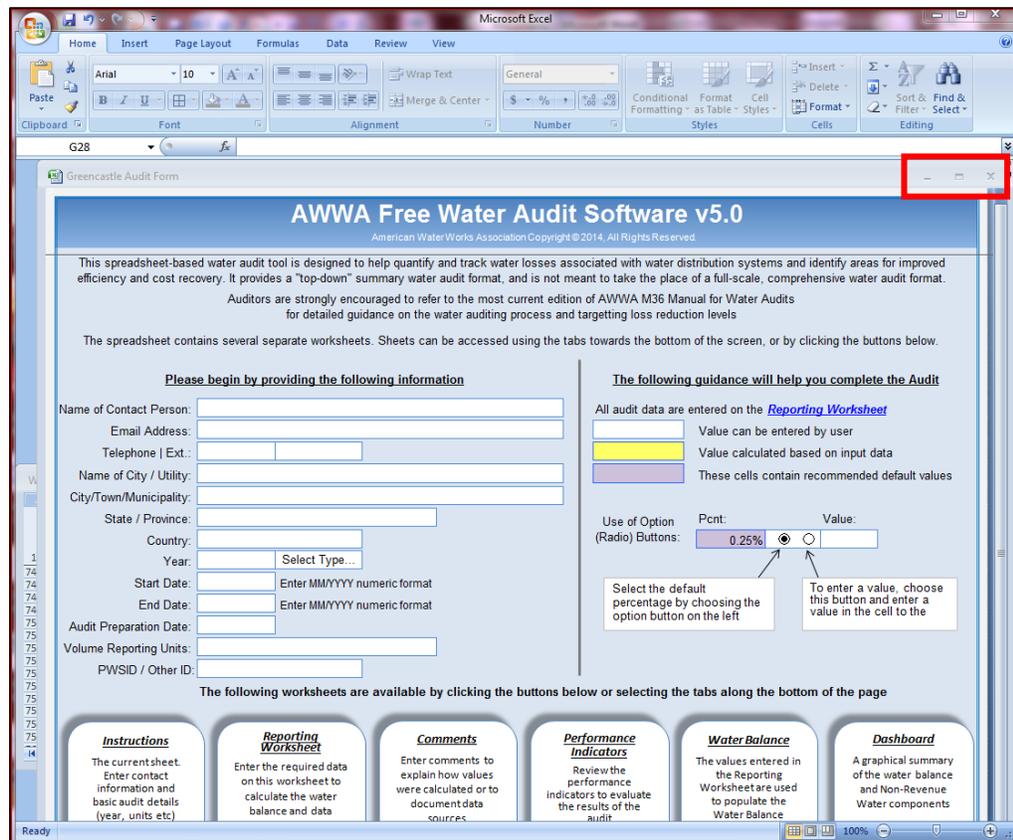


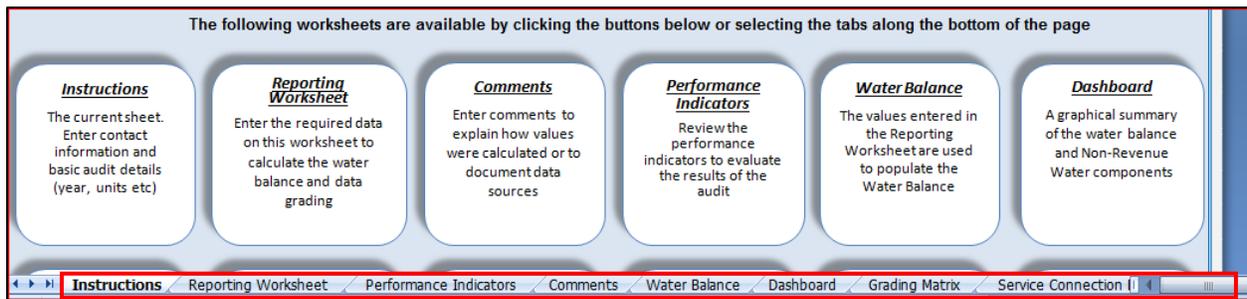
Section 1: Quick Start Guide for Getting Started on the Water Loss Audit

1. Download the software.
 - a. Link: <https://www.awwa.org/Resources-Tools/Resource-Topics/Water-Loss-Control>
 - i. Scroll down to Free Water Audit Software
 - ii. Fill in the form and click the “submit” button
 - iii. Save As “**Your Utility Name INXXXXXXX Water Loss Audit 2020**” on your computer
 - b. If you cannot find the link, we can email the link to you

2. Open the software; we promise it isn’t as bad as it first looks! You only have to enter information on two of the tabs (the Instructions tab and the Reporting Worksheet Tab). All other tabs are populated from the information entered in the boxes on the two tabs.
 - a. If you cannot see the tabs at the bottom of the spreadsheet, you will need to make sure the window is maximized in Excel. Click the Square button in the red outlined box.

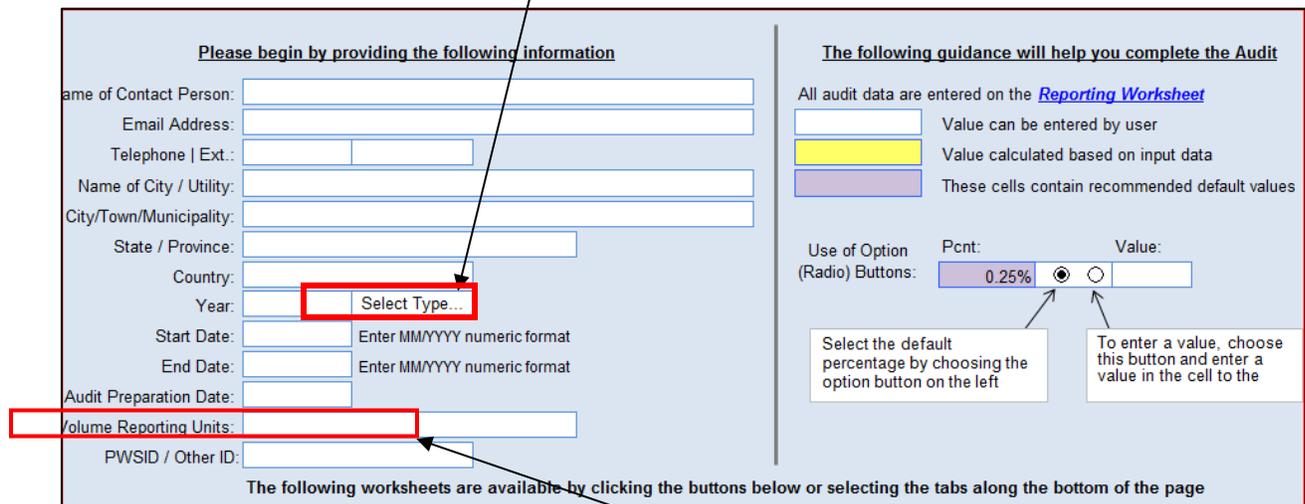


b. You should then see the following tabs:



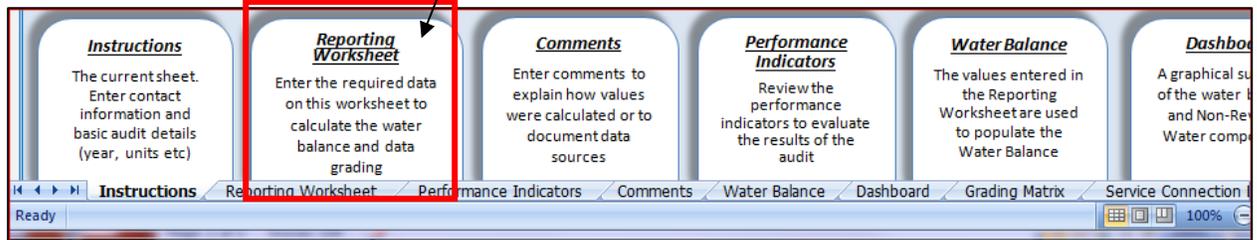
3. The **Instructions Tab** is only contact info and basic identification information. Two places that may cause confusion are the following:

- a. Year: This pertains to the year of data that will be analyzed, not today's date. If you run on a Calendar Year (Jan 1 – Dec. 30), enter the four-digit year into the year box and click on the box that says “**Select Type.**” Scroll down on the drop down menu to Calendar Year. If Financial, select Financial Year and enter the start and end date of the Financial Year (Ex. July 1 to June 30). If Calendar Year is selected, the boxes for start date and end date will disappear.



- b. The only other important note is about the “**Volume Reporting Units.**” This is also a drop down menu. Most systems report in “Million Gallons” but choose the one that you use. This is a drop down menu that **MUST** be selected before moving to the Reporting Worksheet.

- Moving on to the “**Reporting Worksheet.**” Click on this tab (Right next to the Instructions Tab). If for some reason this does not work, you can also click on the white box on the Instructions Tab that says Reporting Worksheet.



- The Reporting Worksheet is the page where you will enter the remainder of your information. The white spaces are where you input information, the yellow spaces will be calculated automatically, and the purple spaces are default values that you can keep or change if you have precise information about that topic.
- Start at **WATER SUPPLIED, Volume from own sources.** Read hints in the following section before proceeding.

Section 2: Tips and hints for completing the water audit

AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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Water Audit Report for: << Please enter system details and contact information on the Instructions tab >>
Reporting Year: _____

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

PLEASE CHOOSE REPORTING UNITS FROM THE INSTRUCTIONS SHEET BEFORE ENTERING DATA

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below

Master Meter and Supply Error Adjustments

WATER SUPPLIED

Enter grading in column 'E' and 'J' ----->

Volume from own sources: + ? **4**

Water imported: + ?

Water exported: + ?

Pcnt: **6** Value: _____

WATER SUPPLIED: **5** **0.000**

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Billed metered: + ?

Billed unmetered: + ?

Unbilled metered: + ?

Unbilled unmetered: + ? **0.000**

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: **?** **0.000**

Click here: ? for help using option buttons below

Pcnt: **1.25%** Value: _____

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption) **0.000**

Apparent Losses

Unauthorized consumption: + ? **0.000**

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: + ? **0.000**

Systematic data handling errors: + ? **0.000**

Apparent Losses: **?** **0.000**

Pcnt: **0.25%** Value: _____

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **?** **0.000**

Pcnt: **0.25%** Value: _____

Instructions Reporting Worksheet Performance Indicators Comments Water Balance Dashboard Grading Matrix Service Connection Diagram Definitions

SYSTEM DATA

Length of mains: + ? **8**

Number of active AND inactive service connections: + ? **8**

Service connection density: ?

Are customer meters typically located at the curbside or property line?

Average length of customer service line: + ? **9**

Average operating pressure: + ? **10**

(length of service line, beyond the property boundary, that is the responsibility of the utility)

COST DATA

Total annual cost of operating water system: + ? \$/Year **11**

Customer retail unit cost (applied to Apparent Losses): + ? \$/

Variable production cost (applied to Real Losses): + ? \$/ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE: **12**

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

13

The following numbers are hints that correspond to the numbers on the above screenshots.

1. These data validity boxes tell the program how reliable your information is on a scale from 1 to 10, with 10 being the highest. You can hover over the box to reveal guidelines for each option about how you should score yourself. These scores are sometimes called confidence values.
2. Clicking on these “?” will take you to a detailed explanation of the value the program is looking for in that space. From that new page, you can then click the blue “Find” button to return to the space you had originally clicked the “?” button at.
3. The “+” comment button takes you to a page where a comment can be entered for that value. Click on the value link and you will be returned to the main page.
4. These white cells for **WATER SUPPLIED** and **AUTHORIZED CONSUMPTION** are where you’ll enter your volume information for your utility. Be aware that the default unit value is million gallons per year (MG/yr.). For example, if you pump 2,500,000 gallons per year, you’ll enter 2.5 rather than 2,500,000.
5. These yellow cells are where the program automatically fills in values. You don’t have to enter any information in these.
6. These dots allow you to toggle between entering either a percentage you believe your master meter may be off by, or, a set amount in MG/yr. If you are unsure about how much this might be, an average value for the **Master Meter Adjustment** is 1.25% with a confidence value of 5.
7. Similar to 6, this option allows you to estimate to what extent your **customer metering system** may be in error. If you are unsure of this amount, you can use an average value of 5% with a confidence value of 5.
8. Enter **the length of your water mains only** (don’t include sewer) here. Make sure to enter the length in miles, not feet.
9. For **customer meter location** question, be sure to select from the dropdown menu “Yes” or “No”, and don’t just write in “Yes” or “No” or something like “property line”, as the program can’t interpret these inputs.
10. This should be the **average operating pressure** throughout the entire system. However, if you only have information for psi right as it leaves the plant, use this number. Average values range from 30-80, and around 120 if in hilly areas such as southern Indiana.

11. These three entries have great potential to cause confusion, but they are not that bad to figure out. In addition to the below tips, you can find a worksheet explaining how to calculate each of the three costs here:

https://www.in.gov/ifa/files/Water%20Loss%20Audit%20Guide_Cost%20Data.pdf.

a. Total annual cost of operating water system:

This consists of all of your costs throughout the year: salaries, operations, electricity, debt repayments, legal fees, etc.

b. Customer retail unit cost:

This is the amount you charge your customers for water for the given unit you select (normally 1000 gallons). If your customers pay a flat rate regardless of how much water they use, then enter that rate. If you use charge customers at different rates depending on how much water they use, then you should enter an average (also known as weighted) customer cost. The resulting number should be around \$5 - \$20.

c. Variable production cost:

Finally, if you produce all your own water, you can find variable production cost by adding together the amount your utility paid for power and chemicals that year and then dividing this sum by the total volume of water pumped in MG/yr. (this is the same amount listed for “Volume from Own Sources” at the top of the page). This should be about \$200-\$800. However, if you import your water, variable production cost can be found by dividing the total amount paid for imported water that year by the volume of water imported. This will usually result in an amount between \$1,000 to \$4,000.

12. When all of the data validity scores/confidence values are filled in, the program will give you a **Data Validity Score** out of 100, which can be found here. Unlike a score on a test, this score measures the policies used when gathering data for the audit. Typical scores range from 50-70. Scores in the 80s are infrequent and scores in the 90s are very rare.

13. Once all the information has been entered, the software will automatically generate **Priority Areas for Attention**, which may be useful next steps.

Still need help? Our Technical Assistance Hotline can be accessed by contacting our team at 317-426-7437 (M-F, 8-4) or WaterLoss@inawwa.org.

For more information: visit the IFA Water Loss Audit website: <https://www.in.gov/ifa/3013.htm>