TSHillData™ Entry Software

User Manual

(DRAFT 6)

Applicable For North Dakota

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V 4.0 Beta

Table of Contents

i. Introduction **2**
ii. Installing the Software 5
1. Getting Started **6**
2. Spreadsheet Selection **7**
2.1 Creating New Spreadsheet 7
2.2 Using Existing Spreadsheet 9
3. Selecting/Creating DataEntry (JSON) File **10**
3.1 Uploading DataEntry (JSON) 10
3.2 Creating A New DataEntry (JSON) File 11
3.2.1 Selecting Your Custom Columns 15
4. Main Report Screen **16**
4.1 Controls/Hotkeys 18
4.2 Edit Metadata Button 18
4.3 Edit Columns Button 18
4.4 Finalize Button 22
5. Columns, Keywords and Values **25**
5.1 Multiple Keywords 25
5.2 Keyword Measurement Values 27
5.3 Columns And Expected Keywords/Values 27
5.3.1 Additional Notes on Critical Lengths (Refaces) 35
5.4 Unexpected (Non-Programmed) Keywords 35
6. Troubleshooting **36**

i. INTRODUCTION

The TSHillData™ Entry Software was developed to streamline and expedite the completion of Drill Pipe and Tubing Inspection Reports. Prior to its introduction, the inspection report process was bifurcated into two primary stages: 1) the physical paperwork stage, where handwritten inspection reports were completed by field personnel, and 2) the transcription stage, where administrative staff transferred this handwritten data into Microsoft Excel documents. Notably, the transcription stage often consumed as much time as the actual field inspection, primarily due to the manual effort required to read, review, and type the handwritten reports. This manual process not only increased the potential for errors but also delayed the delivery of reports to customers. The TSHillData™ Entry Software eliminates the need for handwritten reports, thereby reducing error potential and significantly accelerating the inspection report turnaround time.

The secondary goal of this software is to facilitate seamless integration into the existing inspection process. By digitizing the handwritten report templates and incorporating customization options, TSHillData™ Entry Software allows the current inspection field crew to transition effortlessly to its use. No specialized training is required beyond a review of this manual. The software aims to replace pen and paper with a keyboard, prioritizing efficiency improvements that blend seamlessly with the current workflow.

This software utilizes two types of external files to perform its primary functions:

> **Microsoft Excel Spreadsheet (.xlsx):** This file serves as the Inspection Report Template, where inspection data is transferred. It represents the 'unpolished' final product that is ultimately sent to the customer.
>
> **DataEntry File (.json):** This specialized file stores all the inspection report data, which is eventually transferred to the Microsoft Excel Spreadsheet. This file type enables us to 'hardcode' the report data into a file that is isolated from the software, ensuring data integrity and security.

Before entering inspection data, users must complete the following steps:

1. **Select Branch:**
    - ND
    - TX (Unavailable in Version 1)
    - WY (Unavailable in Version 1)
2. **Select Report Type:**
    - Drill Pipe
    - Tubing/Casing
3. **Choose Spreadsheet:**
    - Upload Existing Spreadsheet
    - Create New Spreadsheet
4. **Choose DataEntry File:**
    - Create New: Involves entering metadata such as Customer, Operator, Date, Invoice Number, Inspection Type, Connection Size, Connection Type, Inspectors, etc.
    - Upload Existing
5. **Select Columns:**
    - Choose from a list of drop-down menus to display on the main report screen.

After selecting these options, the user is then presented with the Main Report Screen, which acts as the digital version of the handwritten report template. To help illustrate this concept, below you will find Figure i.1 and Figure i.2. Figure i.1 is an example of a handwritten report with 5 rows of data. Figure i.2 shows the exact same information as would be written in the software's Main Report Screen window.

PATHFINDER
INSPECTIONS & FIELD SERVICES

Operator Example OP
Contractor Example CNT
Location ND

Date 6/21/24
Field Invoice 00001
Page 1 of 1

	BOX OD	BOX TUBE	PIN ID	UT	SERIAL #		BOX OD	BOX TUBE	PIN ID	UT	SERIAL #
1	R 499/500			300	SER001	26					
2		MW		250	SER002	27					
3			R 491/495	245	SER003	28					
4		EMI		240	SER004	29					
5	DT DS		OR HB	200	SER005	30					
6						31					
7						32					
8						33					
9						34					
10						35					
11						36					
12						37					
13						38					
14						39					
15						40					
16						41					
17						42					
18						43					
19						44					
20						45					
21						46					
22						47					
23						48					
24						49					
25						50					

Figure i.1 – An example of a Handwritten Report

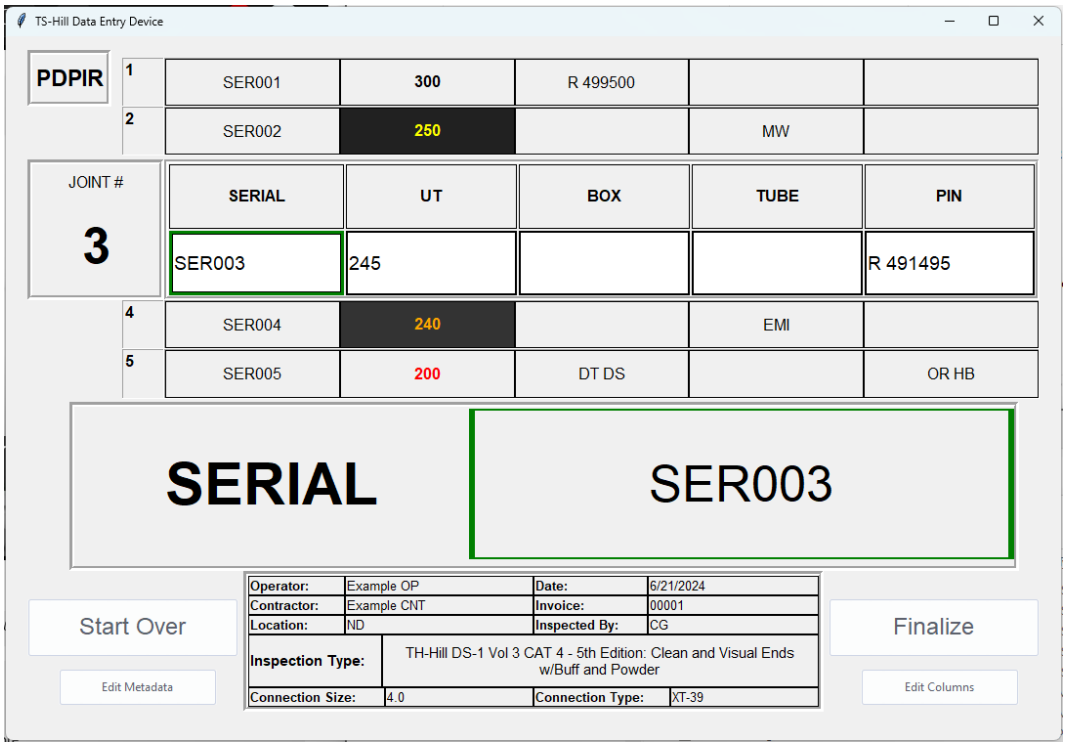


Figure i.2 – The exact same information from Figure i.1 being recorded with the TSHillData™ Entry Software

Once the User finalizes the report, their data is transposed to the Microsoft Excel Document (The ‘final product’ being sent to the customer), and a PDF file (a record to store the User’s exact input data).

Row	Joint #:	Serial #:	OD Gage:	Nominal Wall Thickness:	UT Thickness:	% of Nom Wall:	Box OD:	Pin ID:	Box:	Pin:	Box:	Pin:	Box Critical Length:	Length After Repair:	Pin Critical Length:	Length After Repair:
6	API Drill Pipe		Dimensional													
7	Identification		Tube				Tool Joint		Bevel Dia.		Tong Spa.		Critical Lengths			
9	1	SER001	OK	0.330	0.300	90.91%	OK	OK	OK	OK	OK	OK	4.499	4.500	OK	OK
10	2	SER002	-	0.330	0.250	75.76%	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
11	3	SER003	OK	0.330	0.245	74.24%	OK	OK	OK	OK	OK	OK	OK	OK	4.491	4.495
12	4	SER004	OK	0.330	0.240	72.73%	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
13	5	SER005	OK	0.330	0.200	60.61%	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Row	Box Reface	Pin Reface	Damaged Seal Box	Damaged Seal Pin	Damaged Threads Box	Damaged Threads Pin	Short Box	Long Pin	Over Refaced Box	Over Refaced Pin	Bent Tube	Other Damage	Other Damage	Other Damage Box	Other Damage Pin	Damaged Hardband Box	Damaged Hardband Pin	Hardband Box	Hardband Centerpad #1	Hardband Centerpad #2	Hardband Pin	DBR Hardband Box	DBR Hardband Pin	Minimum Wall Tube	Min Tong Box	Min Tong Pin	Min Seal Box	Min Seal Pin	Minimum OD	Damaged Tube	EMI Reject	Other	Box - Thread Recondition	Pin - Thread Recondition	Box - Bevel Repair	Pin - Bevel Repair
6	Refaces		Damages																																	
7	1	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
9	X																																			
10																								X												
11		X																																		
12																															X					
13			X		X					X											X															

Figure i.3 – The data from Figure i.1 and Figure i.2 transposed to the ‘final product’ Excel File.

PATHFINDER
INSPECTIONS & FIELD SERVICES

Operator:	*Example OP*	**Date:**	*6/21/2024*
Contractor:	*Example CNT*	**Invoice:**	*00001*
Location:	*ND*	**Inspected By:**	*CG*
Inspection Type:	*TH-Hill DS-1 Vol 3 CAT 4 - 5th Edition: Clean and Visual Ends w/Buff and Powder*		
Connection Size:	*4.0*	**Connection Type:**	*XT-39*

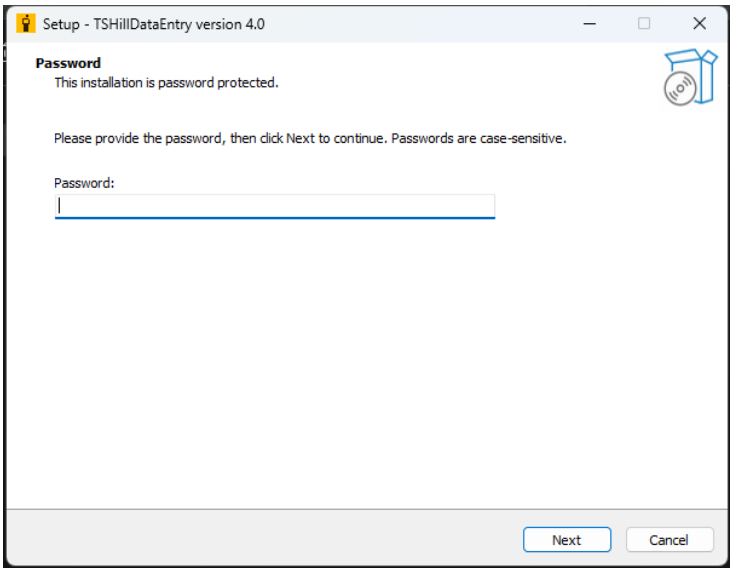
JOINT #	SERIAL	UT	BOX	TUBE	PIN
1	SER001	300	R 499500		
2	SER002	250		MW	
3	SER003	245			R 491495
4	SER004	240		EMI	
5	SER005	200	DT DS		OR HB

Figure i.4 – The PDF record file for the report.

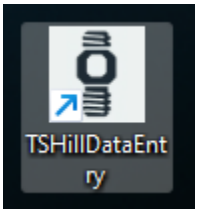
ii. Installing The Software

To Install the TSHillData™ Entry Software, double-click the install file:

After clicking the install file, you will be prompted to enter a password (this will be given to you by your administrator):



Continue through the installation by pressing 'Next' as you would any other software installation. If you selected the 'Create Desktop Shortcut' option, you should have the following icon on your desktop:



1. GETTING STARTED

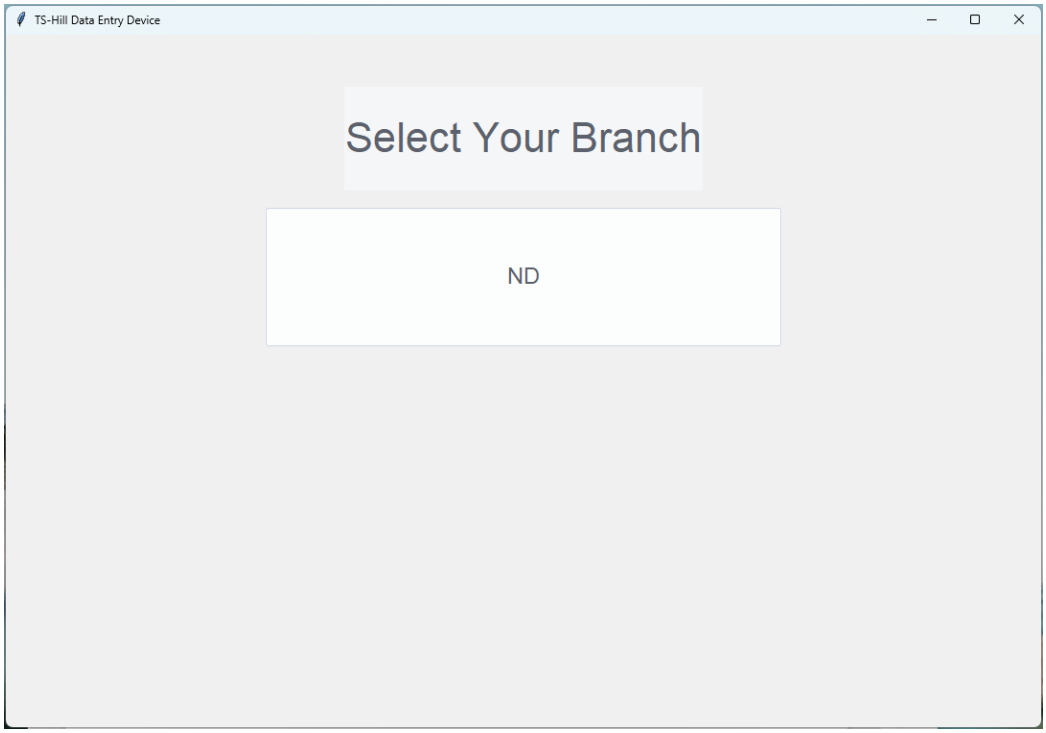


Figure 1a *– The Branch Selection screen is the first screen you are shown when starting the software*

The first screen you are presented with is your Branch Selection Menu (See ***Figure 1a***). This version of the software is only applicable for our Pathfinder's North Dakota Branch.

Pressing any of the branch selection options will bring you to the Report Type Selection Menu (See ***Figure 1b***)

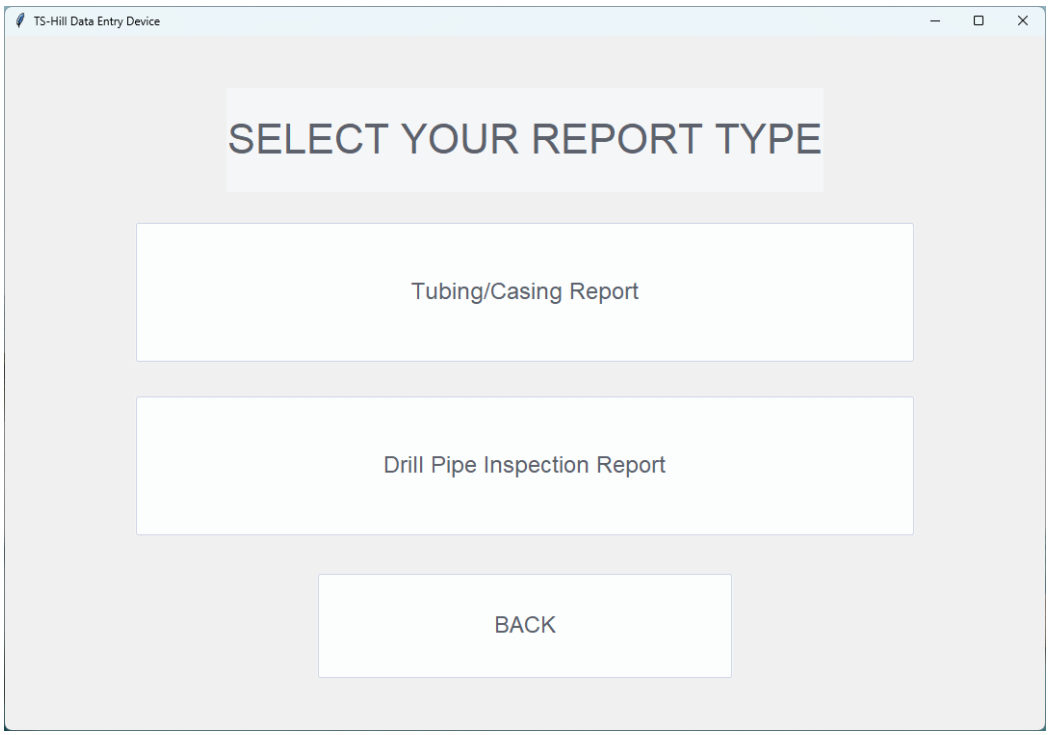


Figure 1b *– Report Type Selection Screen, your selection here determines which spreadsheet template will be used*

2. Spreadsheet Selection

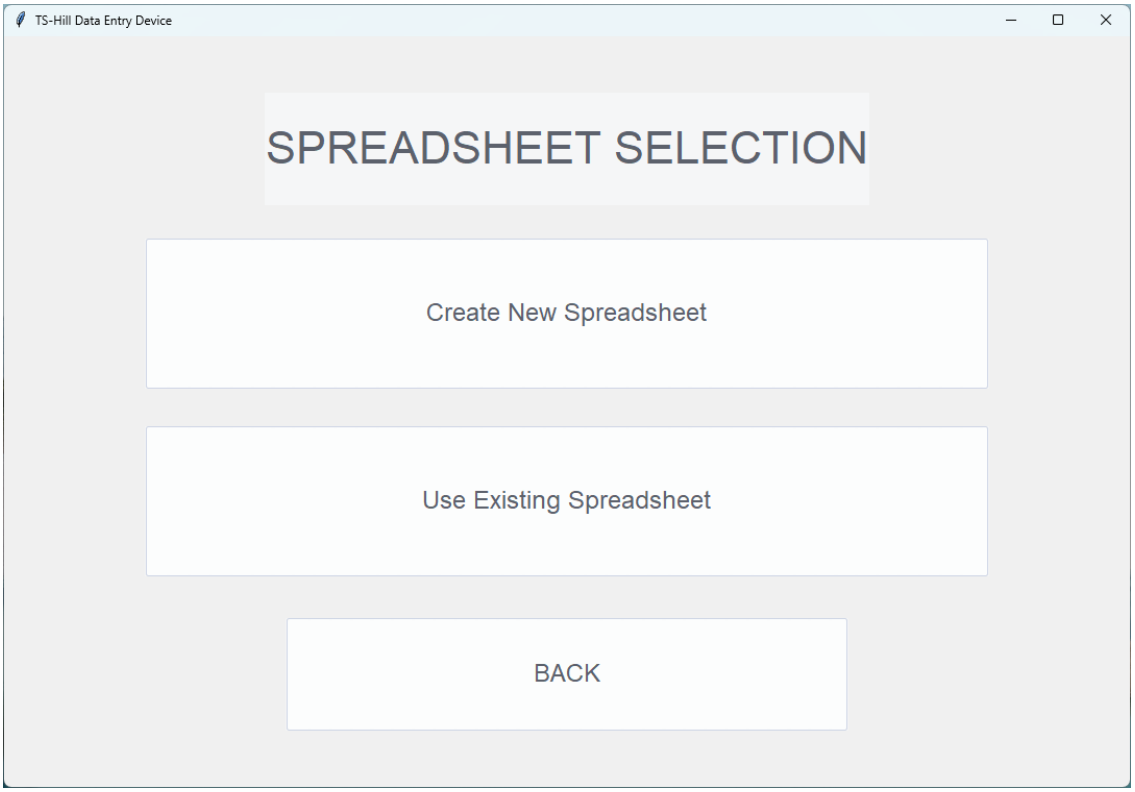


Figure 2a

After selecting your Report Type, you will then be prompted to select the Spreadsheet you will be writing/attaching your entry data to (See ***Figure 2a***). Choosing the 'Create New Spreadsheet' option will generate a new Microsoft Excel Document. This Microsoft Excel document will be where your Report Data is eventually transferred to, and is the final document that is sent off to the Customer.

2.1 Creating New Spreadsheet

Creating a new spreadsheet for a Tubing Report will take you directly to the DataEntry File Selection Menu (See ***Figure 3a***). Creating a new spreadsheet for a Drill Pipe Report will require you to select which tabs will need to be included in the spreadsheet (See ***Figure 2b***). After selecting which tabs to include, you will then be required to select which tab you will be transferring your Report Data to during your active session (See ***Figure 2c***). After selecting your active Tab, you will then be taken to the DataEntry (JSON) File Selection Menu.

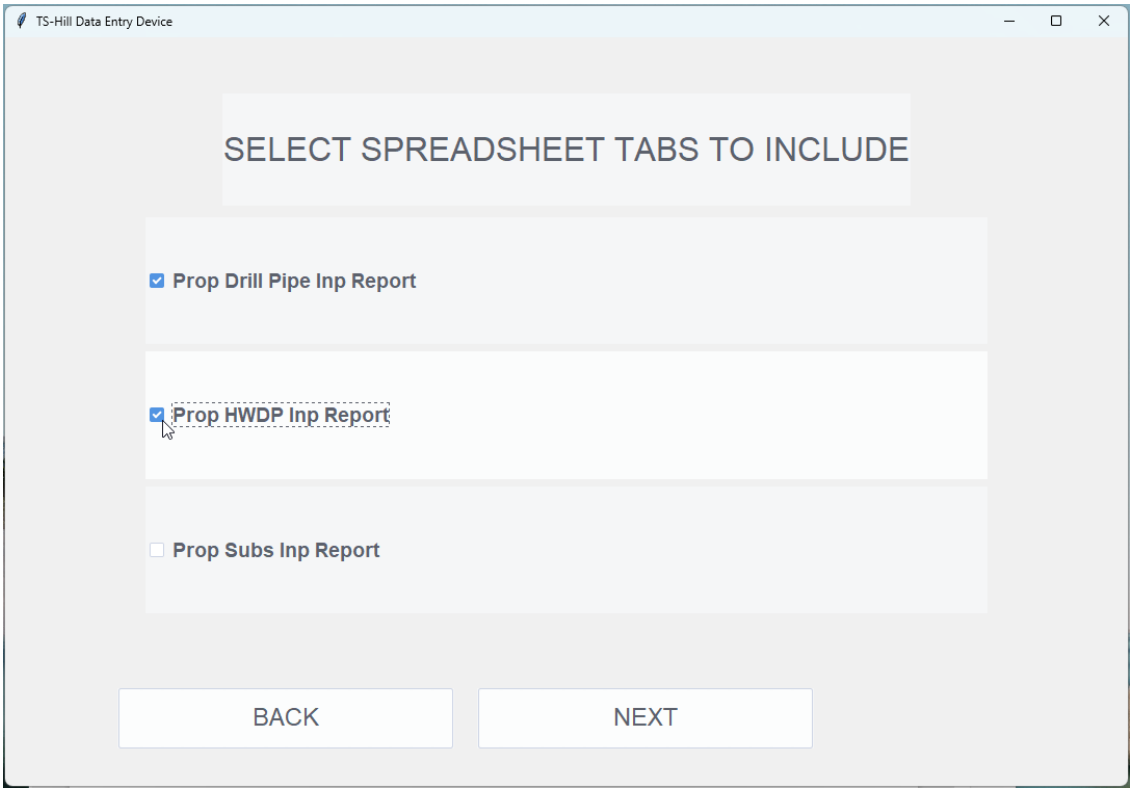


Figure 2b *– Selecting which Tabs are to be included in the Spreadsheet. 'Prop Drill Pipe Inp Report' and 'Prop HWDP Inp Report' are both selected. Two separate sessions will be required to complete this spreadsheet and send it to the customer.*

After you select which Tabs will be included in the spreadsheet, you will then be prompted to select which Tab you will actively be working on for your current session. In the example below (See ***Figure 2c***), the report will only have a PDPIR (Prop Drill Pipe Inp Report) Tab, and a HWDP (Heavy Weight Drill Pipe) Tab. This will require two separate sessions to complete the spreadsheet. Once your active tab is selected, you will then be prompted to select your DataEntry (JSON) file.

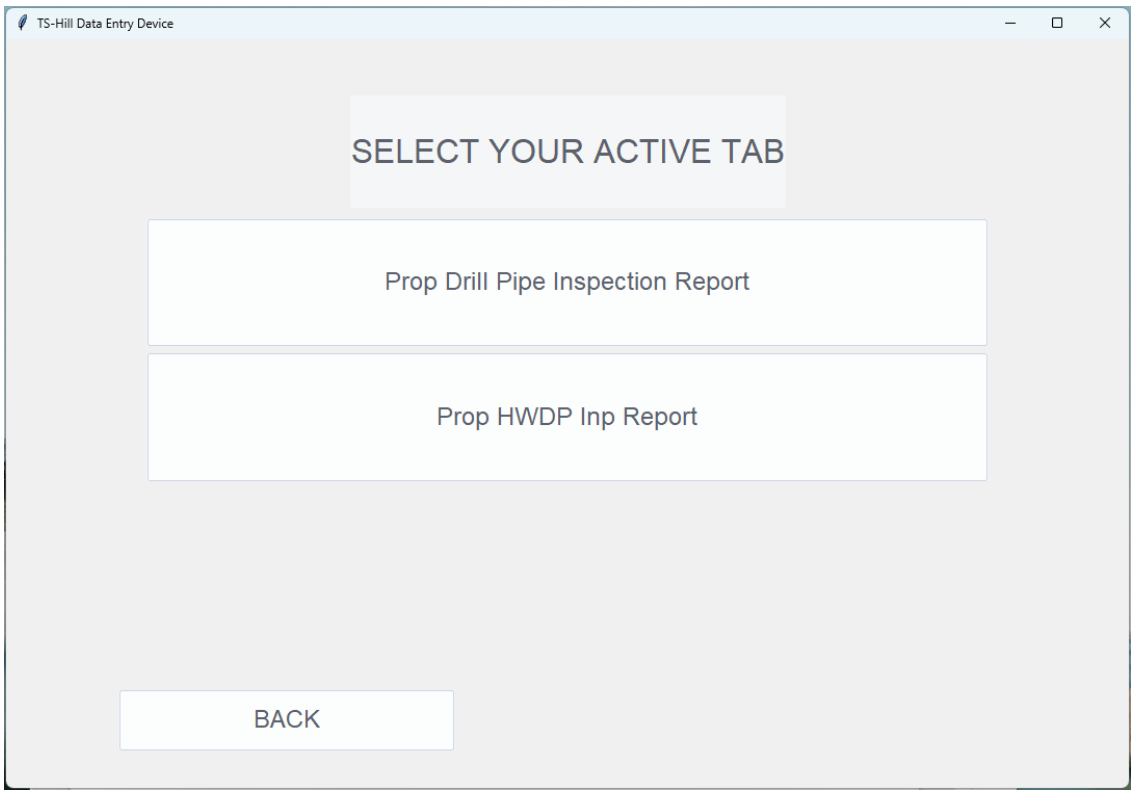


Figure 2c *– Selecting which active Tab to work on for your session.*

2.2 Using Existing Spreadsheet

Selecting the 'Use Existing Spreadsheet' option prompts the user to select an already existing spreadsheet. This will mostly be used when working with multiple tabs of a Drill Pipe Inspection Report, but will not be required for Tubing Reports except in rare circumstances.

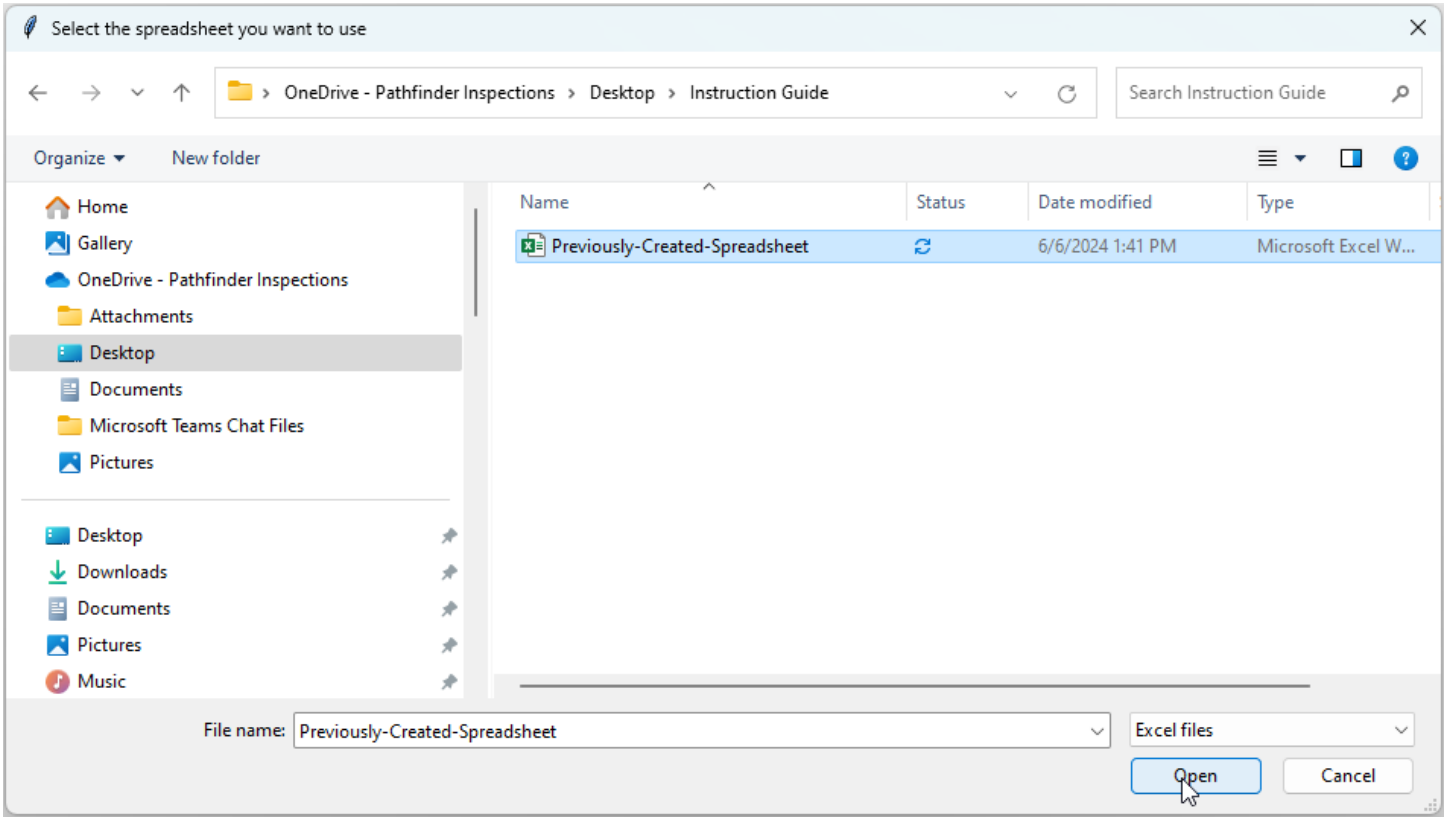


Figure 2d – *Selecting an already existing spreadsheet from the file dialog menu*

3. Selecting/Creating the DataEntry (JSON) File

Once your spreadsheet has been selected, you will then be prompted to create or select a DataEntry (JSON) file. The DataEntry file stores entry data for any given session. It includes your Metadata (Customer Name, Operator Name, Date, Invoice Number, etc.) and your Joint Data. When you reach this menu (See ***Figure 3a***) you have the option to create a new DataEntry (JSON) File or upload a previously created one.

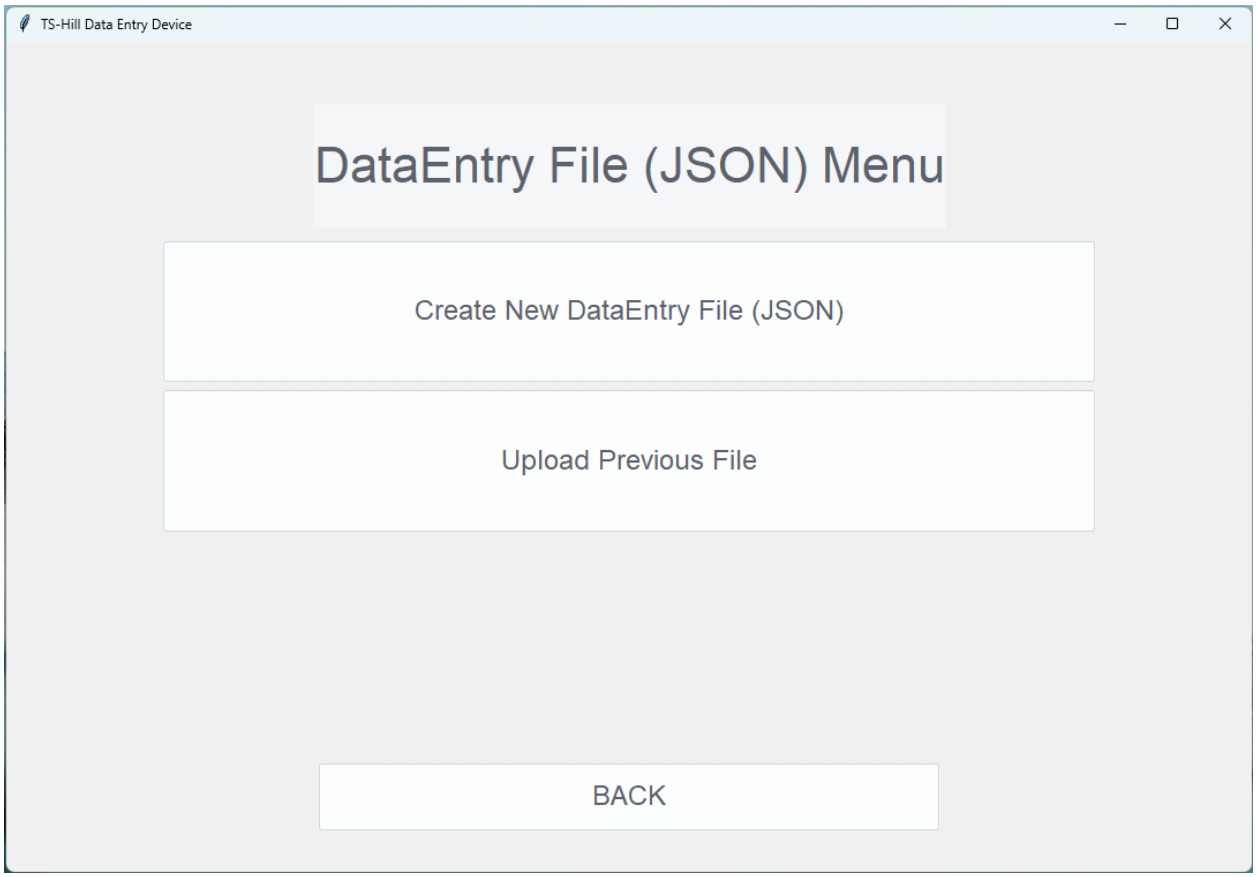


Figure 3a – *The DataEntry File (JSON) Selection Menu*

3.1 Uploading DataEntry (JSON)

You should almost never have to worry about Uploading a DataEntry (JSON) file except in rare circumstances of computer power failure or other unforeseen circumstances. In the event you do need to upload a DataEntry (JSON) file, you can press the 'Upload Previous File' button which will bring you to a selection menu (See ***Figure 3b***)

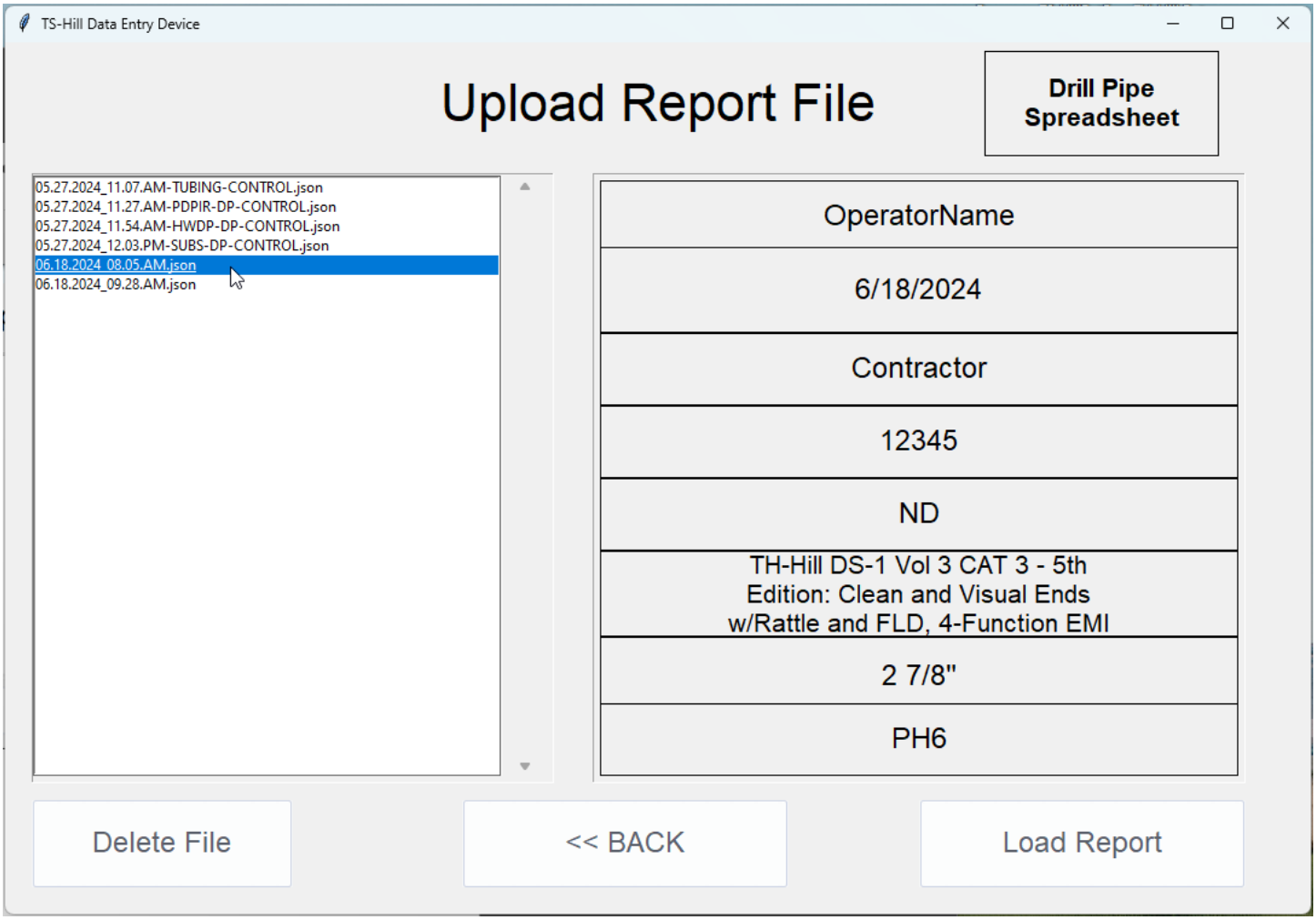


Figure 3b – *Upload Existing DataEntry (JSON) File Menu*

The menu will show you all the DataEntry (JSON) files that are located in your home directory. DataEntry (JSON) files are created when you begin a report, and are named based on a `{DATE}_{TIME}.json` format. Clicking a file from this menu will display the file's Metadata on the right-hand portion of the screen. Pressing the 'Load Report' button will bring you to the Main Report Screen to continue the inspection data entry process. (See ***Section 4***).

3.2 Creating A New DataEntry (JSON) File

Pressing the 'Create New DataEntry File (JSON)' button will bring you to the Metadata Input Screen (See ***Figure 3c***). This screen will be a digital version of your handwritten report cover pages. Here you will enter any pertinent information related to the report you will be doing. Below ***Figure 3c*** you will find a Table that provides information related to each of these entry boxes.

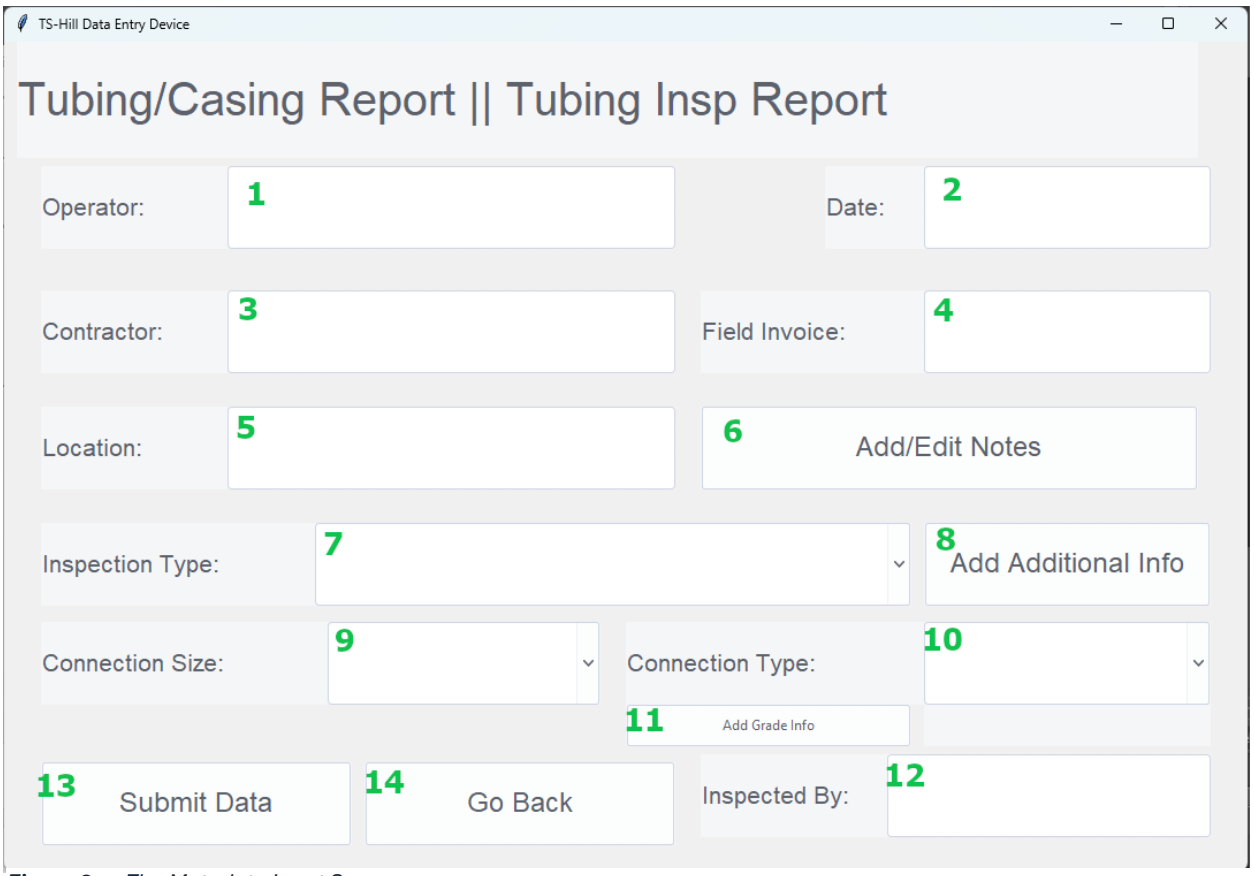


Figure 3c *– The Metadata Input Screen*

(1) Operator:	Do not use any special characters (%, $, #, !, /, *) when naming the Operator
(2) Date:	Formats accepted (M/D/YY, MM/DD/YY, M/DD/YY, MM/D/YY, M/D/YYYY. MM/D/YYYY, M/DD/YYYY)
(3) Contractor:	Do not use any special characters (%, $, #, !, /, *) when naming the Contractor
(4) Field Invoice:	Accepts a 5-6 digit number (12345, 111111)
(5) Location:	Do not use any special characters (%, $, #, !, /, *) when naming the Location
(6) Add/Edit Notes Button	Brings up a new screen for entering general notes data. This would be the equivalent of the 'Remarks' section on your handwritten reports (See Figure 3f)
(7) Inspection Type	Dropdown Menu Selection (See Figure 3g). If any of the options do not fully describe the inspection, use the 'Add Additional Info' option to add details (Figure 3d)
(8) Add Additional Info	This button will allow you to add any additional info related to the inspection type if the drop-down menu options are not sufficient. A new dialog box appears (See Figure 3d)
(9) Connection Size:	Dropdown Menu Selection, will display Connection Sizes relevant to your Inspection Type Selection (Tubing/Casing Report, Drill Pipe Inspection Report)
(10) Connection Type:	Dropdown Menu Selection, will display Connection Types relevant to your Inspection Type Selection (Tubing/Casing Report, Drill Pipe Inspection Report)
(11) Add Grade Info	Prompts the User to enter additional grade info. A new dialog box appears (i.e. '1% SMLS RB') (See Figure 3e)
(12) Inspected By:	Enter the Initials of the inspectors followed by 'and Crew'

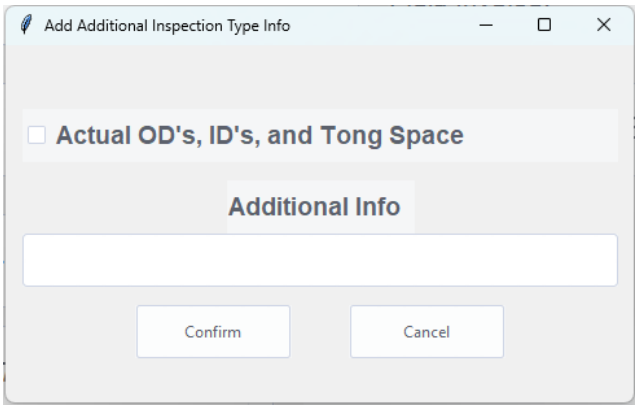


Figure 3d – *Add Additional Inspection Type Information Dialog Window*

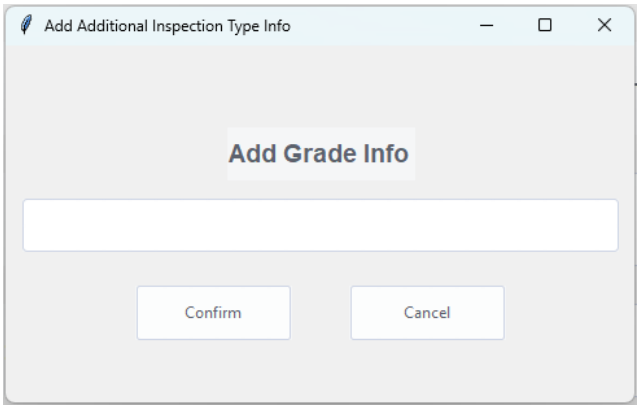


Figure 3e *– Add Additional Grade Info Dialog Window*

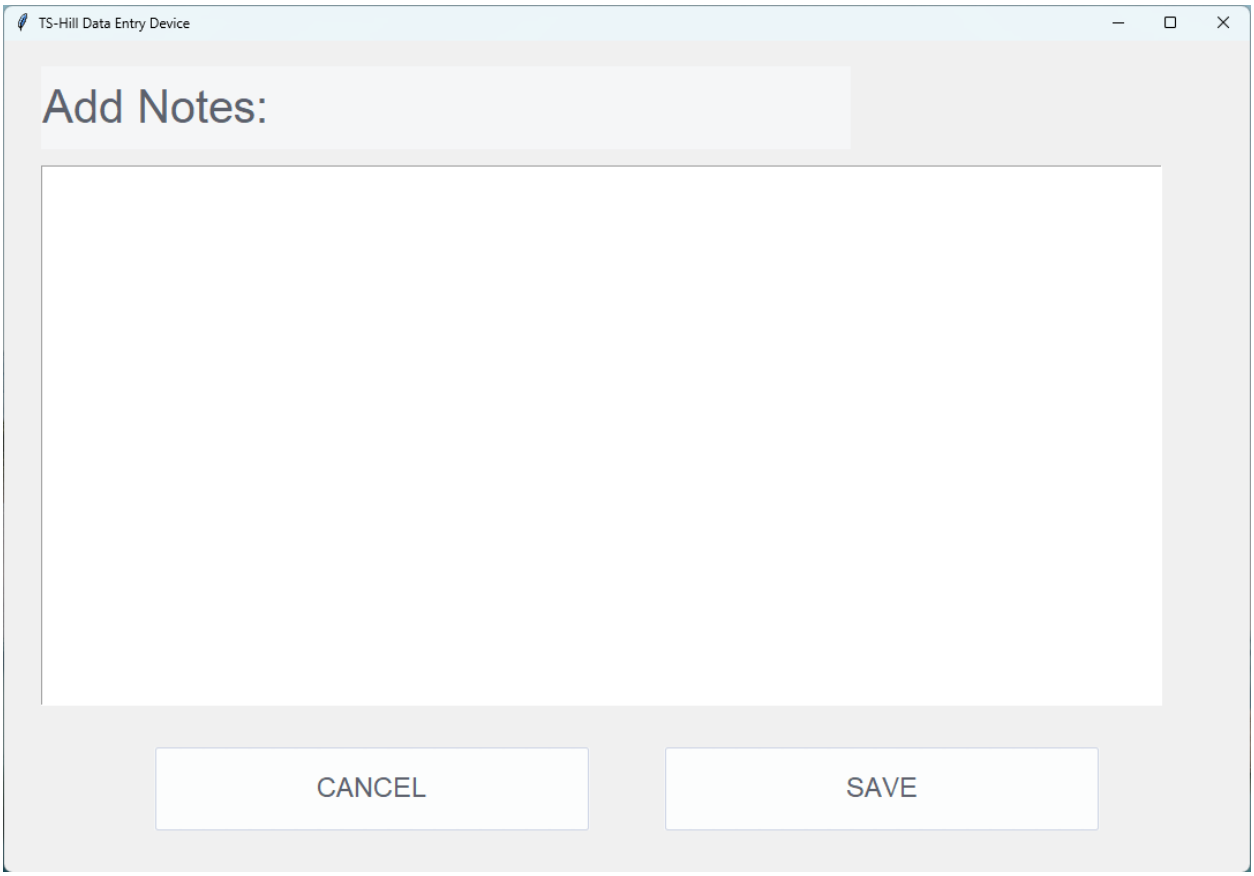


Figure 3f *– Add Notes (Remarks) Window*

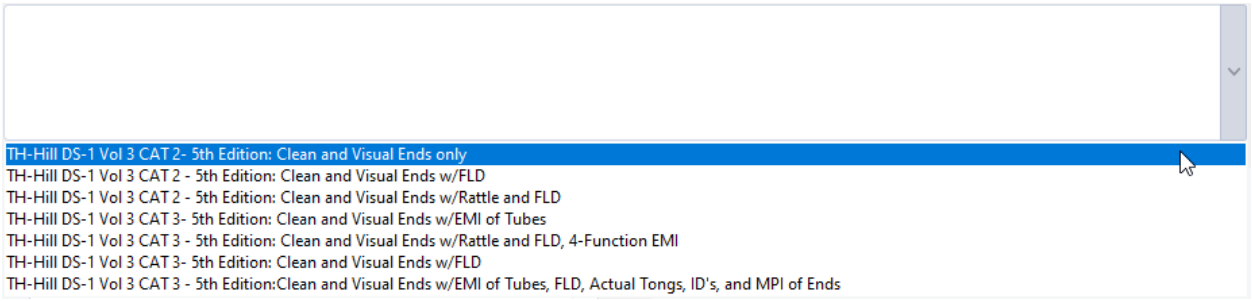


Figure 3g *– Inspection Type Selection Drop-down menu (Drill Pipe Inspection Report)*

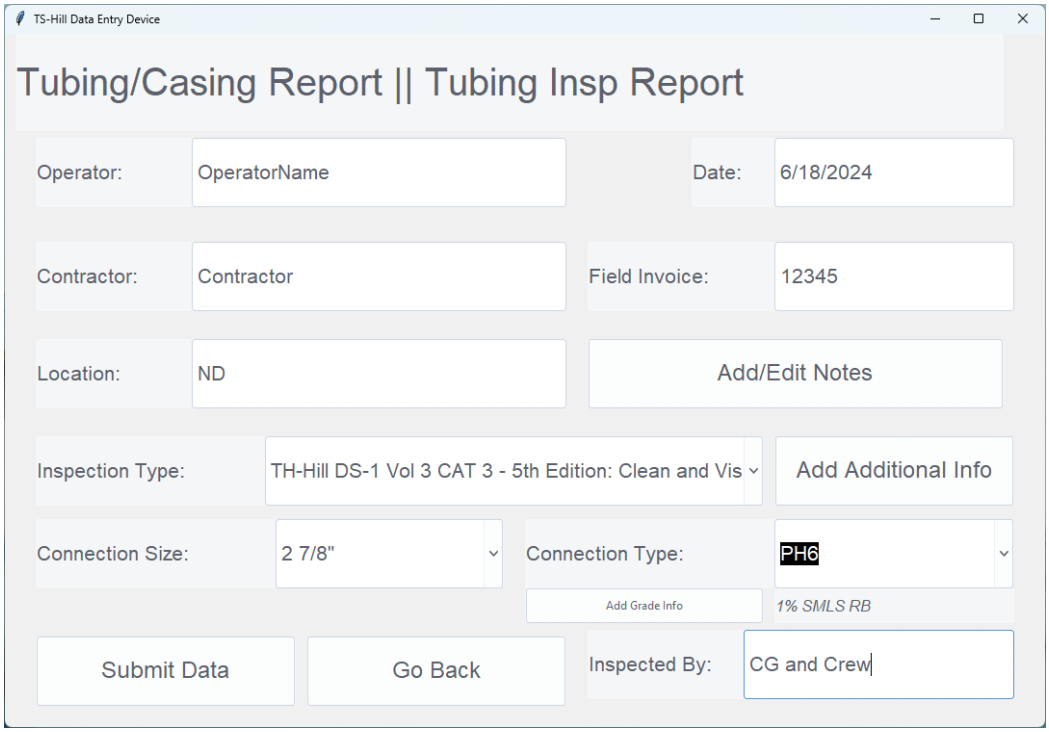


Figure 3h *– Metadata Entry Form Filled Out*

After you finish filling out your Metadata Information and press the 'Submit Data' button, you will be prompted to review your entries. Press the 'Proceed' Button to confirm the information and you will be brough to the Column Selection Menu. Pressing the 'Edit Data' button will allow you to make changes before proceeding.

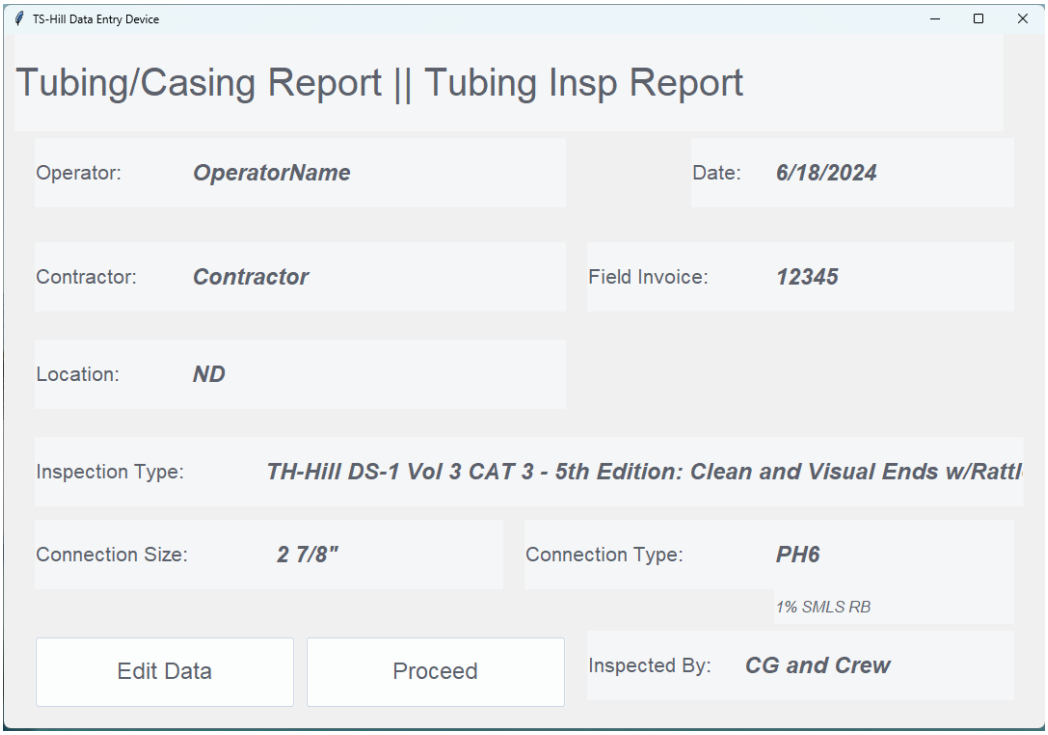


Figure 3i *– Metadata Review Screen, Ready to proceed to the Column Select Screen*

3.2.1 Selecting Your Custom Columns

The Column Select menu allows you to decide which Column types you want displayed. The Column Types have been pulled from the handwritten report templates and should look familiar to you. Like the handwritten reports, different columns are designed to receive different types of data. (See ***Section 5 – Columns, Keywords and Values***).

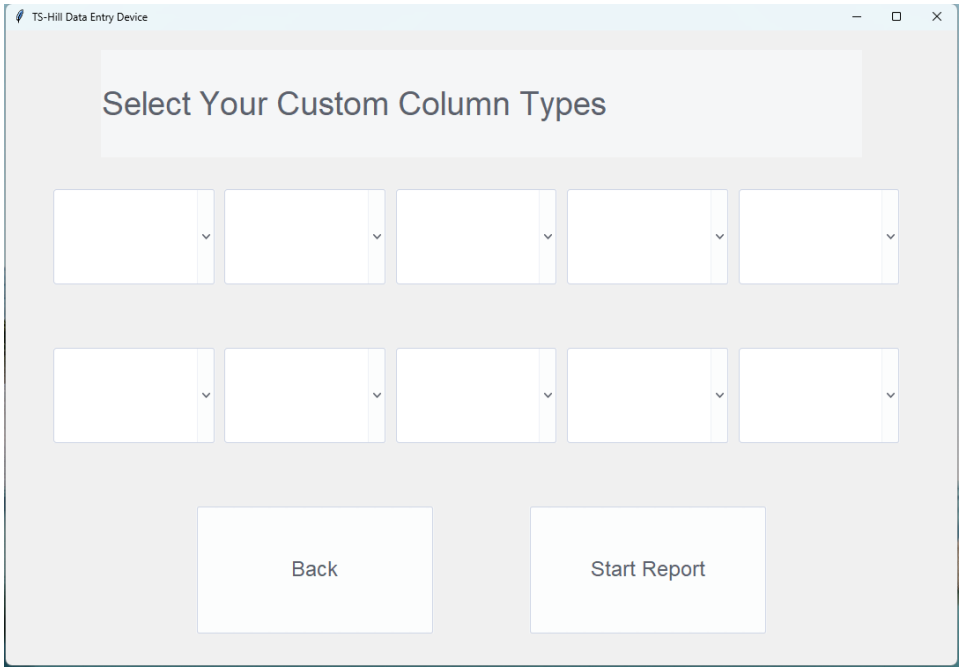


Figure 3j *– Select Columns Screen*

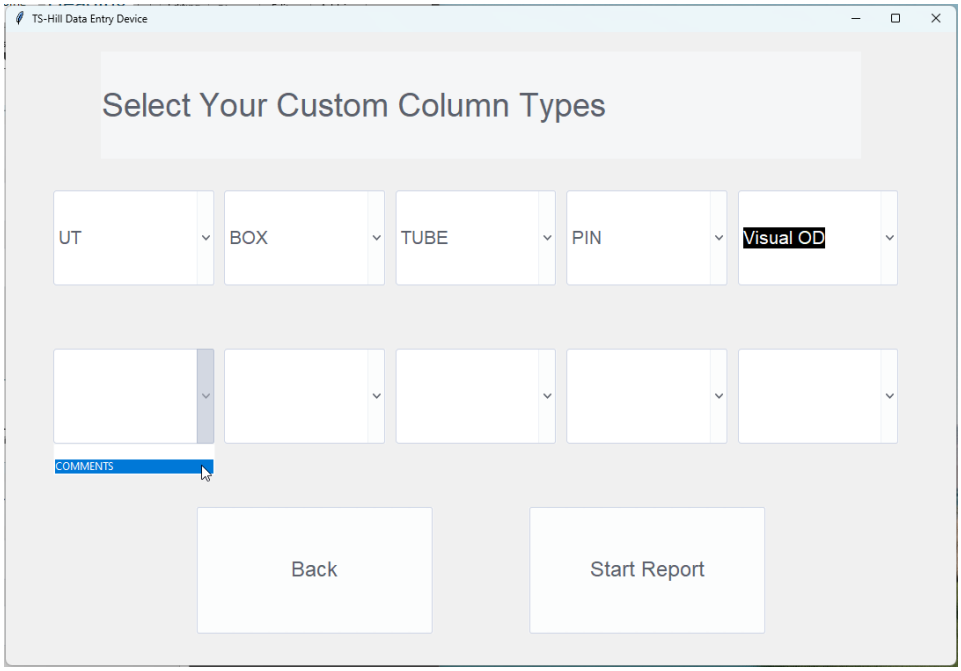


Figure 3k *– Select Columns Screen (Selections Made)*

The order in which you select your Column Types from this menu will determine the order in which they are displayed on the next page (the Main Report Screen). By pressing the 'Start Report' button, you will be taken to the main report screen.

4. Main Report Screen

The Main Report Screen is where the bulk of your Data Entry work will be performed. It is designed to act as a digital version of the original handwritten report templates. Below you will find a diagram of the Main Report Screen's most important elements (***Figure 4a***) and a Table with descriptions (***Table 4a***)

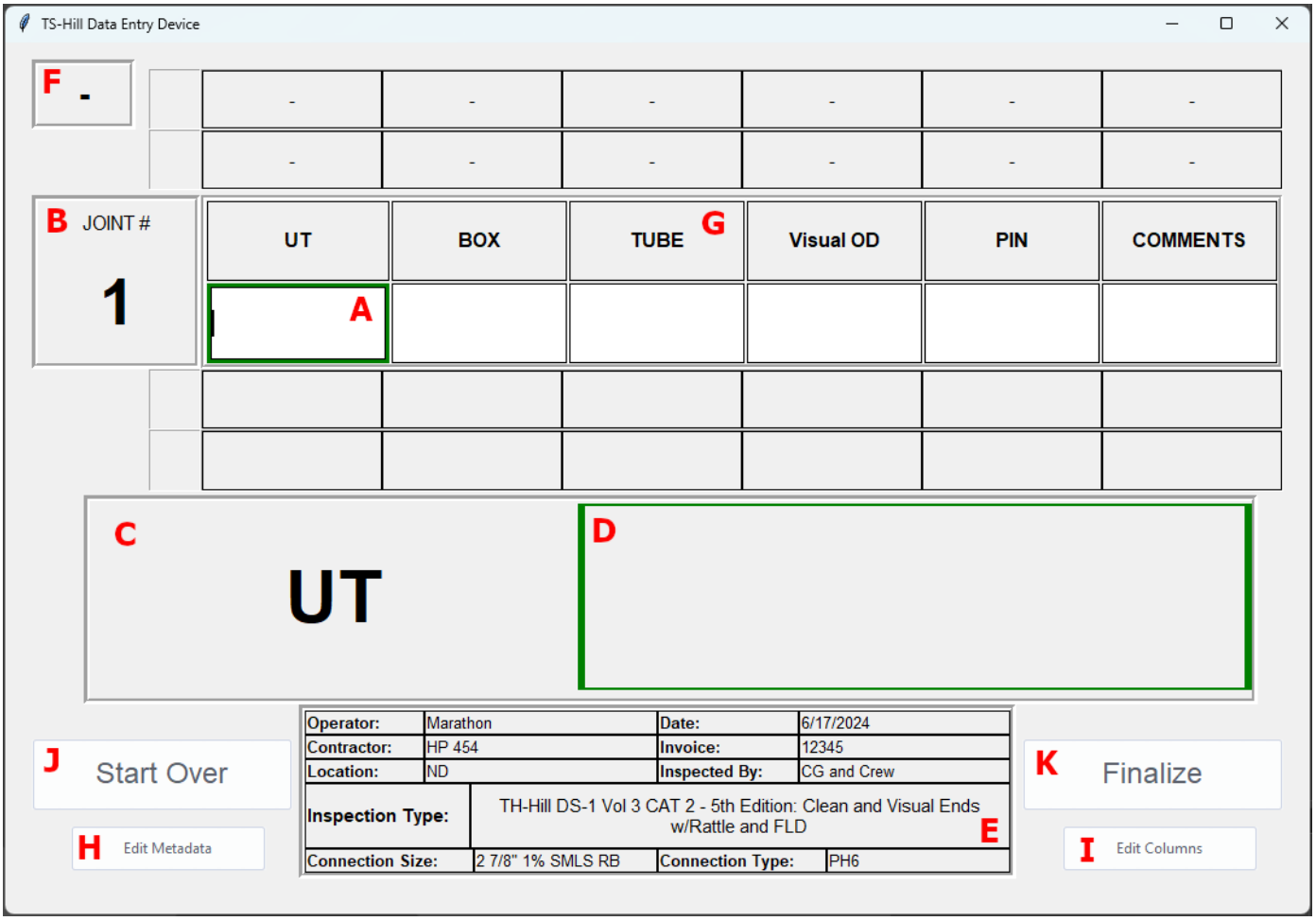


Figure 4a *– The Main Report Screen – See Table 4a for more information*

(A) - Active Cell	**This is the active cell where you data will be typed into. Your active cell will be highlighted by a green box surrounding it.**
(B)- Current/Active Row	**This box displays the current Row/Joint number you are currently engaged with. Pressing the Enter Key will move you to the next Row Number. (Using your Mouse Scroll Wheel can be used to navigate between Rows)**
(C) – Current Column Magnifier	**This area will display the current Column of your Active Cell.**
(D) – Current Cell Value Magnifier	**This area will display the value that is written in your Active Cell**
(E) – Metadata Panel	**This area displays your metadata for the report you are currently working on**
(F) – Active Tab Display Panel	**This Tab will display which Tab you are working on in relation to your spreadsheet (Drill Pipe, HWDP, Subs). Tubing Reports Display Connection Type (PH6, EUE, etc.).**
(G) – Column Headers	**These are your Column Headers, they reflect the columns you selected in the Column Select Menu**
(H) – Metadata Edit Button	**This button will allow you to edit your Metadata in the event you need to change it.**
(I) – Edit Column Button	**This button will allow you to change/update your columns. NOTE: removing columns will DELETE all entry data for that Column**
(J) – Start Over Button	**This button will clear your session and take you to the home screen (Branch Selection Menu). It will wipe all your data from the current session, but a DataEntry (JSON) File will be saved.**
(K) – Finalize Button	**This Button will finalize your report. It will write all of your data to the Excel Spreadsheet and also generate a hardcopy PDF file**

Table 4a *– Description of Various Elements from the Main Report Screen*

4.1 Controls/Hotkeys

There are various ways you can navigate between cells and rows in the Main Report Screen

Tab	Insert your text cursor in the next cell (to the right)
(Hold) Shift + (Press) Tab	Insert your text cursor in the previous cell (to the left)
Enter	This will move you to the next row/joint in the same column
Mouse Scroll Wheel - Up	This will move you to the previous row/joint in the same column
Mouse Scroll Wheel - Down	This will move you to the next row/joint in the same column (Same as Enter)

Table 4b *– Main Report Screen Hotkeys for Navigation between rows/columns*

4.2 Edit Metadata Button

The Edit Metadata Button will take you back to the Metadata Input Screen (See ***Figure 3h***), where you can edit/update your Metadata. After reviewing your changes, you will press the 'Proceed' Button (See ***Figure 3i***) and be brought back to the Main Report Screen.

4.3 Edit Columns Button

The Edit Columns button will take you back to the Column Selection Screen (See ***Figure 3k***). Here you can add any additional columns you may have forgotten or delete any columns you do not need. To delete a column, simply select from the drop-down menu the Empty Selection (See ***Figure 4b***), and press the 'Start Report' button to return to the Main Report Screen.

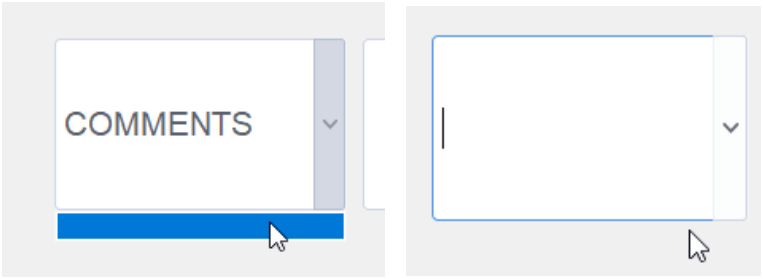


Figure 4b *– Deselecting a Column*

If you wish to change the order in which the columns appear, you will have to first delete/deselect from a dropdown menu (***Figure 4b***), and then reselect the Column you wish you have in its place. In the example below, we start with our original columns ['UT', 'BOX', 'TUBE', 'PIN', 'Visual OD'] (See ***Figure 4c***), and alter them so they appear in the order of ['UT', 'TUBE', 'BOX', 'PIN', 'Visual OD']

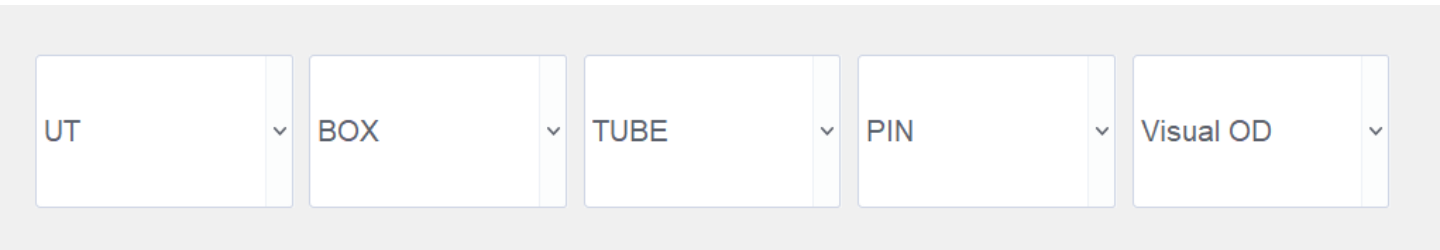


Figure 4c *- Selected Columns: ['UT', 'BOX', 'TUBE', 'PIN', 'Visual OD']*

To begin switching the 'BOX' Column's Position with the 'TUBE' Column's position, we first need to deselect the Box Column Selection (Selecting the empty selection) (***Figure 4c-1***):

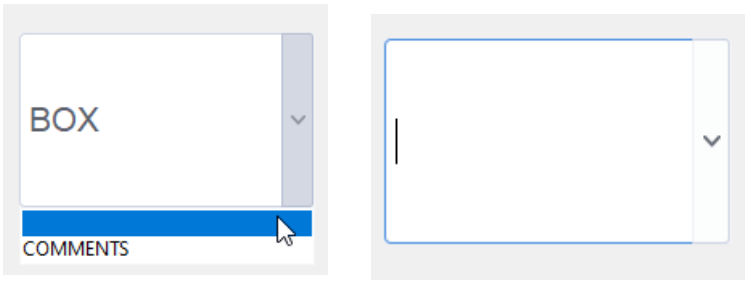


Figure 4c-1

We then need to deselect the 'TUBE' selection (Notice how 'BOX' appears as an option in our dropdown menu – See Figure 4c-2):

Figure 4c-2

We now have two empty dropdown menus (***Figure 4c-3***):

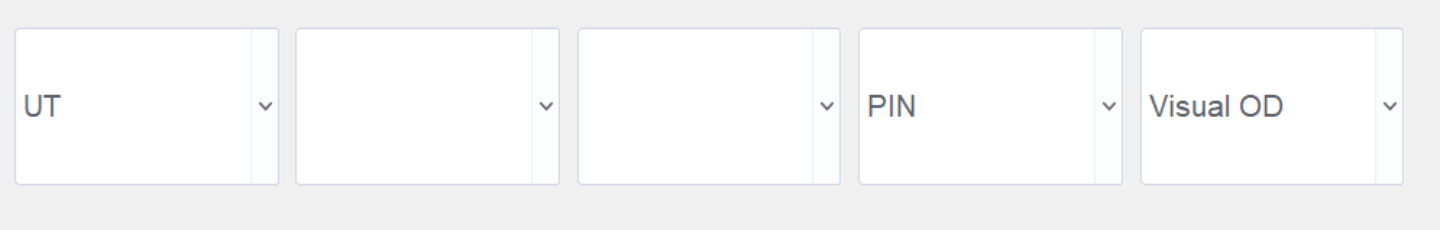


Figure 4c-3

Now, both the 'TUBE' and 'BOX' columns have become available options for our drop-down menus, where we can now perform the switch. (***Figures 4c-4, 4c-5, 4c-6***):

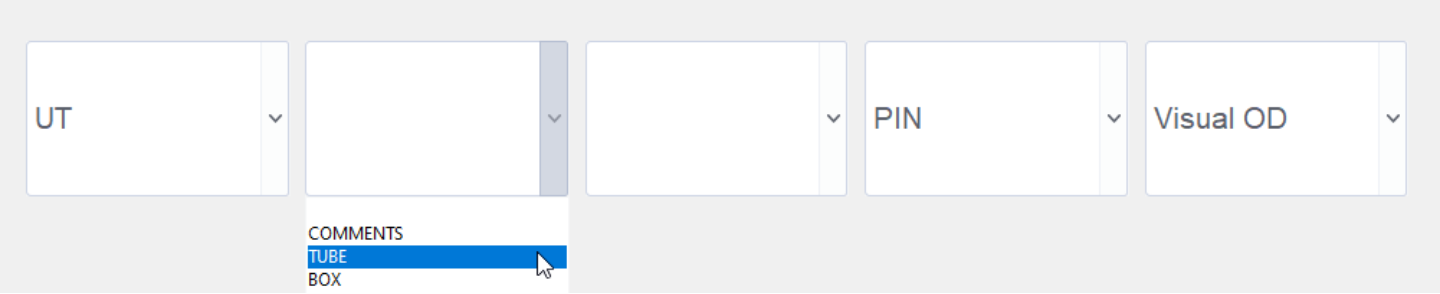


Figure 4c-4

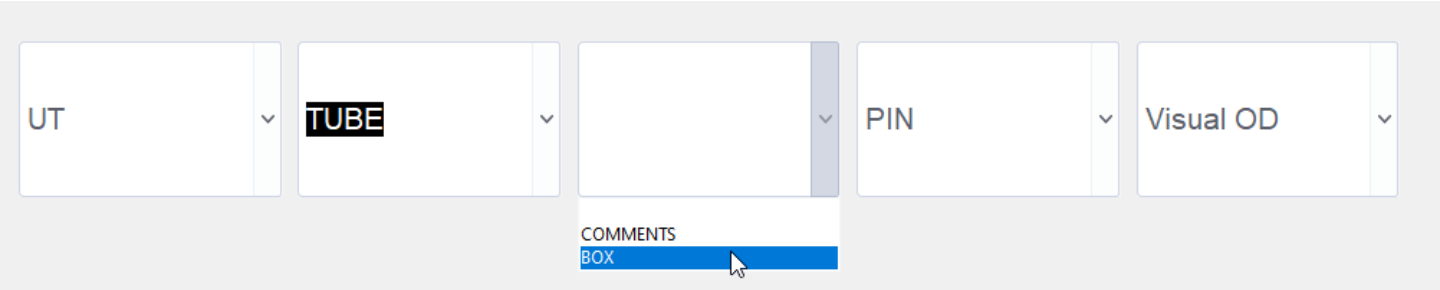


Figure 4c-5

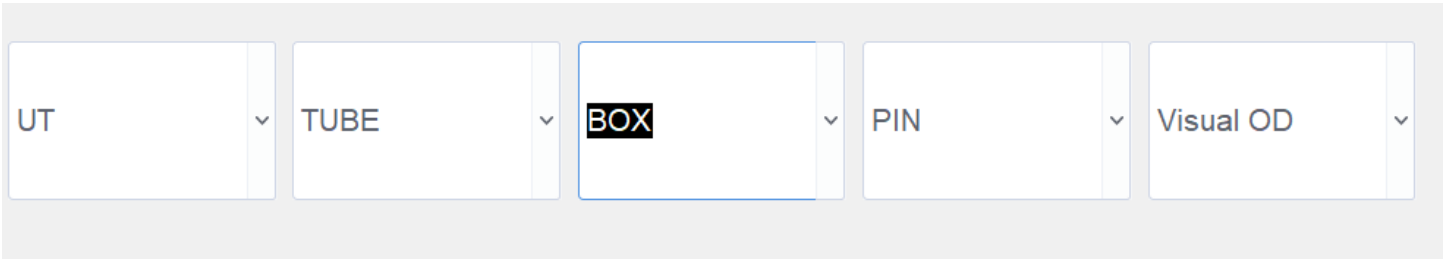


Figure 4c-6

After we have made our switch, we can then press the 'Start Report' button. and be brought back to our Main Report Screen (***Figure 4c-7***):

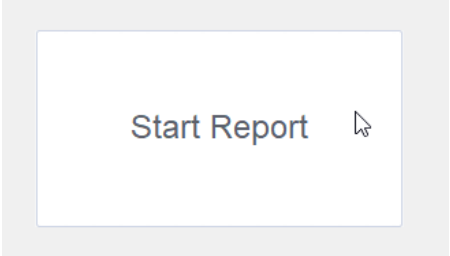


Figure 4c-7

We will now find that our Column Positions have been changed (***Figure 4c-8***):

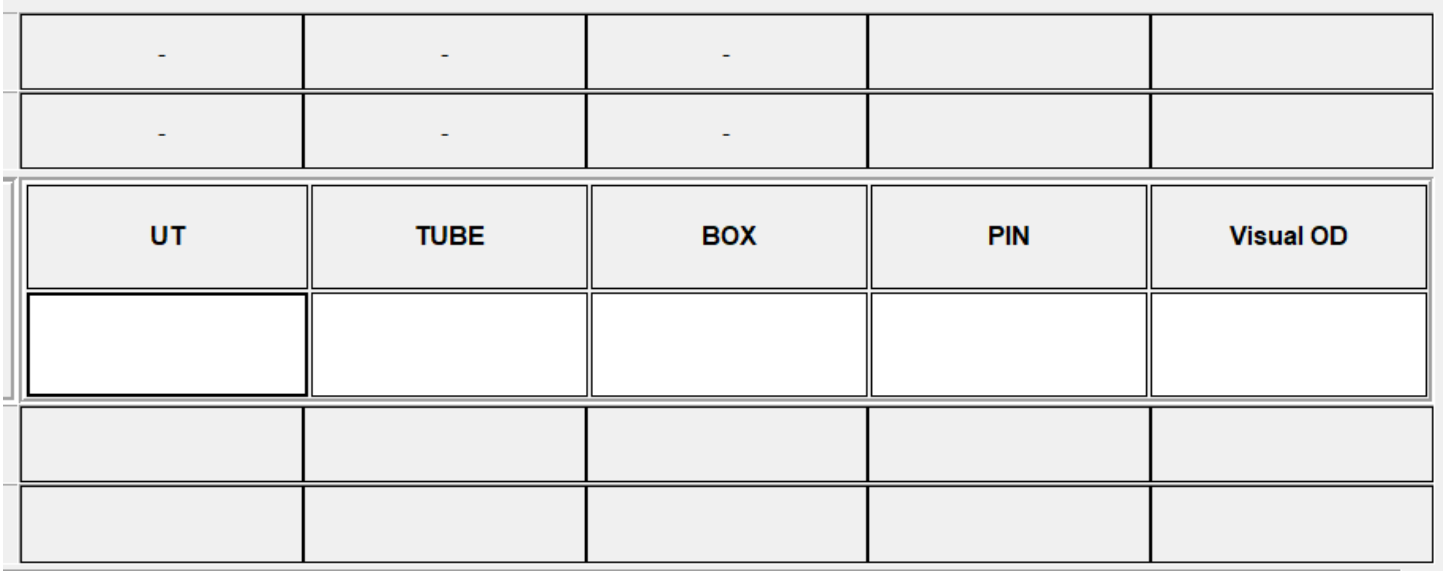


Figure 4c-8

If we decide to delete a column entirely, we will be presented with a warning message (***Figure 4d***).

WARNING: DELETING A COLUMN WILL ERASE ALL DATA CONTAINED WITHIN THAT COLUMN, AND THE ACTION CANNOT BE UNDONE.

Press 'OK' to continue to the Main Report Screen.

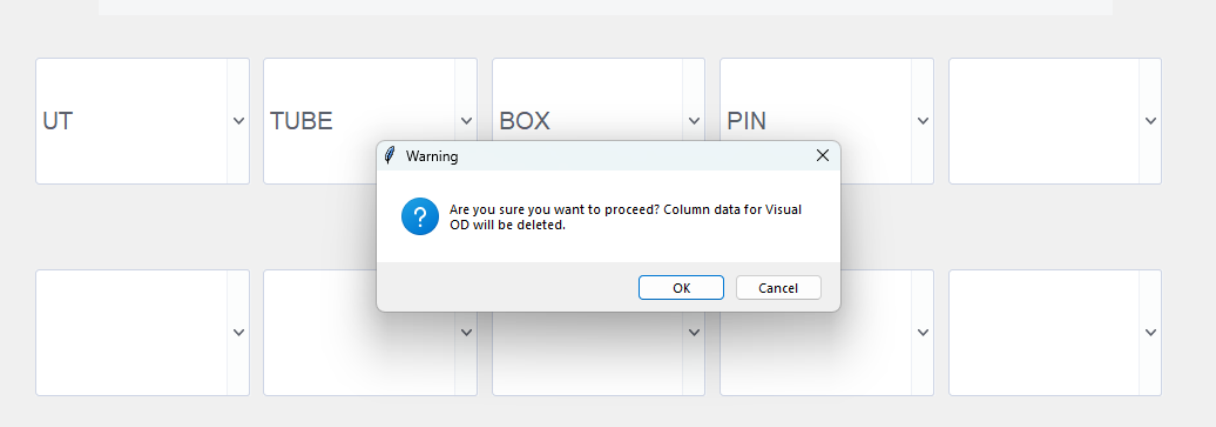


Figure 4d – *Deleting Columns Warning Message*

Our Main Report screen will no longer display that column (***Figure 4e***):

-	-	-	
-	-	-	
UT	**TUBE**	**BOX**	**PIN**

Figure 4e – *Altered Columns displayed on the Main Report Screen*

4.4 Finalize Button

Once you have completed your Report, and are ready to Finalize the Report, you will press the 'Finalize' Button. This button will execute two major actions. First, it is going to write your Report Data to the Microsoft Excel Spreadsheet. Second, it is going to create a 'Hardcopy' of the report as a PDF file. This Hardcopy Report acts as a replacement to the traditional hardcopies. Since the software does some 'translation' when converting your data to the Microsoft Excel Spreadsheet, this hardcopy acts as a record of the user's input. This will make more sense after we review ***Section 5 – Columns, Keywords, and Values***.

Let's say that you just did an inspection for 5 Joints. However, while navigating the rows of the Main Report Screen, you activated additional rows (every time you scroll down, or press the Enter key, you activate a new row). Before the software can Finalize the report, it needs you to verify the actual number of joints you have inspected. It will do this in the form of a dialog box that will appear after you press the 'Finalize' button. In the example below (See ***Figure 4f***) The software believes that you have 8 rows of data that need to be written to the Spreadsheet:

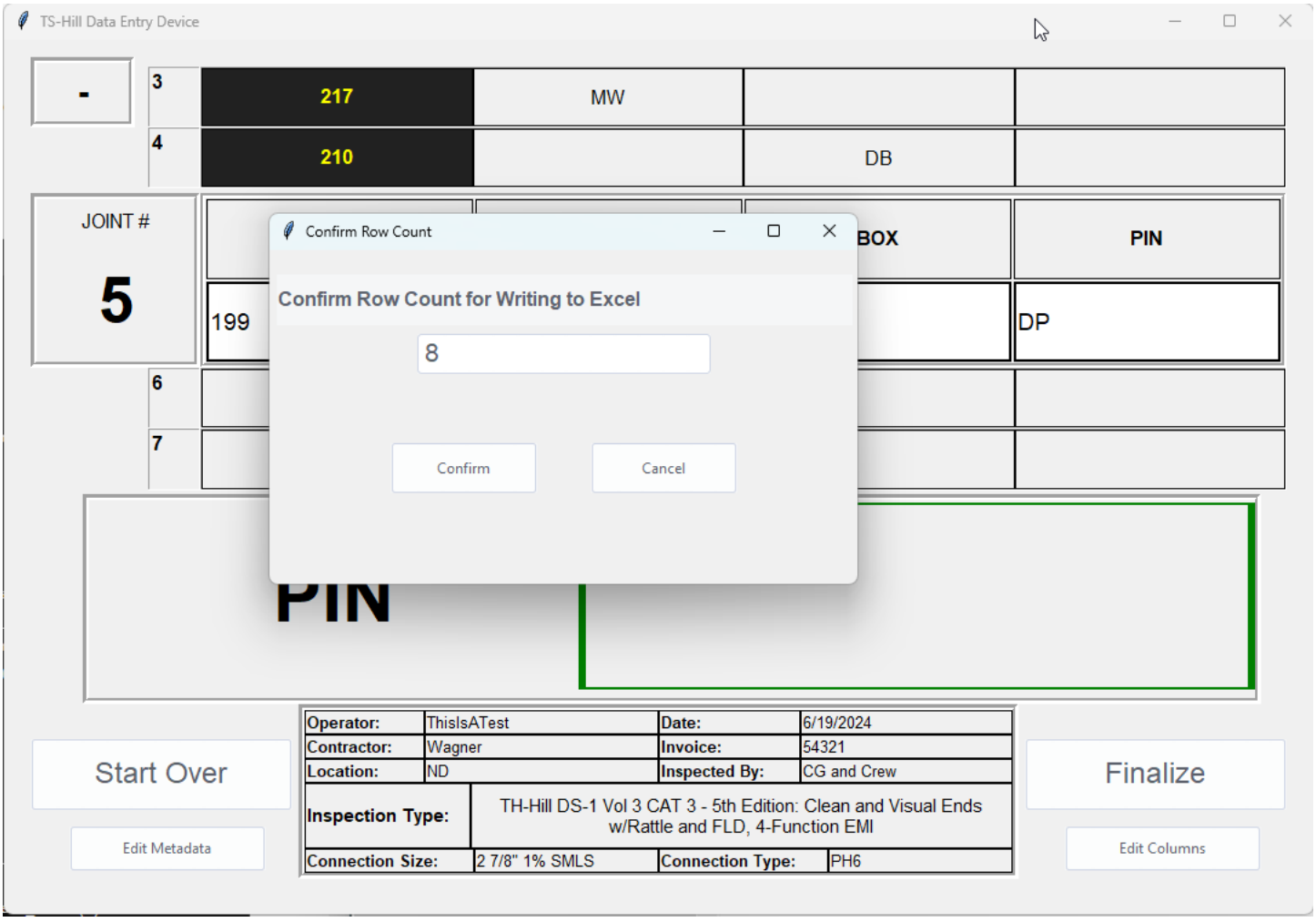


Figure 4f *– Confirming Joint Count Dialog Window*

Since you only inspected a total of 5 joints, you will need to change this value to 5, then press the 'Confirm' button. (***Figure 4g***):

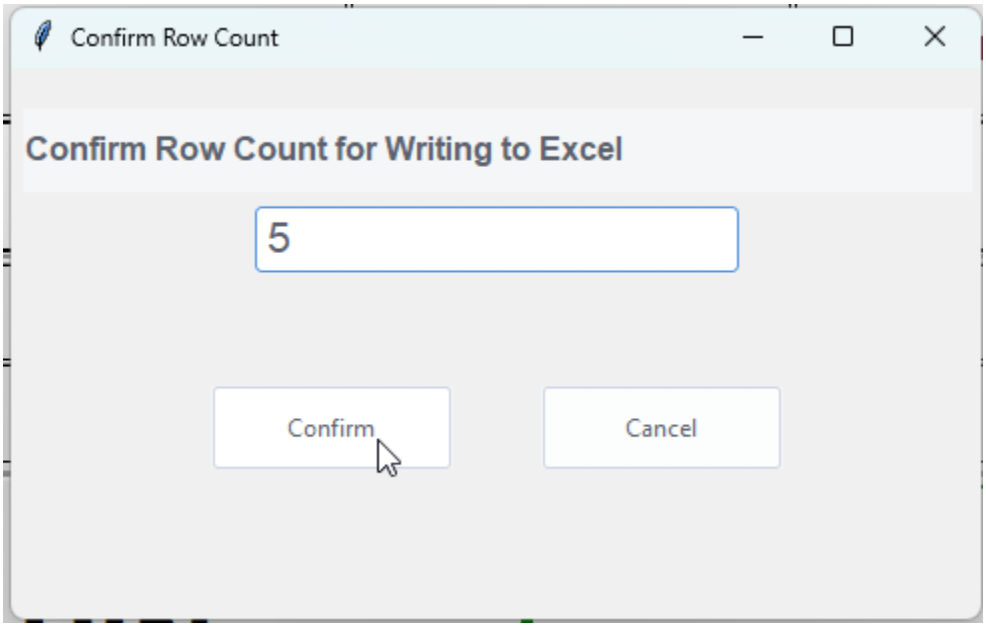


Figure 4g *– Confirming Row Count Dialog Box*

After Pressing 'Confirm', you will be prompted to select a Folder location (***See Figure 4h***). The Location you choose will be where the Microsoft Excel Spreadsheet and Hardcopy PDF files are saved to. How/Where you decide to save the files is up to you, but it will be important to remember these locations. (For example, if you are Finalizing a Drill Pipe Inp Report Tab, and still need to complete a HWDP Tab, you will need to select that spreadsheet when prepping for your next HWDP session).

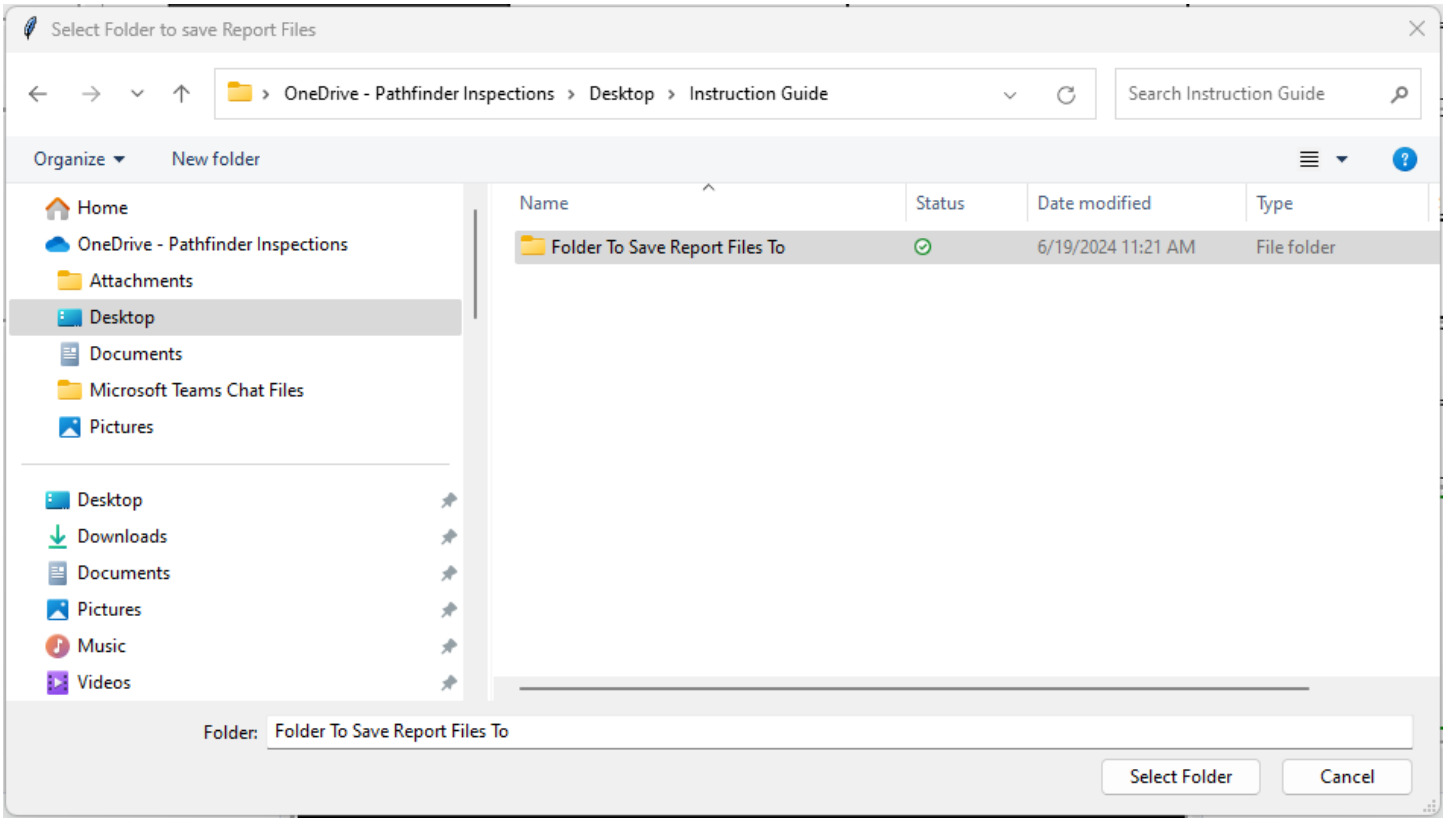


Figure 4h *– Saving Report Files Dialog Box (Microsoft Excel Spreadsheet and Hardcopy PDF)*

After you select your Folder Location, a message will appear informing that the files were saved (See ***Figure 4i***):

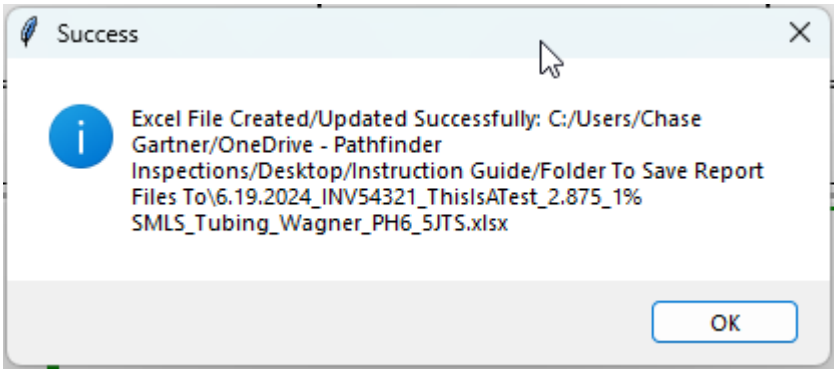


Figure 4i *– Saved Files Confirmation Window*

You'll notice that two files have been created with almost identical filenames – one is the spreadsheet, the other is the PDF Hardcopy:

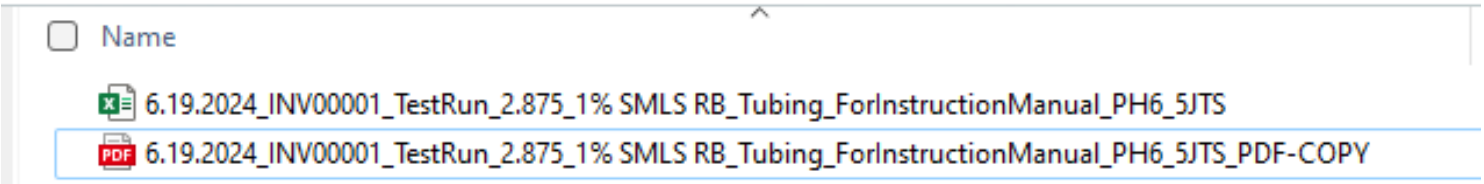
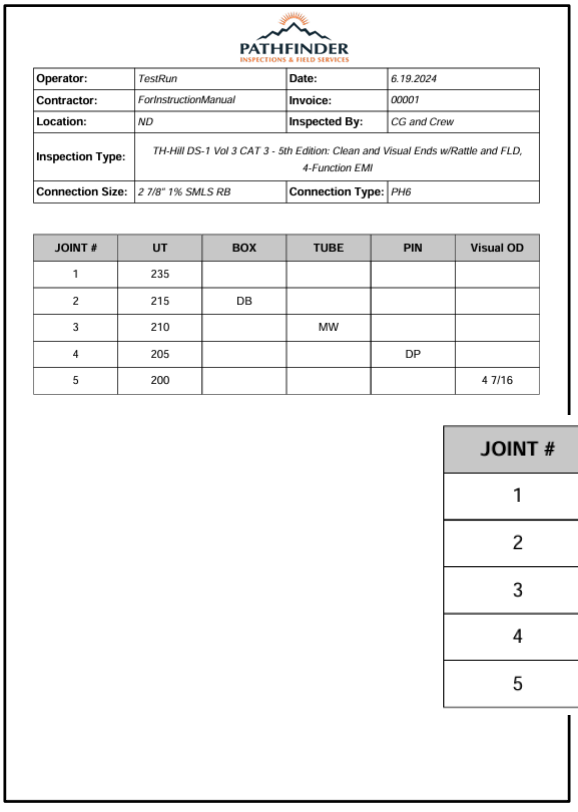


Figure 4j *– The Hardcopy PDF and Microsoft Excel Documents have been saved*

You'll notice that the PDF Hardcopy is very similar to the original handwritten hardcopies. It's purpose is to accurately record the user's entries and keywords that they used throughout the report.



PATHFINDER
INSPECTIONS & FIELD SERVICES

Operator:	*TestRun*	**Date:**	*6.19.2024*
Contractor:	*ForInstructionManual*	**Invoice:**	*00001*
Location:	*ND*	**Inspected By:**	*CG and Crew*
Inspection Type:	*TH-Hill DS-1 Vol 3 CAT 3 - 5th Edition: Clean and Visual Ends w/Rattle and FLD, 4-Function EMI*		
Connection Size:	*2 7/8" 1% SMLS RB*	**Connection Type:**	*PH6*

JOINT #	UT	BOX	TUBE	PIN	Visual OD
1	235				
2	215	DB			
3	210		MW		
4	205			DP	
5	200				4 7/16

Operator:	*TestRun*	**Date:**	*6.19.2024*
Contractor:	*ForInstructionManual*	**Invoice:**	*00001*
Location:	*ND*	**Inspected By:**	*CG and Crew*
Inspection Type:	*TH-Hill DS-1 Vol 3 CAT 3 - 5th Edition: Clean and Visual Ends w/Rattle and FLD, 4-Function EMI*		
Connection Size:	*2 7/8" 1% SMLS RB*	**Connection Type:**	*PH6*

JOINT #	UT	BOX	TUBE	PIN	Visual OD
1	235				
2	215	DB			
3	210		MW		
4	205			DP	
5	200				4 7/16

Figure 4k *– An Example Hardcopy PDF*

5. Columns, Keywords, and Values

This software is designed to mimic the already existing handwritten report format of Pathfinder Inspections. It uses a system of keywords and values. Some columns expect certain values and keywords, while other columns expect only values. The ruleset is almost identical to the system that has been traditionally used on Pathfinder's Handwritten Reports, so they shouldn't be too difficult to grasp.

NOTE: Keywords must always be in CAPITAL letters to be a valid entry!

For example, the keyword 'MW' (for 'Minimum Wall') is always contained in a cell within the 'TUBE' column. Additionally, the 'UT' column is always expected to have a 3-digit number. These are just a couple examples of the rulesets that are applied within this software. Below you will find various charts and tables that explain the rulesets.

5.1 Multiple Keywords

For Columns that accept keywords, you are permitted to use multiple keywords as needed. The software is able to differentiate between multiple keywords and/or values by the use of a single SPACE (' ' – Using the SPACEBAR). For example, on a Tubing Report, if you needed to notate that a Joint was at a Minimum Wall and had a Bent Tube, you would enter the following (***Figure 5a***):

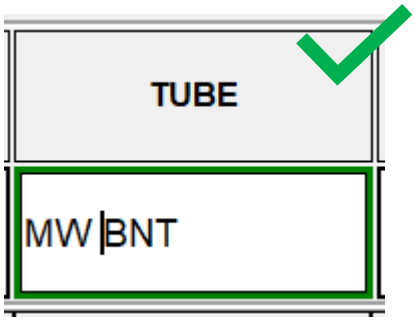


Figure 5a *– Valid Keyword Spacing*

The space in between 'MW' and 'BNT' is of the utmost importance. Without that space, you are no longer going to be correctly indicating that the joint has a Min Wall and a Bent Tube, which results in an invalid entry (See ***Figure 5b***).

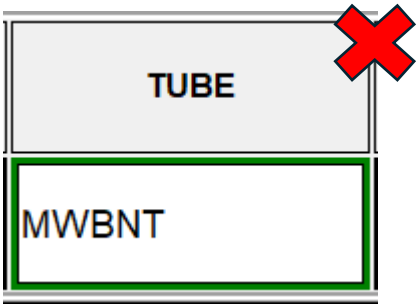


Figure 5b – Invalid Keyword Spacing

Additionally, another logical rule applies here regarding measurement values. ***For any keyword-associated measurement, the measurement must come immediately after the keyword – separated by a space (See Figure 5c).*** In the example below (***Figure 5c***) a 'Minimum Wall' and a 'Slip Cut' measuring 0.125 is correctly notated.

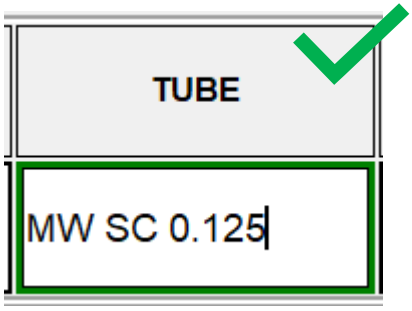


Figure 5c *– Valid Keyword-Measurement Forma Properly indicating a Minimum Wall, and a Slip Cut of 0.125*

Having a measurement ***before*** the associated keyword will cause ***unexpected and incorrect results***. Not including the required Space will also create incorrect and unexpected results. (See ***Figure 5d***)

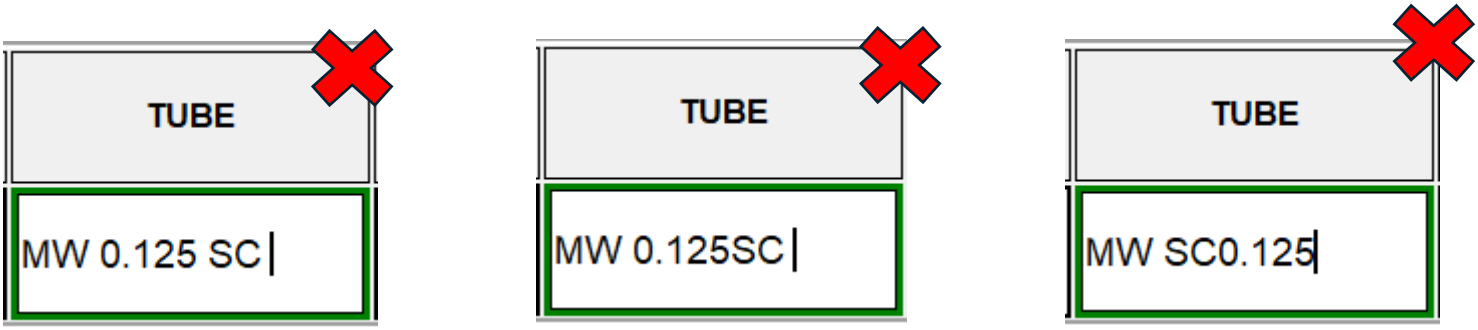


Figure 5d *– Invalid Keyword/Measurement Combinations. These will* ***not*** *properly indicate a Minimum Wall and Slip Cut measuring 0.125*

SUMMARY:

- All Keywords must always be in ALL CAPS
- Multiple Keywords must always be separated by a single space
- Measurements must come immediately after the keyword they are representing

5.2 Keyword-Measurement Values

All measurement values must be in one of the following formats:

Decimal Numbers Up to the Thousandths Place: **‘4.555’, ‘2.000’, ‘1.990’**

Whole Numbers: **‘1’, ‘4’, ‘12’, ‘15’, ‘20000’**

Fractional Notation: **‘1 1/2’, ‘2 9/16’, ‘16 3/4’, ‘3/4’**

NOTE: *A Space must be in between the whole number portion and the fractional portion of any measurement values written in Fractional Notation. This space is required and does not interfere with the traditional Keyword-Spacing Rule.*

5.3 Columns and Expected Keywords/Values

Below you will find all the Columns that are available for use when entering inspection reports. Here you will find what Report Types the Columns are available for use in, as well as the keywords and/or values that are allowed in those cells.

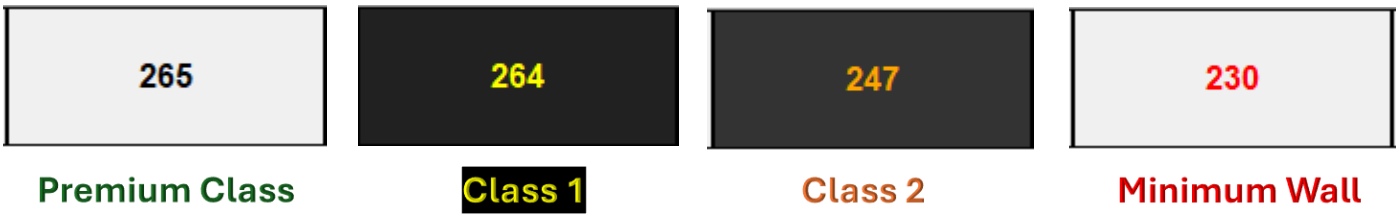
SERIAL

AVAILABLE FOR USE IN
Drill Pipe Inp Report
HWDP Inp Report
Subs Inp Report

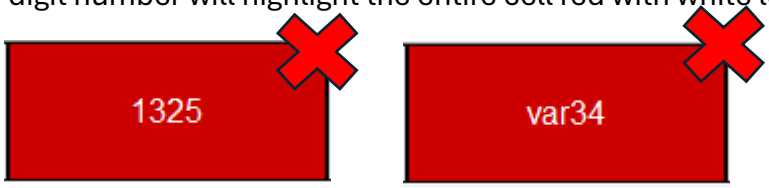
Not bound by any keyword ruleset. What you enter in this cell will be transferred exactly as is to the Microsoft Excel Spreadsheet. You should still always use Capital Letters when writing out Serial Numbers.

UT	AVAILABLE FOR USE IN
	Drill Pipe Inp Report
	Tubing/Casing Report

Strictly bound to receiving a 3-digit number. After entering a 3-digit number, the software will reference your metadata to color code its class. For example, a 4.0 Inch Connection Size and an XT-39 Connection on a Prop Drill Pipe Inp Report will display the following color coding:



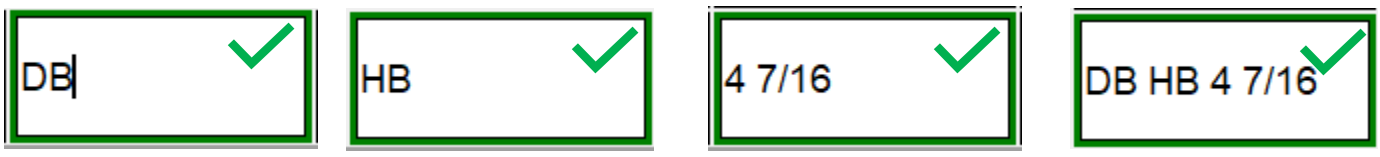
Any value that is not a 3-digit number will highlight the entire cell red with white lettering:



BOX	AVAILABLE FOR USE IN
	Drill Pipe Inp Report
	HWDP Inp Report
	Subs Inp Report
	*Tubing/Casing Report**

The 'BOX' Column has a slightly different ruleset depending on whether you use it in Drill Pipe Reports or Tubing/Casing Reports.

TUBING/CASING REPORTS: Will only accept the 'DB' or 'HB' keyword and/or a measurement value



DRILL PIPE INP REPORT, HWDP INP REPORT, and SUBS INP REPORT:

Keyword	*Description*	*Expects Value?*	*Value Format*
MT	***Min Tong***	***Yes***	***4.555, 4 ½, 4***
MS	***Min Seal***	***No***	***-***
DS	***Damaged Seal***	***No***	***-***
DT	***Damaged Threads***	***No***	***-***
OR	***Over Refaced***	***No***	***-***
DHB	***Damaged Hardband***	***No***	***-***
HB	***Hardband***	***No***	***-***
DBRHB	***Damaged Beyond Repair - Hardband***	***No***	***-***
HBCP	***Hardband Centerpad 1***	***No***	***-***
MOD	***Minimum Outer Diameter***	***Yes***	***4.555, 4 ½, 4***
(*) R	***Reface***	***Yes***	***498499 (No Subs)***
SB	***Short Box***	***Yes***	***4.789***
LB	***Long Box***	***Yes***	***4.879***
ODAM	***Other Damage (1)***	***No***	***-***
OTH	***Other Damage Box***	***No***	***-***
TR	***Thread Recondition***	***No***	***-***
BVR	***Bevel Repair***	***No***	***-***

Table 5a *– Accepted BOX Column Keywords For Drill Pipe Reports.*

(*) NOTE: See Section 5.3.1 for additional information related to the Reface Keyword. Subs Reports (Tabs) do not receive the Reface Measurement

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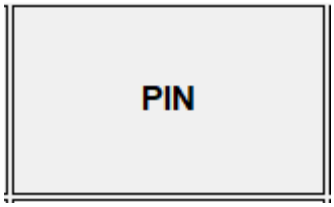
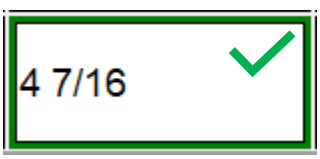
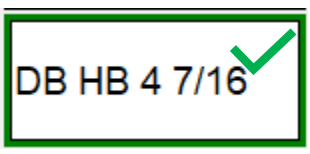


AVAILABLE FOR USE IN
Drill Pipe Inp Report
HWDP Inp Report
Subs Inp Report
Tubing/Casing Report*

The 'PIN' Column (Very Similar to the 'BOX' column) has a slightly different ruleset depending on whether you use it in Drill Pipe Reports or Tubing/Casing Reports.

TUBING/CASING REPORTS: Will only accept the 'DB' or 'HB' keyword and/or a measurement value





DRILL PIPE INP REPORT, HWDP INP REPORT, and SUBS INP REPORT:

Keyword	Description	Expects Value?	Value Format
MT	Min Tong	Yes	4.555, 4 ½, 4
MS	Min Seal	No	-
DS	Damaged Seal	No	-
DT	Damaged Threads	No	-
OR	Over Refaced	No	-
DHB	Damaged Hardband	No	-
HB	Hardband	No	-
DBRHB	Damaged Beyond Repair - Hardband	No	-
HBCP	Hardband Centerpad 2	No	-
(*) R	Reface	Yes	498499 (No Subs)
SP	Short Pin	Yes	4.789
LP	Long Pin	Yes	4.879
ODAM	Other Damage (2)	No	-
OTH	Other Damage Pin	No	-
TR	Thread Recondition	No	-
BVR	Bevel Repair	No	-

Table 5b *– Accepted PIN Column Keywords For Drill Pipe Reports.*

(*) NOTE: See Section 5.3.1 for additional information related to the Reface Keyword. Subs Reports (Tabs) do not receive the Reface Measurement

---

TUBE	AVAILABLE FOR USE IN
	Drill Pipe Inp Report
	HWDP Inp Report
	Subs Inp Report
	Tubing/Casing Report*

The 'TUBE' column behaves slightly different depending on if it is used in a Drill Pipe Report or a Tubing Report. It is designed to intake/receive various keywords that vary slightly depending on which Report Type you are using.

TUBING REPORT:

Keyword	Description	Expects Value?	Value Format
BNT	Bent Tube	No	-
BNTDBR	Bent Tube – Damaged Beyond Repair	No	-
SC	Slip Cut	Yes	0.125
SCR	Slip Cut Repair	Yes	0.125
GOU	Gouged Tube	No	-
TC	Tong Cut	No	
MW	Minimum Wall	No	-
RW	Rod Wear	Yes	0.157
PIT	Pitting	No	-
MASH	Mashed Tube	No	-
NODRIFT	No Drift	No	-
EMI	EMI Reject	No	-
BB	Blue Band	Yes	3344
YB	Yellow Band	Yes	3344

Table 5c – *Accepted TUBE Column Keywords For Tubing/Casing Reports.*

DRILL PIPE INP REPORT, HWDP INP REPORT, and SUBS INP REPORT:

Keyword	Description	Expects Value?	Value Format
MW	Minimum Wall	No	-
DAM	Damaged Tube	No	-
EMI	EMI Reject	No	-
OTHER	Other Tube Damage	No	-
BNT	Bent Tube	No	-

Table 5d – *Accepted TUBE Column Keywords For Drill Pipe Inspection Reports*

OD

AVAILABLE FOR USE IN
Drill Pipe Inp Report
HWDP Inp Report
Subs Inp Report

The ‘OD’ Column is only designed to intake measurement values:

4.555

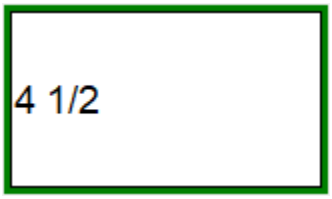
4 1/2

4

ID

AVAILABLE FOR USE IN
Drill Pipe Inp Report
HWDP Inp Report
Subs Inp Report

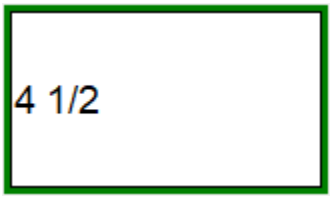
The ‘ID’ Column is only designed to intake measurement values:



TS-BOX

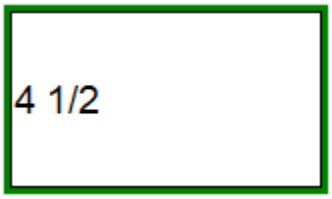
AVAILABLE FOR USE IN
Drill Pipe Inp Report
HWDP Inp Report
Subs Inp Report

The ‘TS-BOX’ Column is only designed to intake measurement values:



TS-PIN	AVAILABLE FOR USE IN
	Drill Pipe Inp Report
	HWDP Inp Report
	Subs Inp Report

The ‘TS-PIN’ Column is only designed to intake measurement values:

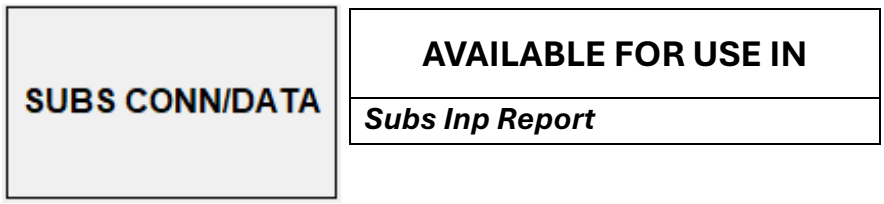


COMMENTS	AVAILABLE FOR USE IN
	Drill Pipe Inp Report
	HWDP Inp Report
	Subs Inp Report
	Tubing/Casing Report

The ‘COMMENTS’ Column behaves slightly different depending on Report Types. In Tubing Reports, the COMMENTS value is placed in a portion of the Microsoft Excel Document that will be directly seen by the Customer. In Drill Pipe Reports, this comment is hidden from the Customer, and will only be seen during the review process.

However, in both Report Types, the COMMENTS column is not bound by any Keyword-Measurement rulesets. It transfers the contents exactly as you enter it (just like the SERIAL Column).

The ‘DESCRIPTION’ Column is only available for use in a Subs Inp Report. It works similarly to the ‘SERIAL’ column, in the sense that it is not bound to Keyword rulesets. It transfers exactly what you type into it.

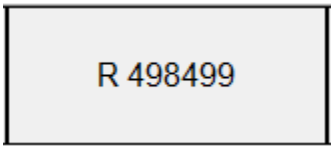


The ‘SUBS CONN/DATA’ Column is only available for use in a Subs Inp Report. It works similarly to the ‘SERIAL’, ‘DESCRIPTION’, and ‘COMMENTS’ columns, in the sense that it is not bound to Keyword rulesets. It transfers exactly what you type into it.

5.3.1 Additional Notes On Critical Lengths (Reface Keyword)

The Reface Keyword (R) expects a 6-digit number to follow it. This 6-digit number is a short-hand version representing two numbers – the 'Critical Length' and 'Critical Length After'. If we assume a Connection Type of 'XT-39', The value '498499' will represent a Critical Length of 4.498 and a Critical Length After of 4.499. The '4.' Is automatically calculated based on the Connection Type and appended to the values appropriately.

Like the 'UT' Column, the 'BOX' and 'PIN' Columns have a data validation feature specifically for Refaces. Let's look at a few examples of this Data Validation feature by using an 'XT-39' Connection as an example:



Valid Format and Values

Valid Format, Invalid Values (Out of Range)

Invalid Format

NOTE: If you require to only record the Critical Length of the connection (Without an 'After' value), you can use a 3-digit number in either the 'BOX' or 'PIN' column. Remember, this feature is only available in Drill Pipe Inp Reports and HWDP Inp Reports.

5.4 Unexpected (Non-Programmed) Keywords

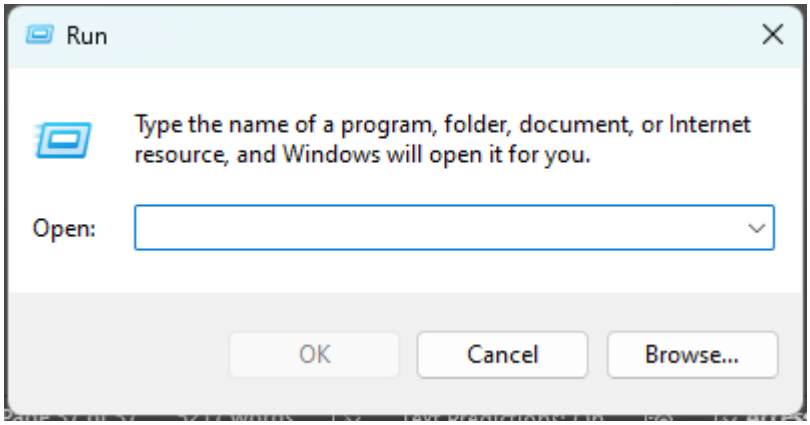
Any Keywords entered in the 'BOX', 'PIN', or 'TUBE' Columns that are not pre-programmed (See Tables 5a, 5b, 5c, and 5d) are considered 'Unexpected Keywords'. The software will be able to recognize them as an unexpected Keyword and will place them in a special column of the Microsoft Excel Spreadsheet. This special column must be manually reviewed and corrected before being sent to the Customer. Using Unexpected Keywords should be avoided and should only be used in very rare circumstances.

6. Troubleshooting

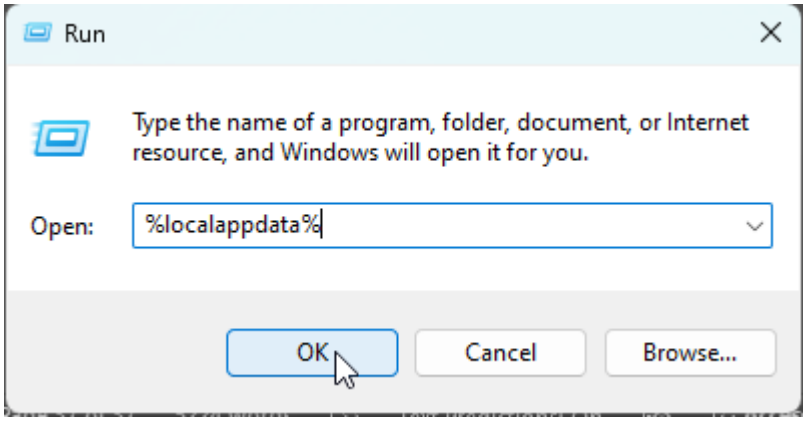
In most cases, simply closing out and restarting the software can solve any glitches/issues you may experience. However, any time an error occurs, a log file is kept in the App Data folder in which the software is installed. As a user, you will likely not know what the nature of the error is or how to fix it. However, a technician will be able to resolve the issue based on the error message that is produced. In the even that you need to send the log file to the technician, you can access it in the following manner:

1.) Hold down the Windows button and press the 'R' key

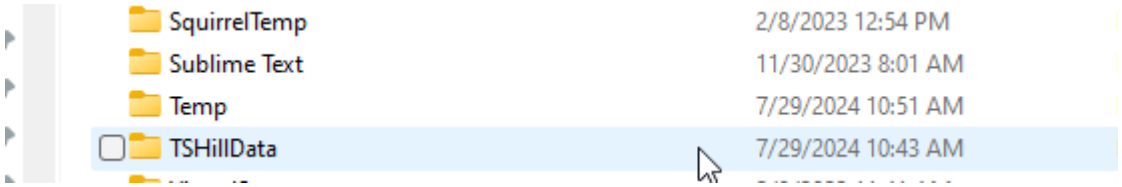
2.) You will see the following box appear in the bottom left corner of the screen:



3.) Enter ***%localappdata%*** into the entry box and press OK:



In the File Dialog box that appears, double-click the TSHillData Folder:



Here you will find the program files. Log files are generated daily. Find the .txt file for when the error occurred and send the contents of the file to the technician, they will then be able to diagnose the issue: