

## Assessment Scale Guidelines

The Water Loss Audit worksheet requires a water utility complete an assessment scale for each component, or line, on the Water Loss Audit that data is requested. The assessment scale is a valuation of the quality of data the utility has available for that particular component. The utility should select the assessment score closest to the quality of data available. An assessment scale table has been developed to assist the utility. Each component requesting the assessment is listed in the table and provides a statement relating to the degree of validity based on a scale of 0.5 to 5. A total, out of 100 possible, is calculated on the Water Loss Audit worksheet to represent the relative degree of validity of the water loss audit results.

### What it is?

Assigning the lowest score (0.5) on an individual component indicates the water utility has a very low confidence in the data provided for that component. Conversely, assigning the highest score (5.0) on an individual component signifies the utility has a very high confidence in the data provided for that component. Because each component is not the same, the assessment purposes/statements for each are different.

The purpose of the assessment scale is not necessarily to grade yourself to look good, it is intended to grade the validity of individual components and the water loss audit overall; therefore, the utility can understand where to direct water loss control efforts. TWDB does not necessarily look at individual or overall scores to gauge the utility's water loss, so providing an inaccurate assessment only serves to make the task of using the audit to effectively and efficiently control water loss more difficult.

Listed below each possible individual component score are suggested improvements the utility should consider using to improve from one score to the next score, or if a 5 to stay at a 5 and continue to have high confidence (and even greater confidence) in that component's data. These improvements can be implemented over a period of time.

### How to use it?

***The water utility cannot put a zero for any of the components on the water loss audit.***

The utility must choose a score for each component that requests an assessment score. Lines 6, 7 10, 13, 13a, 14, 14a, 15, 15a, 17, 18, 19, 20, 23, 25, 26, 28, 29, 40, and 43 all require an assessment score. Choosing a half score indicates the utility believes the validity of the data used for that component is in between the statements. For instance a 3.5 means the water utility believes they are implementing the practices in the statement for 3 but are also implementing some of the practices in the statement for 4. The water utility cannot put a zero for any of the

components on the water loss audit, but Lines 13, 13a, 14, 14a, 15, and 15a allow the utility to put N/A if the component is not applicable to their system.

The utility should read each component’s table to determine their score for each component. For example the assessment scale is required for Line 23 – Average Customer Meter Accuracy. If a utility tested or replaced 1 to 5% of the customer meters in 2015 they should choose a 2 for the assessment score on Line 23, matching the statement listed below 2 on the assessment table for this component. If the utility would like to improve their score for the 2016 audit year they should follow the steps in the gray box below 2 on the assessment table. The improvements would be to standardize testing and test or replace 5 to 10% of meters; consider increasing number of meters tested or replaced after review of the test data. *(See picture below)*

Average Customer Meter Accuracy Assessment Scale

Component	Assessment Table								
SYSTEM DATA	1	1.5	2	2.5	3	3.5	4	4.5	5
<i>Average customer meter accuracy</i>	No testing or replacement; estimates only	Conditions between 1 and 2	Testing or replacement of 1 to 5% of meters in year of audit	Conditions between 2 and 3	Analysis of test data finds meters meeting specs, or testing or replacement of 5 to 10% of meters per year	Conditions between 3 and 4	Previous test data analyzed and all meters in spec, or testing or replacement of 10 to 50% of meters in year of audit	Conditions between 4 and 5	Previous test data analyzed and all meters in spec, or testing or replacement of over 50% of meters in year of audit
<i>Improvements in quantifying loss due to customer meter inaccuracies</i>	Conduct testing regime on small number of meters targeted to suspected problem areas such as meter age		Standardize testing and test or replace 5 to 10% of meters; consider increasing number of meters tested or replaced after review of test data		Consider increasing number of meters tested or replaced after review of test data		Consider increasing number of meters tested or replaced after review of test data		Consider increasing number of meters tested or replaced after review of test data

## *Assessment Scale Component Breakdown*

### **Line 6: Utility's Length of Main Lines**

The scale relates to the quality of records the utility compiles for the location of assets, specifically the main lines, in the distribution system.

### **Line 7: Total Retail Metered Connections – Active and Inactive**

Relates to the quality of records the utility compiles regarding customer and billing information.

### **Line 10: Average Yearly System Operating Pressure**

This scale relates to the quality of records and procedures the utility uses for pressure testing throughout the distribution system.

### **Line 13: Produced Water**

Relates to the quality of data generated for the volume of produced water. For this component the scale gauges the level of metering used in obtaining this volume and the level testing and/or calibration any meters undergo. This should be the meter measuring the volume entering the distribution system. If there is not a meter at the entry point then using the production source meter, if available, will suffice; however, if water is lost in transmission or in treatment the meter doesn't fully represent the volume. If the water utility does not produce its own water then choose not applicable, represented by N/A.

### **Line 13a: Production Meter Accuracy**

Relates to the quality of data the meters generate for the produced water volume (Line 13). For this component the scale gauges the level of testing and replacement the meters receive. If the utility does not produce its own water then choose not applicable, represented by N/A.

### **Line 14: Total Treated Purchased Water**

Relates to the quality of data generated for the total treated purchased water volume. For this component the scale gauges the level of metering used in obtaining the volume. Select the assessment score closest to the quality of data used in generating this component's volume during the reporting period. If the utility does not produce its own water then choose not applicable, represented by N/A.

### **Line 14a: Treated Purchased Water Meter Accuracy**

Relates to the quality of data the meters generate for the total treated water purchased volume (Line 14). For this component the scale gauges the level of testing and replacement the meters receive. If the utility does not produce its own water then choose not applicable, represented by N/A.

**Line 15: Total Treated Wholesale Water Sales**

Relates to the quality of data generated for the total treated wholesale water sales volume. For this component the scale gauges the level of metering used in obtaining this volume. If the utility does not produce its own water then choose not applicable, represented by N/A.

**Line 15a: Treated Wholesale Water Meter Accuracy**

Relates to the quality of data the meters generate for the total treated wholesale water sales volume (Line 15). For this component the scale gauges the level of testing and replacement the meters receive. If the utility does not produce its own water then choose not applicable, represented by N/A.

**Line 17: Billed Metered**

Relates to the quality of data gathered to generate the billed metered volume. For this component the scale gauges the level of billing and meter reading accuracy and the quality of verification of this data.

**Line 18: Billed Unmetered**

Relates to the quality of data gathered to generate the billed unmetered volume. For this component the scale gauges whether estimates, production meters, or district metered areas are used and to what extent the areas receiving billed unmetered water are monitored. If the volume is zero this indicates all billed volumes are metered (or the volumes were credited to billed metered when completing the Water Use Survey), therefore select the appropriate score, a 1 is estimate, 5 is district meters are used. If the utility sells billed unmetered water but put this volume in billed metered then put zero for volume in billed unmetered and select a score based on the volume of billed unmetered credited to the billed metered volume. The utility cannot select N/A or zero for the assessment scale.

**Line 19: Unbilled Metered**

Relates to the quality of data gathered to generate the unbilled metered volume. For this component the scale gauges the level of meter testing and replacement. If the volume is zero an assessment score is still required.

**Line 20: Unbilled Unmetered**

Relates to the quality of data gathered to generate the unbilled unmetered volume. For this component the scale gauges the level of estimation. If the volume is zero an assessment score is still required.

**Line 23: Average Customer Meter Accuracy**

Relates to the quality of meter testing and replacement program the utility has in place for the customer retail meters. For this component the scale gauges the level of meter testing and replacement, and the quality of verification of meter data to find errors in specific meters.

**Line 25: Systematic Data Handling Errors**

This scale relates to the quality of review of the billing system data.

**Line 26: Unauthorized Consumption**

This scale relates to the quality of estimate used in generating the unauthorized consumption volume and whether a monitoring and enforcement program or evaluation of unauthorized consumption exists.

**Line 28: Reported Breaks and Leaks**

This scale relates to the quality of documentation and call-to-repair times used in generating the volume of reported breaks and leaks.

**Line 29: Unreported Loss**

Relates to the quality of the leak detection program the utility uses to control water loss in the distribution system.

**Line 40: Retail Price of Water**

Relates to the quality of data used to generate the retail price of water. For this component the scale gauges whether estimates, residential rate, a weighted average of residential or combined usage, or a third party review was used to generate the retail price of water.

**Line 43: Variable Production Cost of Water**

Relates to the quality of data used to generate the variable production cost of water. For this component the scale gauges whether estimates, extrapolations, non-audited, internally audited, or third party audited data was used to generate the variable production cost of water.