10,650

**Question 11: Pick One**

A pumped flow rate of 600 gpm conveyed 36,000 gallons in one hour, but the flowmeter on the pump discharge piping registered 35,400 gallons. Calculate the accuracy of the flowmeter, expressed as a percentage, and select from the answers listed below?

Points Choices

- 10 a. 98.33%
- 0 b. 101.69%
- 0 c. 96.66%

**Question 12: Pick One**

Which of the below is not part of Real (leakage) Losses?

Points Choices

- 0 a. Leakage from customer service lines
- 0 b. Leakage from water mains
- 10 c. Water illegally withdrawn from a fire hydrant
- 0 d. Storage tank overflows

**Question 13: Pick One**

Real (leakage) Losses are most often valued at which of the below cost rates?

Points Choices

- 10 a. Variable Production Cost
- 0 b. Customer Retail Unit Charge
- 0 c. Depreciation Cost
- 0 d. Capital Renewal Cost

**Question 14: Pick One**

Is Unbilled, Unmetered Consumption a part of Non-revenue Water?

Points Choices

- 10 Yes
- 0 No

**Question 15: Pick One**

For three of the components of the Version 6.0 AWWA Free Water Audit Software – Unbilled Unmetered Consumption, Systematic Data Handling Error, and Unauthorized Consumption – the auditor has the option to input a customer volume or to select a preset minimal value known as the:

Points Choices

- 0 a. Grading
- 0 b. Tier
- 10 c. Default

**Question 16: Pick One**

The AWWA Free Water Audit Software requires the auditor to input data on up to twenty components, as measures of water volume, system data, and system cost. Additionally, a rating of the quality of each data input is assigned. This rating is known as a:

Points Choices

- 0 a. Percentage
- 0 b. Performance Indicator
- 10 c. Grading
- 0 d. System Attribute

**Question 17: Pick One**

In the Version 6.0 AWWA Free Water Audit Software the name of the worksheet that displays System Attributes and Performance Indicators is the \_\_\_\_\_ worksheet.

Points Choices

- 0 a. Start Page
- 0 b. Worksheet
- 0 c. Interactive Data Grading
- 10 d. Dashboard

**Question 18: Pick One**

Two residential customer properties in a water utility were found to have non-functioning, or “stopped,” water meters. Based upon meter reading data, the first was believed to have been stopped for six months, and the second was believed to be stopped for four months. The average monthly consumption for residential customers in the water utility was 4,200 gallons during the audit year. Calculate the volume of water that failed to be billed due to the non-functioning water meters and select from the below choices:

Points Choices

- 0 a. 25,200
- 0 b. 16,800
- 10 c. 42,000

**Question 19: Pick One**

Which of the below water audit parameters represent numbers that are characteristic of your system, but are not very effective for comparisons with other systems?

Points Choices

- 10 System Attributes
- 0 Performance Indicators

**Question 20: Pick One**

Which of the below terms means ‘comparing your performance with other water utilities, particularly those utilities who are considered best-in-class?’

Points Choices

- 0 a. Performance Tracking
- 10 b. Benchmarking
- 0 c. Continuous Monitoring

**Question 21: Pick One**

Which of the below is not true about the use of percentage indicators for water loss assessments?

Points Choices

- 0 a. Percentages don’t express how much loss occurs by water volume
- 0 b. Percentages don’t breakdown the specific volumes of apparent loss, real loss, and unbilled authorized consumption
- 10 c. Percentages are reliable in measuring water loss
- 0 d. Percentages are mathematically affected by changing levels of customer consumption across years

**Question 22: Pick One**

The AWWA acronym 'WARD' stands for:

Points Choices

- 0 a. Water Authority Regional Director
- 10 b. Water Audit Reference Dataset
- 0 c. Waste and Residual Deposits