

The use of Texas RE’s specific PRC-005 workbook is not required as long as the information provided to Texas RE facilitates the objectives of the engagement. If the entity would like to utilize a format other than the format specified in the PRC-005 spreadsheet, the entity is encouraged to contact the engagement team lead or compliance@texasre.org to determine if the data is sufficient to accommodate an effective evaluation of compliance for PRC-005-6.

I. Objectives of PRC-005 Data Collection

The data provided by entities during engagements must facilitate the engagement objectives. Although Texas RE does not require entities to use the PRC-005 spreadsheet provided with the engagement package, the data entities provide to Regional Entities must meet minimum requirements, enabling reasonable assurance when verifying compliance. The PRC-005 spreadsheet is a suggested template for the information entities provide to Texas RE for this purpose.

When an evaluation of compliance is performed internally by an entity or externally by the Regional Entity, an effective and efficient evaluation assuring reasonable assurance of compliance with PRC-005-6 R3 includes activities to meet the minimum objectives required to verify:

1. The entity accurately identifies its applicable Components, which are subject to the PRC-005-6;
2. The entity performs maintenance activities within the maximum intervals prescribed within Tables 1 – 5;
3. The entity performs the minimum maintenance activities prescribed within Tables 1 – 5; and
4. The entity completes the required Implementation Plan percentages for Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component Types. Additional guidance is provided at the following links.
 - a. [PRC-005-6 Implementation Plan - Calendar View](#)
 - b. [PRC-005-6 Implementation Plan - Requirements View](#)

Information Requirements

Information that is necessary to facilitate meeting these objectives consists of data enabling the identification of the following:

- Each unique Component of the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Systems in a filterable, unlocked MS Excel spreadsheet format;
 - The required and actual intervals between maintenance activities associated with each unique Component; and
 - Test records (verifying minimum maintenance activities) with sufficient information to correlate the record to each unique Component appropriately.
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II. Texas RE PRC-005 Workbook

The workbook contains three main worksheets, which in turn contain columns of data recommended by Texas RE to facilitate efficient and effective engagements that include PRC-005-6 R3 within the scope. This section provides an overview of each column. The three worksheets are:

Protection System Devices	Automatic Reclosing	Sudden Pressure Relaying	

There are also worksheets titled **Instructions** and **Maintenance Activity Codes**. The **Instructions** tab contains a summarized version of the instructions included here. The use of **Maintenance Activity Codes** is covered later in this document. The entity is not expected to edit anything in these two worksheets.

Instructions	Protection System Devices	Automatic Reclosing	Sudden Pressure Relaying	Maintenance Activity Codes							

Completing the Columns

Column A: Substation

List the substation in which the device/equipment is located. Enter the substation (switchyard, station) name.

Substation
Rocky
Everest
Kilimanjaro
Denali

Column B: Protection System Component Type

Select the Protection System Component Type for each device.

The content of the drop-down menu matches the Protection System Component Types included within PRC-005. The Protection System Component Type drop-down menu in tab **Protection System Devices** provides these choices:

Substation	Protection System Component Type	RA
Rocky	Control Circuitry	
Everest		
Kilimanjaro	Protective Relay	
Denali	Voltage and Current Sensing	
	Communications Systems	
	Station DC Supply	
	Control Circuitry	

The corresponding drop-down menu in the **Automatic Reclosing** tab includes these choices:

Substation	Automatic Reclosing Component Type	RA
Great Dane	Supervisory Relays or Functions	
Boxer		
Labrador	Reclosing Relays	
Mastiff	Supervisory Relays or Functions	
	Voltage Sensing Devices	
	Control Circuitry	

The corresponding drop-down menu in the **Sudden Pressure Relaying** tab includes these choices:

Substation	Sudden Pressure Relaying Component Type	Un
Ragdoll	Fault Pressure Relay	
Maine Coon		
Scottish Fold	Fault Pressure Relay	
Birman	Control Circuitry	

If the drop-down fields are troublesome, see “Removing Drop-Down Choice Menus” in the **Customized PRC-005 Workbook** section of this document, beginning on page 9.

Columns C, D, E: Specialized Use drop downs

- RAS** Column C Select "X" if this device is associated with RAS Protection Systems.
- UFLS** Column D Select "X" if this device is associated with UFLS Protection Systems.
- UVLS** Column E Select "X" if this device is associated with UVLS Protection Systems.

These three columns contain drop-down fields for the entity to indicate if the Component is part of a Remedial Action scheme, Under Frequency Load Shedding scheme, or Under Voltage Load Shedding scheme. The drop-down menu allows the user to enter an "X" to indicate "Yes" or leave the field blank to indicate "No".

Protection System Component Type	RAS	UFLS	UVLS	Uniq	Automatic Reclosing Component Type	RAS	Uniq
▼	▼	▼	▼		▼	▼	

In accordance with the Component Types identified in Tables 3 through 5, the Automatic Reclosing spreadsheet includes only the RAS Column and the Sudden Pressure Relaying spreadsheet does not include these data entry columns.

Sudden Pressure Relaying Component Type	Unique Identifier
▼	▼

If the drop-down fields are troublesome, the entity may remove them from these fields, add new columns, or include separate spreadsheets in the workbook for varying component types. See "Removing Drop-Down Choice Menus" in the **Customized PRC-005 Workbook** section of this document, beginning on page 9.

Column F: Unique Identifier

List the device/equipment unique identifier. When working with large populations of Components, the ability to identify each Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component is critical for both the entity and the Regional Entity. It is recommended that the unique identifier be recorded somewhere in the associated maintenance record for each Component so the entity and the auditor can correlate the Component identified in the spreadsheet to the maintenance record.

Entities use many indicators as the unique identifier. Some use serial numbers, location numbers, or other unique numbers associated with the devices, while others concatenate multiple fields of data, such as Station, Manufacturer, Model, and the like to create a unique identifier. How the entity decides to assign the unique identifier will depend on the systems and data the entity utilizes to inventory its Components.

There are instances, such as some battery and unmonitored communication system maintenance, where it is not possible to list the unique identifier only once. The PRC-005 table applies multiple intervals and minimum maintenance activities to the same unique Component in these categories. There are options for providing the information in these cases. The simplest is to list the Components unique identifier multiple times in the spreadsheet associated with its multiple Intervals. Other options, for instance separating Components by interval into separate spreadsheets, are available to the entity.

See the **Customized PRC-005 Workbook** section of this document beginning on page 9 to implement ideas for providing the required information in other ways convenient to your entity.

Column G: Equipment Manufacturer and Model

List the device/equipment manufacturer and model. Texas RE requests this information to assist in ensuring maintenance records are paired to the correct Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component and in some cases to verify the monitoring capabilities of the Component. If the entity has an effective process for matching maintenance records to Components (a process that would be easily explained to an auditor) and associating monitoring capabilities with each Component, these fields may be altered by the entity to facilitate easier use of the spreadsheet internal to the organization.

If the entity uses a unique identifier and the identifier is included on maintenance records, or uses other fields of data *consistently* on the maintenance records that would better facilitate identification, the entity may remove, replace, or add columns to the spreadsheet. See the **Customized PRC-005 Workbook** section of this document beginning on page 9 to implement ideas for providing the required information in other ways convenient to your entity.

Column H: Monitored Status

Select the monitoring status for each device (monitored, unmonitored). This column contains a drop-down field for indicating the monitoring status of a Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component. When selecting the status “monitored” for a Component, the “Component Attributes” section of the PRC-005 Tables may include attributes related to alarming that contains the phrase “(See Table 2).” This means that the entity will need to enter the component at least twice on the PRC-005 Spreadsheet—once for the Table that addresses the specific Component Type (i.e. “Protective Relays”) and once for Table 2.

For example, Table 1-2 for “Communications Systems” includes the Component Attribute, “*Any communication system with continuous monitoring or periodic automated testing for the presence of the channel function, and alarming for loss of function (See Table 2).*” The entity would enter one row on the PRC-005 Spreadsheet and enter Maintenance Activity Code “B3” (column K) which shows that for this particular communications system, the entity will need to complete the following Maintenance Activities:

Verify:

- The communications system meets performance criteria pertinent to the communications technology applied (e.g. signal level, reflected power, or data error rate).

- Verify operation of communications system inputs and outputs that are essential to proper functioning of the Protection System.

The entity will also need to add an additional row for the same communications system and enter Maintenance Activity Code “F1” which shows that for this communications system, the entity will also need to complete the following Maintenance Activity:

- Verify that the alarm path conveys alarm signals to a location where corrective action can be initiated.

In this case, the entity may use the comment field to indicate which level of monitoring from Table 2 applies to communicate the required interval and maintenance activities associated with the Component to the auditor.

Comments
The alarm path is not monitored.
Alarm path is monitored for failure.

If the drop-down fields are troublesome, the entity may remove them from these fields, add new columns, or include separate spreadsheets in the workbook for these items. See the **Customized PRC-005 Workbook** section of this document beginning on page 9.

Column I: PRC-005-6 Transitioned

Enter Yes/No to indicate if most recent maintenance performed in accordance with maintenance activities prescribed in PRC-005-6 tables.

Texas RE will calculate the percentage of Components transitioned from an Entity’s legacy program to PRC-005-6 then, compare the percentages to the implementation plan to determine this aspect of entity compliance. The field for collecting the transition percentage rate is a drop-down menu with indicators “Yes” transitioned, or “No” not transitioned, from the legacy program.

If the drop-down fields are troublesome, the entity may remove them from these fields, add new columns, or include separate spreadsheets in the workbook for these items. See the **Customized PRC-005 Workbook** section of this document beginning on page 9.

Column J: Legacy Program Maintenance Interval (Years)

List the maintenance interval from the PRC-005-1b, PRC-008-0, PRC-011-0, or PRC-017-0 maintenance program in years for each device. If interval includes part of a year, use a decimal (0.33 for 4 Calendar Months, 0.5 for 6 Calendar Months, 1.5 for 18 Calendar Months, etc.). If the previous and most recent tests were performed under PRC-005-6, the entity needs to enter a comment to this effect. It is important to provide comments that add clarity to understand fully the data provided. More questions are asked to clarify the applicable intervals for the applicable program (e.g., legacy or PRC-005-6) if no comment is provided. For instance, if a “Yes” is entered in column I (“PRC-005-6 Transitioned”), Texas RE may assume that the transition occurred on the date listed in column N “Most Recent Test Date” but sometimes the transition occurred on the date listed in column M “Previous Test Date.” Texas RE will not know this to be the case unless the entity adds a comment to that effect.

Entering the legacy interval facilitates timely compliance review of the maintenance activities for Components not yet transitioned to PRC-005-6.

Column K: Maintenance Activity Code

Identify the maintenance activities performed using the maintenance activity codes identified on the "Maintenance Activity Code" tab of the workbook.

When an entity has a large or diverse population of Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components, it can be difficult to discern which minimum maintenance activities apply to each Component. Texas RE has assigned codes that correspond to the various Maintenance Activities specified in the PRC-005-6 Tables of Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component in order to facilitate an efficient engagement. Entities embracing the Maintenance Activity Code approach may benefit from this layer of quality control by reviewing each Component to ensure proper assignment within the entity’s maintenance program. This approach also mitigates the need to ask extra rounds of questions in order to determine which specific maintenance activities apply to each Component.

There are possible alternatives to using the Maintenance Activity Code, although these alternatives may require more effort, especially for organizations with a large variety of Component Types. See “Maintenance Code Alternatives” in the **Customized PRC-005 Workbook** section starting on page 9 of this document for more information.

Column L: PRC-005-6 PSMP Maintenance Interval (Years)

List the maintenance interval from the PRC-005-6 Protection System Maintenance Program (PSMP) in years for each device.

Entry of the interval applicable to the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component helps identify which maintenance activities are required and facilitates audit of the maintenance dates. The intervals should be entered in years. If an interval includes part of a year, use a decimal when entering data into this column. Valid entries in calendar years / calendar months are:

- 0.33 4 Calendar Months

- 0.50 6 Calendar Months
- 1.50 18 Calendar Months
- 3 Calendar Years
- 6 Calendar Years
- 12 Calendar Years

Column M: Previous Test Date

List the previous test date for each device (the test done before the most recent test date). Include the full date in the following format: mm/dd/yyyy. In most cases, the entity will have a previous test date associated with a Protection System, Automatic Reclosing, and Sudden Pressure Relaying Component.

There are instances when a blank previous test date is valid. If the Component is newly commissioned or is new to the PSMP (e.g. UFLS, UVLS, Automatic Reclosing or Sudden Pressure Relaying Components), there may not be a previous test date. When one of these situations occurs, the entity should use **Comments** to indicate the reason for the lack of data entry. The entity may enter a note of its choice. Below are suggested examples.

Comments
This is the date the equipment was commissioned
Date provided is the equipment commission date
Commissioning date
This is a new maintenance activity per PRC-005
New maintenance activity per PRC-005 Implementation Plan
New maintenance activity, effective January 1, 2017 (where the date equals the effective date applicable to the Component from the Implementation Plan).

Column N: Most Recent Test Date

List the most recent test date for each device (the last test date). Include the full date in the following format: mm/dd/yyyy.

It is possible for this field to be blank, but only in very limited situations where all of the following apply:

- Components that are new to the PSMP per the PRC-005 Implementation Plan
- Maintenance of the population of Components is not required to be 100%
- Maintenance of the individual Component is not yet required to meet the percentages prescribed in the Implementation Plan

The entity should use the **Comments** column to clarify any blank Most Recent Test Date fields. An example is “New maintenance activity, not in required percentage, not yet performed.”

Previous Test Date	Most Recent Test Date	Comments
11/21/2011	6/20/2013	
11/21/2011	6/20/2013	
N/A		New maintenance activity, not in required percentage, not yet performed.
11/21/2011	6/20/2013	
11/21/2011	6/20/2013	
11/21/2011	6/20/2013	

Column O: Comments

Add comments as necessary (i.e. if no previous test date exists due to recent commissioning, note the commissioning date).

Entities are strongly encouraged to make use of the **Comments** column included in the PRC-005 workbook. An entity may make useful notations about the data included to assist its record keeping and to assist the engagement process.

Comments
The Component is a new installation, therefore only has one test date, include a comment to convey that the available test date is the commissioning test.
The monitoring status, is actually partial, not fully monitored, enter “Yes” in “Monitored Status” and include in “Comments” a description of the level of monitoring.

Multiple comments may be included in one cell by using ALT+SHIFT. This will create a line break between separate notes.

Comments

The Component is a new installation, therefore only has one test date, the commissioning date 05/14/2019.

The monitoring status of this Component fully monitored, including Alarm Path monitoring, so the Maintenance Interval is 0 years.

III. Customized PRC-005 Workbook

As stated before, the use of Texas RE’s specific PRC-005 workbook is not required as long as the information provided to Texas RE facilitates the objectives of the engagement. If the entity would like to utilize a format other than the format specified in the PRC-005 spreadsheet, the entity is encouraged to contact the engagement team lead or compliance@texasre.org to determine if the data is sufficient to accommodate an effective evaluation of compliance for PRC-005-6.

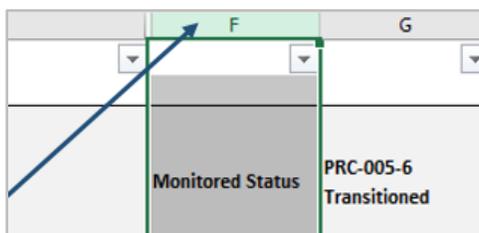
Removing Drop-Down Choice Menus

The entity may remove the drop-down choice menus in the spreadsheet as long as the appropriate information is still entered into a column (with an explanation of the contents in the column).

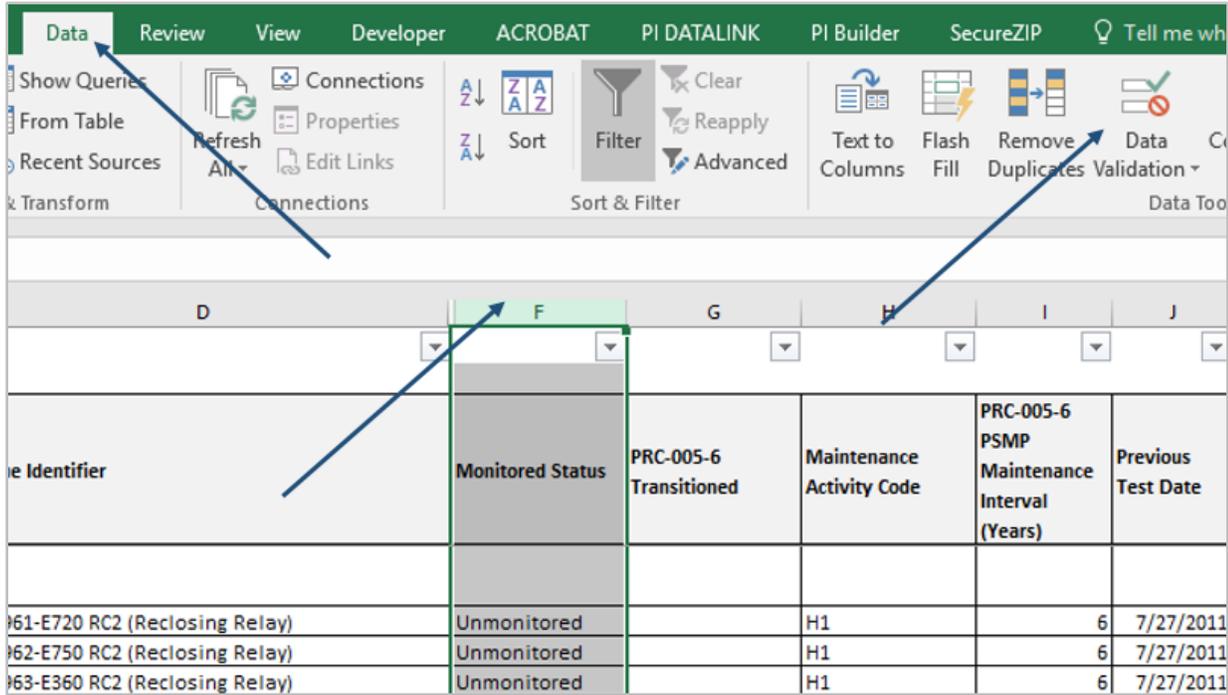
The entity may remove the drop-down menus from the fields in the spreadsheet. The first method is effective for removing drop-down choices from *one* column of data. The second method removes *all* drop-down menus from the spreadsheet.

Method 1: Remove from One Column

Step 1. Select the entire column by clicking on the top header letter.

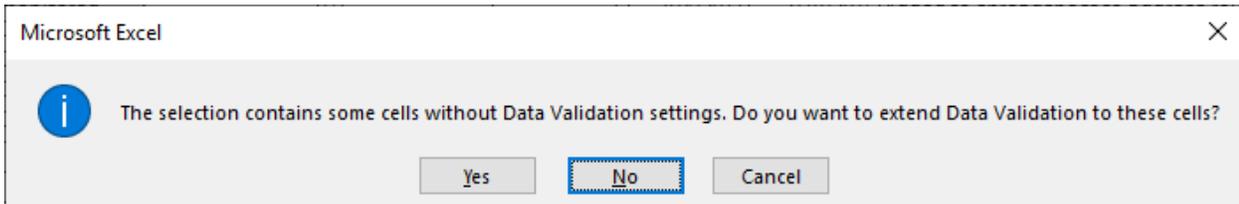


Step 2. With the entire column selected, go to the Data menu tab across the top of the menu bar, then select “Data Validation” from the “Data Tools” menu tile.

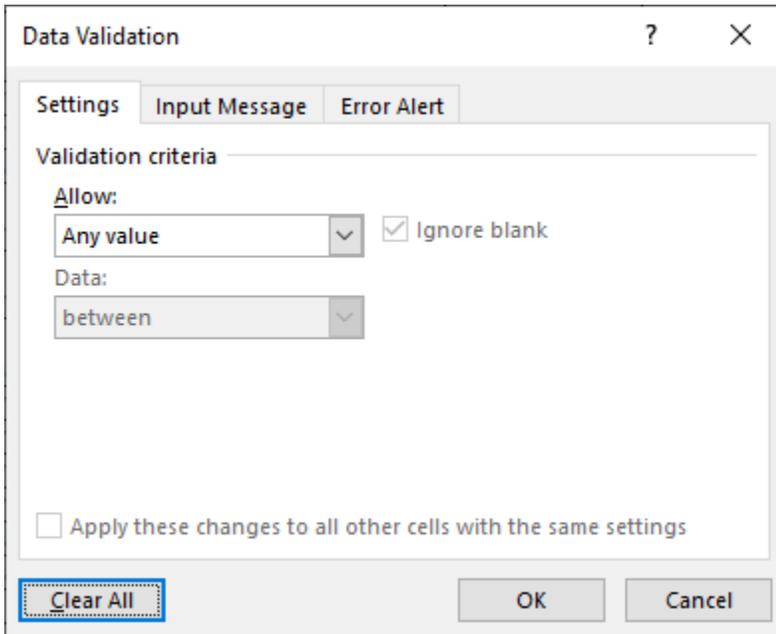


Equipment Identifier	Monitored Status	PRC-005-6 Transitioned	Maintenance Activity Code	PRC-005-6 PSMP Maintenance Interval (Years)	Previous Test Date
961-E720 RC2 (Reclosing Relay)	Unmonitored		H1	6	7/27/2011
962-E750 RC2 (Reclosing Relay)	Unmonitored		H1	6	7/27/2011
963-E360 RC2 (Reclosing Relay)	Unmonitored		H1	6	7/27/2011

Step 3. You may get a dialog box that says, *“The selection contains some cells without Data Validation settings. Do you want to extend Data Validation to these cells?”* Click the “No” button.



Step 4. In the dialog box, click the “Clear All” button.



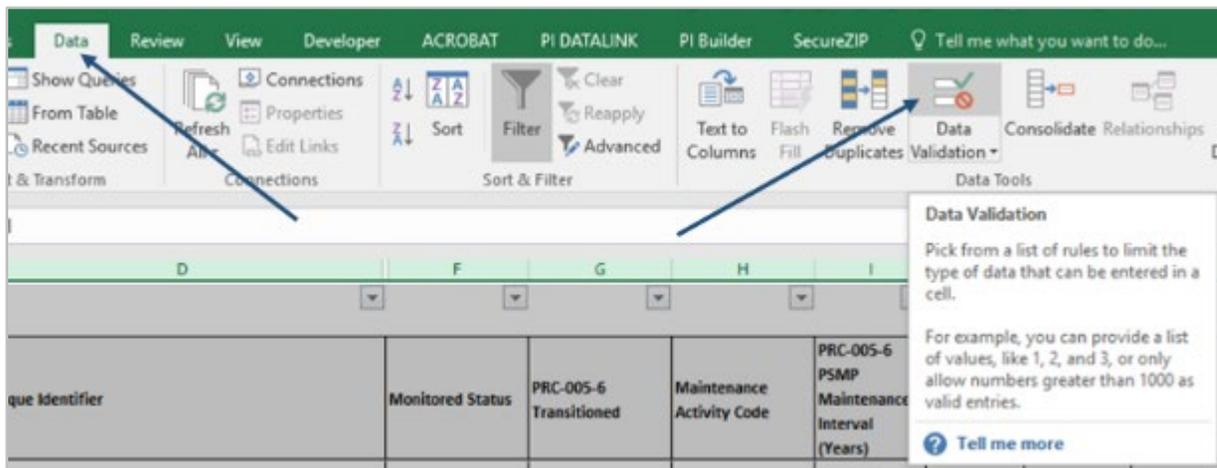
Step 5. Click the “OK” button. Repeat this process for each column in the workbook if desired.

Method 2: Remove Dropdowns from the Entire Spreadsheet:

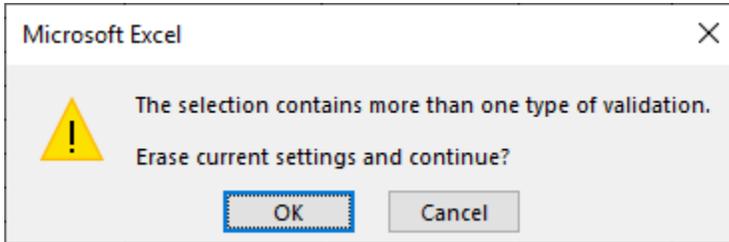
Step 1. Select the entire contents of the spreadsheet by clicking on the top left hand corner box.



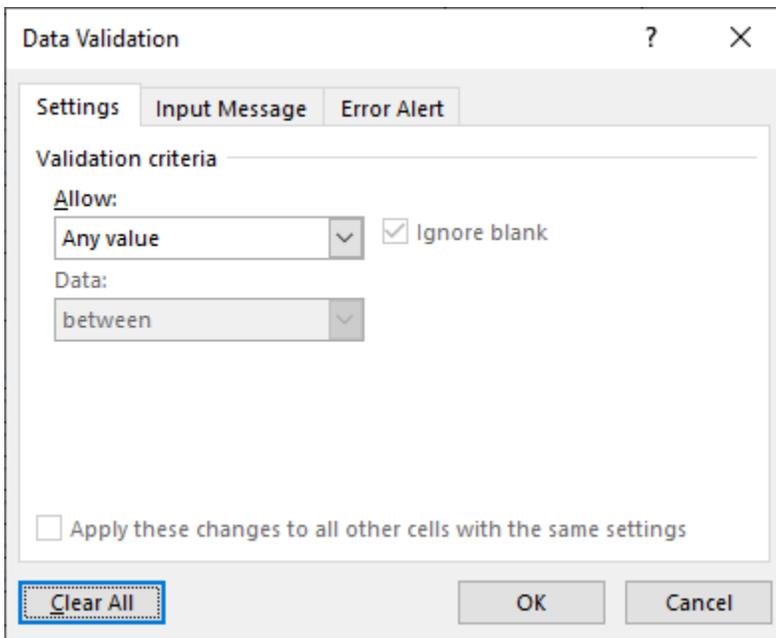
Step 2. With all of the cells selected, go to the Data menu tab across the top of the menu bar, then select “Data Validation” from the “Data Tools” menu tile.



Step 3. You may get a dialog box that says, “The selection contains more than one type of validation. Erase current settings and continue?” Click the “OK” button.



Step 4. In the dialog box, click the “Clear All” button.



Step 5. Click the “OK” button. Repeat this process for each spreadsheet in the workbook if desired.

Column Editing

The entity may edit the columns contained in the spreadsheet. For instance, the columns may be separated, renamed, and/or columns may be added or deleted.

Separate Columns – Here is an example of a column being separated.

Original view – column G is labeled “Equipment Manufacturer and Model.”

F	G	H
Unique Identifier	Equipment Manufacturer and Model	Monitored Status

New view – column G has been separated into two columns, “Equipment Manufacturer,” and “Model.”

F	G	H	I
Unique Identifier	Equipment Manufacturer	Model	Monitored Status

Rename Columns – Here is an example of a column being renamed.

Original view – column G is currently labeled “Equipment Manufacturer and Model.”

F	G	H
Unique Identifier	Equipment Manufacturer and Model	Monitored Status

New view – column G has been renamed to “Equipment / Circuit Number.”

F	G	H
Unique Identifier	Equipment / Circuit Number	Monitored Status

Replace Columns – Here is an example of a column being replaced.

Original view – column G is labeled “Equipment Manufacturer and Model.”

F	G	H
Unique Identifier	Equipment Manufacturer and Model	Monitored Status

New view – column G has been replaced with an entirely different data type, “ANSI / IEEE Device Number.”

F	G	H
entifier	ANSI / IEEE Device Number	Monitored St

Add Columns – Here is an example of a column being added (inserted).

Original view – column F “Unique Identifier” is adjacent to column G “Equipment Manufacturer and Model.”

F	G	H
Unique Identifier	Equipment Manufacturer and Model	Monitored Status

New view – column G “ANSI / IEEE Device Number” has been inserted between existing columns “Unique Identifier” and “Equipment Manufacturer and Model.”

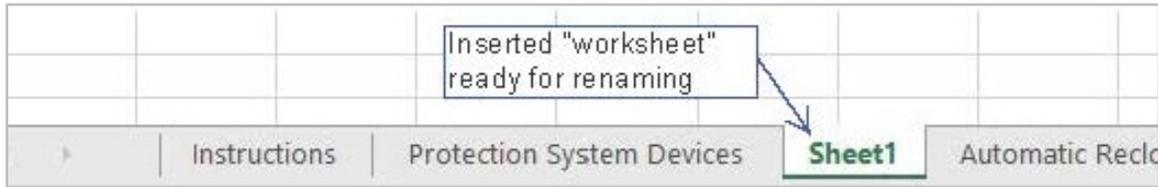
F	G	H
Unique Identifier	ANSI/IEEE Device Number	Equipment Manufacturer and Model

Workbook Editing

The entity may edit the worksheets contained in the workbook. For instance, worksheets may be separated/added, renamed, or consolidated.

Add / Rename Spreadsheets

To organize data into logical groupings by worksheet, the entity may add or rename spreadsheets by Component type, maintenance interval, maintenance activity, or other logical grouping of their choice.



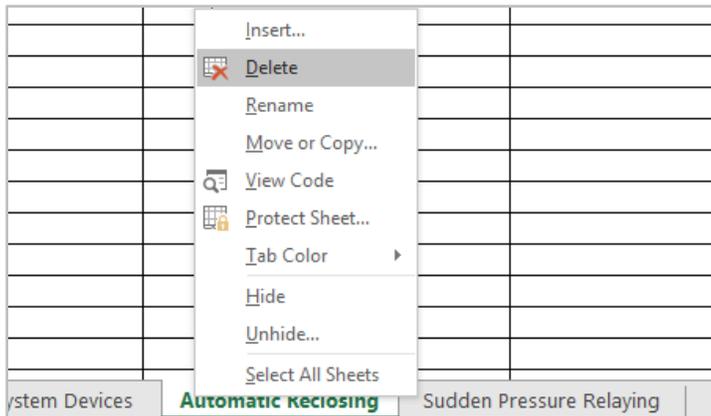
Consolidate Spreadsheets

To reduce the number of spreadsheets in a workbook, add and rename columns to identify the Component and its association to the maintenance table information in PRC-005. Keep in mind there are varying data requirements for the three major Component categories: Protection Systems, Automatic Reclosing, and Sudden Pressure Relaying. To see all of the differences, review the previous section **Texas RE PRC-005 Workbook**. If consolidating the spreadsheets into one, it will be important to include all unique data options to describe the Component (example of differences in battery types shown below.)

D	E	F	G	H	I	J	
UFLS	VVLS	Automatic Reclosing	Sudden Pressure	VLA	VRLA	NiCAD	Unique
▼	▼	▼	▼	▼	▼	▼	▼

Delete Extra Worksheets

If the entity consolidates spreadsheet information into one, or the entity does not have Automatic Reclosing or Sudden Pressure Relaying Components, they may choose to delete the spreadsheets from the workbook. The entity should include a comment in the PRC-005-6 RSAW's "Compliance Narrative" section explaining why any worksheets were deleted (i.e. "We don't own any Automatic Reclosing Components").



Maintenance Code Alternatives

Add Comments for PRC-005 Tables' Maintenance Activities

Entities may consider adding comments to reference the specific PRC-005 Tables' Maintenance Activities performed for each Component. Entities using this approach will need to ensure that **all** Maintenance Activities actually performed for each Component are represented in the appropriate PRC-005 Spreadsheet comments.

For example, PRC-005 Table 1-4(a) lists Maintenance Activities (a) Verify station dc supply voltage, (b) Inspect electrolyte level, and (c) Inspect for unintentional grounds. If the entity only lists (a) Verify station dc supply voltage and (b) Inspect electrolyte level, the engagement team will need to ask additional questions to verify that the remaining Maintenance Activity, (c) Inspect for unintentional grounds, was performed as well. The entity should discuss this approach with the engagement team lead or email compliance@texasre.org if they are considering using this option.

Modify the Maintenance Activity Code Table in the Workbook

Entities with smaller or limited diversity in populations of Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components may consider editing the Maintenance Activity Code table to indicate which types of equipment they do not have in service. The entity may add, replace, or delete rows or columns of data to indicate the characteristics of the Protection System, Automatic Reclosing, and Sudden Pressure Relaying Components it employs. The entity should discuss this approach with the engagement team lead if they are considering using this option.

Tie Spreadsheet Component Data to PRC-005-6 Tables Using Other Methods

Entities may propose other methods to tie spreadsheet Component data to the PRC-005-6 Maximum Maintenance Intervals and Minimum Maintenance Activities. The entity should discuss these other methods with the engagement team lead or email compliance@texasre.org if they are considering using this option.

Internal Spreadsheets or Workbooks

The entity may also create their own workbook or spreadsheet. This may be the easiest option if the entity uses a data extract from a database, work order management system, or other tool(s) used to maintain compliance with PRC-005. If choosing this option, be sure the data provided is as close to the data requested as possible and will facilitate meeting the engagement objectives.

Entities planning to utilize an internal spreadsheet or workbook to demonstrate compliance with PRC-005-6 must email compliance@texasre.org in order to determine if the desired format contains sufficient information to perform an effective evaluation of compliance with PRC-005-6.