PCS Axis® Version 1.4

User and Administrator Guide

AMERICAN INNOVATIONS

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What's New in PCS Axis v1.4?

The following information identifies enhancements available in version 1.4 of the PCS Axis software. For additional information, view or download a copy of the *PCS Axis v1.4 Release Notes*.

Enhancements

- **Performance:** Improved performance system-wide with significant improvements in Bridge, Hierarchy Selection, and User Management performance.

- **User Interface:** Improved user interface for better usability.

Getting Started

Information in this manual explains how to set up and use American Innovations' Pipeline Compliance System Axis® software (PCS Axis®). The information is intended for users of the software and the PCS Axis system administrator.

Topics in this chapter include those in the following list:

- *Starting PCS Axis*

- *Activating Bridge Import for Operation*

- *System Overview*

- *PCS Axis Modules* (page 8)

- *System Requirements* (page 9)

- *Document Conventions* (page 11)

- *About the Help System* (page 12)

- *Downloading Documentation* (page 13)

- *Technical Support* (page 15)

Starting PCS Axis

Information in this section explains how to start the PCS Axis software. The Windows user name and password of the person currently logged in to the computer is used to start the software and log in to the database. If PCS Axis is set up with the security option *Requires Windows Password*, a password is required to log in to the database. See *Setting Options* (page 25) for more information.

Complete the following steps:

1   If present, double-click the PCS Axis desktop shortcut ⊞ to start the software. Or, click the Windows **Start** button 🏵, then click **PCS Axis**.

2   If the *Login* window opens, type your Windows password in the **Password** field and then click the login button ➲ to start the software (Figure 1-1).

Figure 1-1. Login

Activating Bridge Import for Operation

If your company purchased the optional Bridge add-on for importing raw data from a third-party application, running a *Basic* Bridge import for the first time requires you to activate Bridge using the license file provided by American Innovations (AI). A Bridge license is required only for those operations that use the *Basic* Bridge function to import data.

Operations using the *Bullhorn* Bridge function to import data do not require a Bridge license. Likewise, using Bridge to export data from PCS Axis also does not require a Bridge license.

NOTE: You can maintain all PCS Axis licenses for your organization in the same shared folder location. PCS Axis will request the file and location the first time each user opens the PCS Axis application. The Bridge activation key is assigned only once for the PCS Axis database; once it is assigned it functions for all users. If you are unable to locate your Bridge license file, contact PCS Technical services for assistance at pcstechservices@aiworldwide.com.

To activate Bridge import for operation, follow these steps:

1   Start PCS Axis if the software is not running.

2   Click **Tools** > **Job Service Viewer** to open the *Job Service Console* window (Figure 1-2)
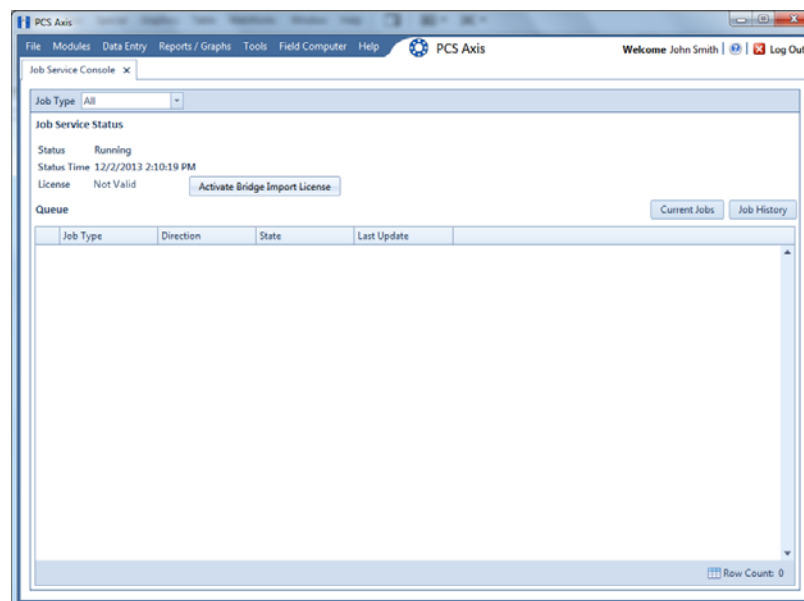
Figure 1-2. Job Service Console

3 Click **Activate Bridge Import License**. When the *Activation Key* dialog box opens, navigate to the license file and select it (Figure 1-3, page 6).

4 Click **Open** to open the license file and return to the *Job Service Console* window.
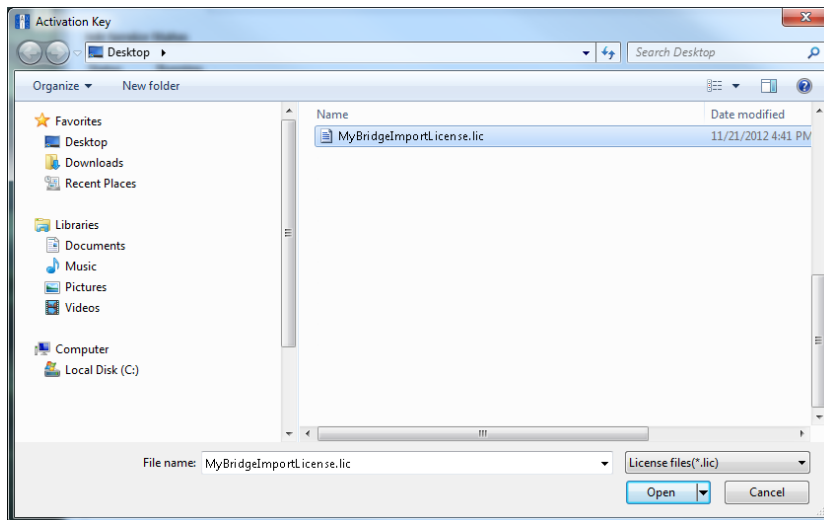
Figure 1-3. Activation Key

5 Verify **Running** displays in the *Status* field and **Valid** displays in the *License* field (Figure 1-4). If these messages are not currently displayed, please contact PCS Technical Services for assistance at pcstechservices@aiworldwide.com.
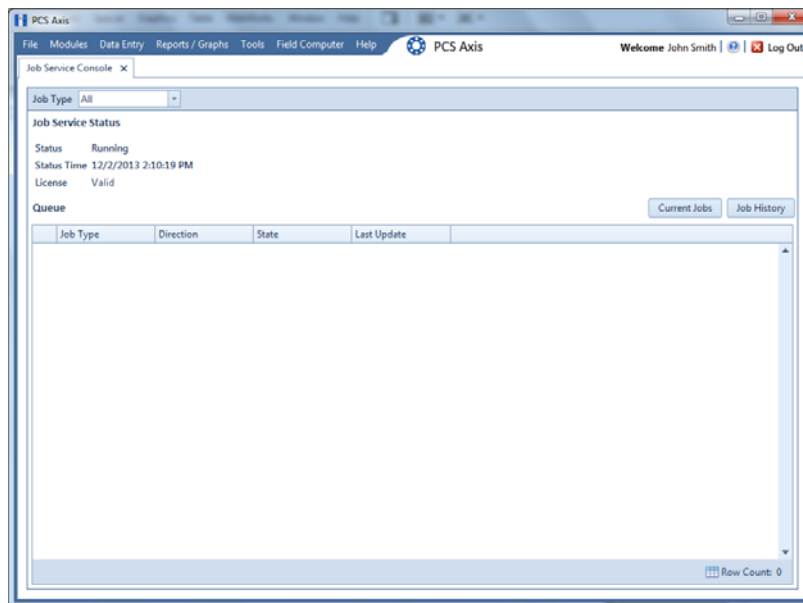
Figure 1-4. Valid Bridge License

System Overview

PCS Axis is a database application used worldwide by distribution and transmission companies to manage pipeline compliance and integrity data. The application uses a SQL server database to store and manage data for one or more modules (Figure 1-5). All modules share a common interface that allows users to easily work with data regardless of which module they use. Modules are based on common industry practices and various Department of Transportation (DOT) regulations. These include DOT 192 titled *Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Standards Safety* and DOT 195 titled *Transportation of Hazardous Liquids by Pipeline.*

The PCS Axis database is fully ODBC compliant allowing for integration with other databases, such as GIS (geographic information system) and ERP (enterprise resource planning) databases.
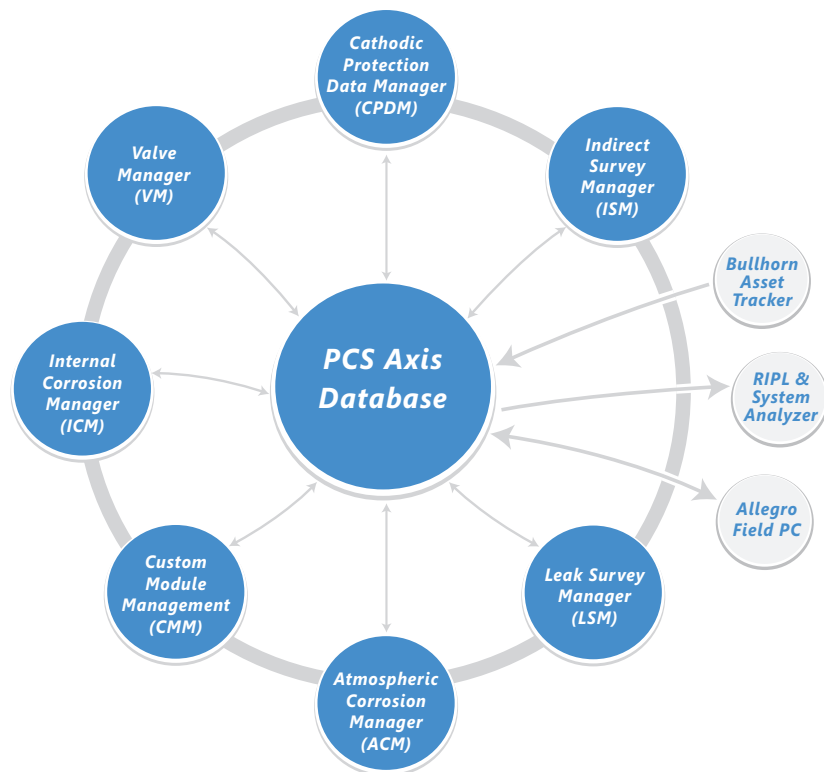
System features include:

- *Centralized Database*
- *Common Interface*
- *Tree Navigation*
- *Security*
- *Scheduling*
- *Routes*
- *Survey Folders*
- *Themes*
- *User-Defined Fields*
- *Range Violations*
- *Validation Tables*
- *Reports & Graphs*
- *Bridge with Bullhorn Integration*
- *Allegro Field PC Interface*
- *Other Systems Integration*

Figure 1-5. PCS Axis System Overview

PCS Axis Modules

PCS Axis modules are purchased either separately or as a package. Modules and certain system functions (such as Bridge) become operational after entering the software activation key provided by American Innovations (AI). A description of each PCS Axis module is provided in the following table (Table 1-1).

Table 1-1. PCS Axis Modules

PCS Axis Module	Description
Cathodic Protection Data Manager (CPDM)	CPDM manages cathodic protection (CP) data for facility types such as test points, rectifiers, foreign bonds, galvanic anodes, and tanks. Distribution and transmission companies use this module to manage and track corrosion data as well as other types of corrosion-related data.
Indirect Survey Manager (ISM)	ISM manages and analyzes survey data for aboveground continuous surveys (also referred to as indirect surveys). You can enter survey readings manually or use the Allegro Field PC or PCS Axis Bridge to transfer survey readings in ISM. The types of continuous surveys supported in ISM include: Close Interval Survey (CIS), AC Close Interval Survey (AC CIS), DC Voltage Gradient (DCVG), AC Voltage Gradient (ACVG), AC Current Attenuation (ACCA), Soil Resistivity, and Pearson.
Atmospheric Corrosion Manager (ACM)	ACM manages atmospheric corrosion data as required by US DOT 192 and 195 regulations.
Valve Manager (VM)	VM manages valve inspection and repair data. The module provides compliance scheduling, data management, and reporting of valve information.
Internal Corrosion Manager (ICM)	ICM tracks internal corrosion data in compliance with US DOT 192 and 195 regulations. ICM supports facility types such as inhibitor injectors, coupons, samples, and probes.
Leak Survey Manager (LSM)	LSM manages and provides compliance scheduling for leak surveys, classifies leaks and repair data, and supports follow-up activities.
Custom Module Management (CMM)	CMM is an optional add-on feature. If your company purchased the CMM module, you can use this feature to create one or more user defined modules. CMM supports the same features and functionality as those in the various modules distributed with PCS Axis. For example, CMM supports routes, schedules, reports/graphs, user defined fields (UDFs), and themes.

System Requirements

The following information identifies system requirements for PCS Axis. See Table 1-2 for client computer requirements and Table 1-3 (page 10) for server and database requirements.

Table 1-2. Client Computer Requirements (Client/Server Network)

Properties	Minimum	Recommended
Processor	Intel Core i5 or faster	Intel Core i7 or faster
Processor Speed	1.4 GHz or faster	2.0 GHz or faster
RAM	4 GB	8 GB
Operating System	Windows 7 32-bit or 64-bit, Service Pack 1 (SP1)	Windows 7 32-bit or 64-bit, Service Pack 1 (SP1)
Available Disk Space	10 GB	100 GB
Resolution	1280x1024	1920x1080
Microsoft .NET Framework	Version 4.0 (Full version, see note.)	Version 4.0 (Full version, see note.)

NOTE: SQL Server Express 2008 R2 SP2 is required for remote clients (subscribers) with a subscription database. A full version of Microsoft .NET Framework 4.0 is required; PCS Axis **does not support** the *Client Profile* version of Microsoft .NET Framework.

Table 1-3. Central Database Server Requirements

Properties	Minimum	Recommended
Processor	Intel Itanium or faster	Intel Itanium or faster
Processor Speed	1.4 GHz or faster	2.0 GHz or faster
RAM	16 GB	32 GB **NOTE:** Larger databases may require more RAM for optimum performance.
Operating System	Windows Server 2008 R2	Windows Server 2008 R2
Relational Database Software	SQL Server 2008 R2	SQL Server 2008 R2
Available Disk Space	200 GB	400 GB **NOTE:** Consult with your company's IT or DBA to determine where database backups will be created.
Resolution	1280x1024	1920x1080

Document Conventions

Typographical conventions used in this manual include those described in the following table (Table 1-4).

Table 1-4. Document Conventions

Convention	Description	Example
Italic text	Denotes named items for easy identification, such as the name of a software feature, title, or product.	Open the *Define Routes* window.
Bold text	Denotes named items in the software for easy identification that require user input, such as a clickable button or a field requiring user input as noted in a procedure.	Click **Data Entry** > **Define Routes** to open the *Define Routes* window.
Arrow brackets <>	Denotes placeholder text inside arrow brackets, such as <module> to indicate the name of a module in a procedure that applies to any module.	Click **Data Entry** > **Edit** <module> **Data** to open the data entry grid.
Right arrow bracket >	Denotes a streamlined task for easier identification in a procedure performed by the user, such as opening menus and submenus or clicking buttons.	Click **Data Entry** > **Edit CPDM Data** means to click *Data Entry* in the main menu, then click the menu option *Edit CPDM Data*.
Plus sign +	Indicates a combination of key presses, such as CTRL+S.	**CTRL**+**S** means to press and hold the *CTRL* key while pressing the *S* key.
Internal cross references	Refers to a related section in the current document with a page number. Clicking the page number displays the referenced item.	See *Using Computer Name User Authentication* (page 128) for more information.

About the Help System

PCS Axis Help provides information for setting up and using the PCS Axis software. To view online help, click the help button or click **Help** > **Help** in the main menu. Or visit the following web address to view online help: http://www.pcsaxishelp.aiworldwide.com.

Viewing *PCS Axis Help* requires an internet browser software such as Internet Explorer®, Firefox®, or Chrome®. Other notable features of online help include those in the following list:

- Table of contents navigation.

- Breadcrumb "you are here" navigation.

- Search with support for Boolean search operators AND and OR.

  Setting search keywords in quotations marks returns exact search results. For example, typing "grid layout" (with quotation marks) returns search results for all occurrences of *grid layout*.

- PDF, print, email, and index integration.

IMPORTANT: If you use Internet Explorer 9 (IE9) to view PCS Axis online help, the *Compatibility View* setting in IE9 may need to be set in order to view online help without problems. To set *Compatibility View*, click the broken page icon in the address bar of the internet browser. Or, click **Tools** > **Compatibility View** to enable the setting.
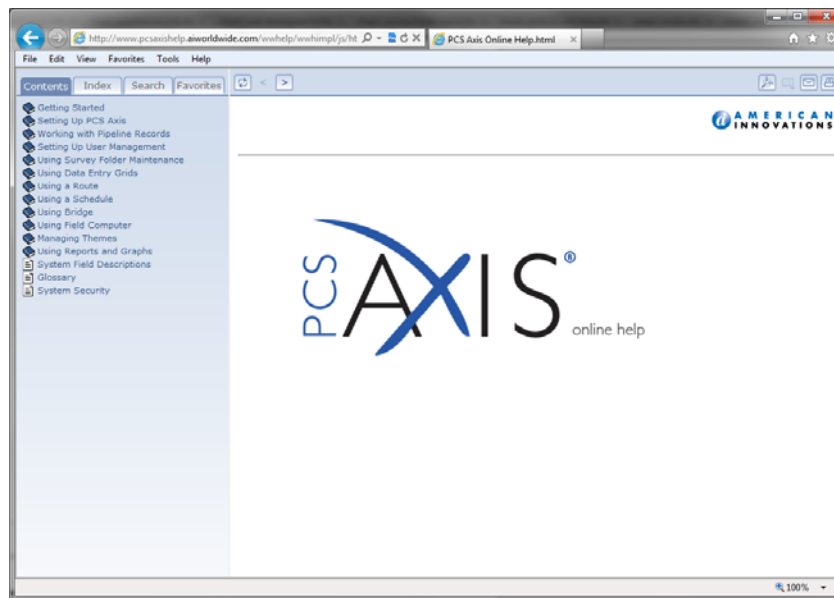
Figure 1-6. PCS Axis Help

Downloading Documentation

Clicking the ⬚ PDF button in the toolbar of online help displays a PDF of the current help topic displaying in the internet browser (Figure 1-7). Click the ⬚ save button to download a copy of the PDF to your computer. Use Adobe® Reader® to view or print the PDF. If you need to install Adobe Reader on your computer, a free copy of the software is available for download at http://get.adobe.com/reader/.

Other documents available for download include current and previous versions of the PCS Axis user guide and release notes. Installation and upgrade instructions for the current software version are also available.

IMPORTANT: If you use Internet Explorer 9 (IE9) to view PCS Axis online help, the *Compatibility View* setting in IE9 may need to be set in order to view online help without problems. To set *Compatibility View*, click the ⬚ broken page icon in the address bar of the internet browser. Or, click **Tools** > **Compatibility View** to enable the setting.

Click to download PDF   *Click to open a PDF*
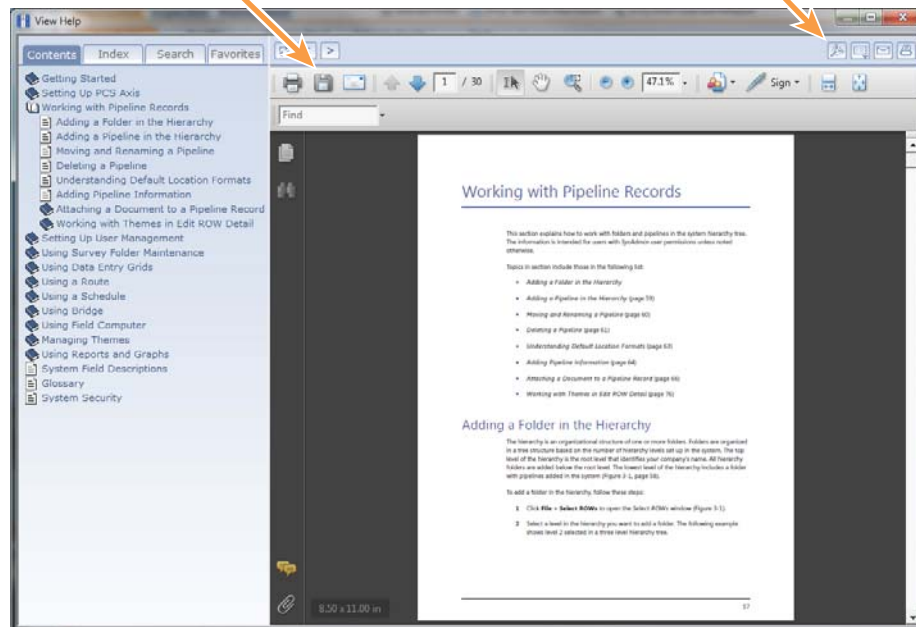
Figure 1-7. Downloading PCS Axis Documentation

Additional documentation available for download includes items in the following list:

- **User Guides and Release Notes**

  - PCS Axis v1.4 User Administrator Guide and Release Notes

- • PCS Axis v1.3 User Administrator Guide and Release Notes

- • PCS Axis v1.2 User Administrator Guide and Release Notes

- **Installation and Upgrade Instructions**

  - • PCS Axis v1.4 Client/Server New Installation with Replication

  - • PCS Axis v1.4 Client/Server New Installation without Replication

  - • PCS Axis v1.4 Single User New Installation, Non-Client/Server

  - • PCS Axis v1.4 Upgrade Installation

Viewing Information About PCS Axis

To view information for the current server and database connection, as well as the software version of PCS Axis, click **Help** > **About PCS Axis**.

The *About* dialog box displays the current server and database connection in the *Connection* field. The *Version* field identifies the current database and software version (Figure 1-8).

Figure 1-8. About PCS Axis

Technical Support

If you need assistance with PCS Axis, have a feature request or bug to report, or have a comment or suggestion about this document, your feedback would be appreciated. If you have a training need for your organization or would like to know more about upcoming training classes, please use the following contact information to reach Technical Services:

Support Email: pcstechservices@aiworldwide.com

Support Telephone: 1-800-229-3404, select 1, then press 2

American Innovations: http://www.aiworldwide.com

Notes

2

Setting Up PCS Axis

PCS Axis modules share a common interface and many similar functions. Information in this chapter explains how to set up features common to all PCS Axis modules.

If you are unable to access a PCS Axis menu or perform a particular function, check with your system administrator to verify your PCS Axis user account is set up with an appropriate user role in *User Management* (page 127).

Topics in this section include those in the following list:

- *Preparing to Set Up PCS Axis* (page 18)

- *Understanding a Typical PCS Axis Workflow* (page 20)

- *Understanding the System Hierarchy* (page 21)

- *Setting the System Hierarchy* (page 22)

- *Setting Up PCS Axis* (page 24)

- *Working with Pipeline Series* (page 72)

- *Working with a User Defined Module* (page 79)

Preparing to Set Up PCS Axis

After installing PCS Axis, consider the following questions before you begin setting up PCS Axis for operation. Answers to these questions determine how you set up PCS Axis to fit your company's business needs.

Table 2-1. Preparing to Set Up PCS Axis

Question	Description
How is your company's pipeline system organized?	Pipeline companies organize their distribution or transmission pipeline system using certain terms to describe how the system is organized. For example, terms such as Right-of-way (ROW), Pipeline Segment, Section, Section Map, District, County, Region, or State may be used. Setting up PCS Axis for operation requires that you define a pipeline system hierarchy. PCS Axis supports up to five (5) hierarchy levels and can be organized and named in the same manner as your company's pipeline system.
How does your company identify inspection points on a pipeline?	A location name and location format must be set up for inspection points on a pipeline before users begin entering survey data in PCS Axis. Once this information has been established, it is recommended that you do not change it in order to maintain data integrity. When you first install PCS Axis, default settings for location name and location format are *Milepost* and *Station Number* respectively. However you can change both of these to match your company's method for identifying inspection points on a pipeline.
What is your company's policy for scheduling surveys?	Default settings in PCS Axis for survey schedules and grace periods are based on current regulations. You can however edit these default settings to match your company's survey policies instead. For example, the grace period for surveying long lines is three months. However your company's policy may be less than three months. When setting up PCS Axis survey schedules, enter your company's grace period to ensure surveys are scheduled correctly.

Table 2-1. Preparing to Set Up PCS Axis (continued)

Question	Description
Does your company want to use PCS Axis security features?	The *User Management* feature in PCS Axis controls system security using a role based method. Each PCS Axis user is assigned a user role. Users with *SysAdmin* security permissions have full control of the hierarchy and all system features. Users with *User* or *Read Only* security permissions have limited control. For a list of user role permissions assigned to the *User* and *Read Only* user roles, see Appendix C (page 645).
Will your company need unique data recorded in PCS Axis?	Although PCS Axis provides many fields for entering data, you can create what is called a *User-Defined Field* (UDF) when a PCS Axis field does not exist. Your company's data collection forms are a good place to gather data for a UDF you may want to create. For example, if test points are identified by map numbers, create a UDF to be used for data entry of test point map numbers.
Will PCS Axis themes need to be customized to fit your company's business needs?	PCS Axis uses themes for many operations, such as themes for data entry grids, sorting methods, filtering data, and field computer prompts. The PCS Axis software installation includes several installed themes ready for use. You can modify PCS Axis installed themes and also add new themes to include only those features that fit your business needs. For example, you might want to include specific data fields for entering and viewing a particular type of survey data.
Do you want to set up picklists that allow users to choose from a list of acceptable choices when entering survey data?	When a data entry field is limited to certain data, consider creating a picklist that includes only those items for selection, such as repair codes, priority levels, or status conditions. For example, you may want to create a picklist with items for selection that identify insulator status as good, missing, and shorted. Picklists are helpful in reducing data entry errors by allowing users to select an item from a list of approved choices instead of entering data manually.

Understanding a Typical PCS Axis Workflow

A typical workflow for working in PCS Axis is shown in the next figure (Figure 2-1). Some operations are required and only occur once when setting up PCS Axis, such as setting up system *Options* and *Edit ROW Detail* identified in the following figure. Others may occur more often as needed by PCS Axis users with appropriate security permissions, such as adding or moving pipeline segments in the hierarchy; adding survey folders; customizing themes and reports; or creating routes and schedules for facility survey inspections.

1 Set Up PCS Axis

1. Edit System Options
(*Company Name, Hierarchy Levels, & User Location Name are required.*)

2. Edit ROWs
(*Add, move, & rename pipeline segments in Select ROWs as needed.*)

3. Edit ROW Detail
(*User Location Format is required.*)

4. Edit Survey Folders

5. Edit User Management

2 Customize Features

- Edit Themes

- Edit Field & UDF Customizations
(*Includes Field Captions, UDFs, Picklists, etc., as needed.*)

- Edit Routes & Schedules

- Edit Themes Management & Facility Types Management

3 Enter Survey Data

Survey data via:
- Manual Data Entry
- Bridge, Bridge with Bullhorn Integration (optional)
- Transfer from Allegro Field PC (optional)

4 Set Up/Run Reports

Set up and run:
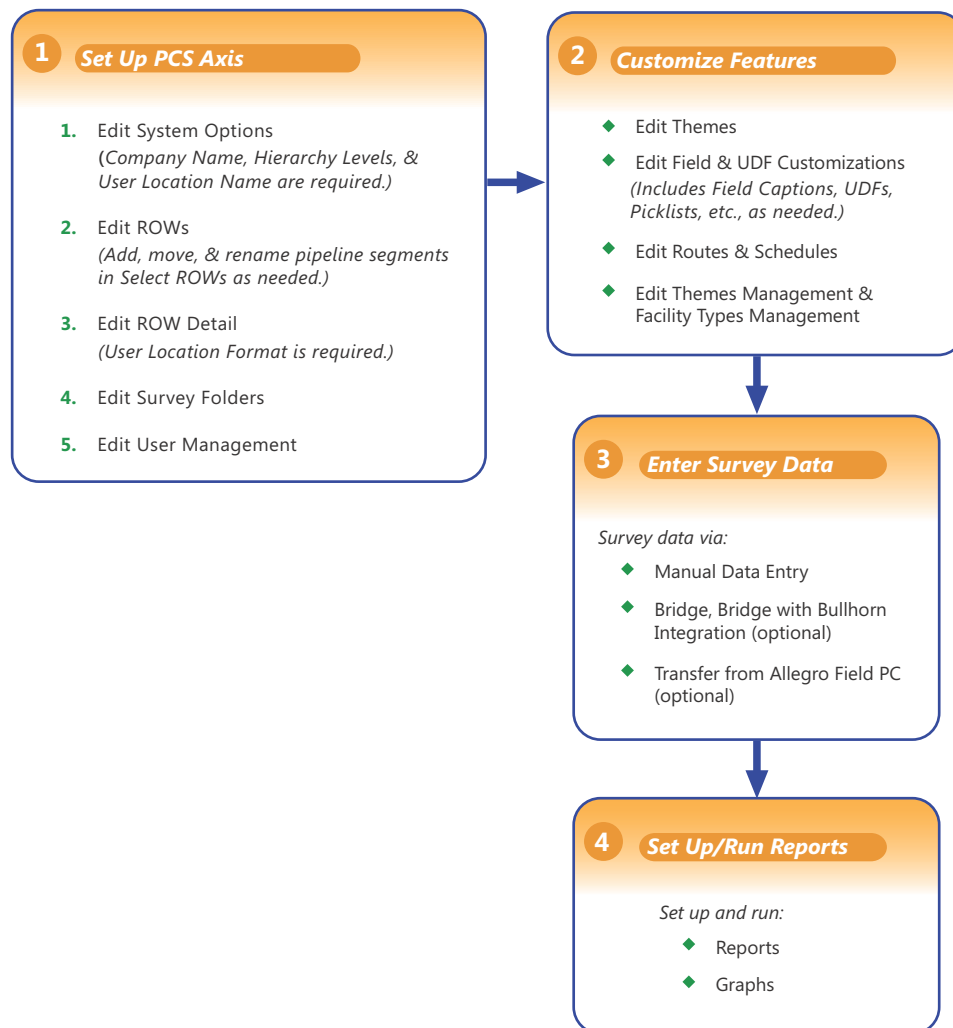- Reports
- Graphs

Figure 2-1. Typical PCS Axis Workflow

Understanding the System Hierarchy

Before you begin entering data in PCS Axis, you first need to establish the system hierarchy and enter your company's name. The hierarchy determines how PCS Axis organizes data. The company name displays at the top of all reports and graphs.

You can create a hierarchy that reflects how your company categorizes its pipeline system. For example, you may want to create a hierarchy based on one or more of the following criteria: division, district, county, region, system, right-of-way (ROW), or section map.

PCS Axis supports a hierarchy structure with up to five (5) levels. The top hierarchy level includes either your company's name or other type of descriptor. The following figure shows a hierarchy structure with three (3) hierarchy levels (Figure 2-2).

IMPORTANT: After entering data in the database, it is recommended that you do not change the hierarchy structure.

1 Company Name

2 Level 3 Hierarchy (Region)

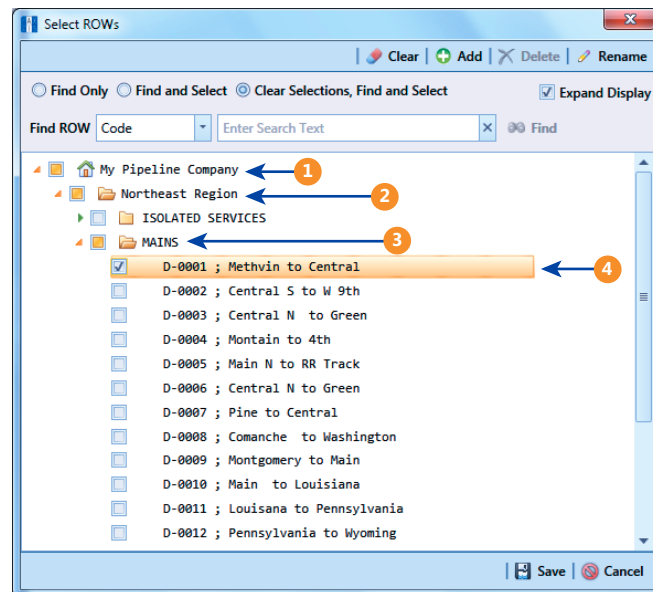3 Level 2 Hierarchy (System)

4 Level 1 Hierarchy (Pipeline)

Figure 2-2. Example of Hierarchy Structure

Setting the System Hierarchy

The following procedure explains how to set up PCS Axis with the following required system settings: your company's name; the number of levels in the system hierarchy; and a name for inspection points on a pipeline.

NOTE: Another required setting is needed later after adding pipeline records in the system hierarchy. The required setting labeled *User Location Format* in *Edit ROW Details* must be completed for each pipeline record to identify how inspection points are located on a pipeline. For more information see *Understanding Default Location Formats (page 94)*.

To create the system hierarchy, follow these steps:

1 Click **Tools** > **Options** > **General** to open the *General* options page (Figure 2-3).

2 Type the name of your company in the field **Company Name**.

3 Identify how your company refers to inspection points on a pipeline. For example, type *Milepost*, *Station Number*, *Reference Reading*, or other type of descriptor in the field **User Location Name**.

NOTE: See *Understanding Public and Private Property Settings* (page 24) for a description of the *Private* check box and *Public* caption.
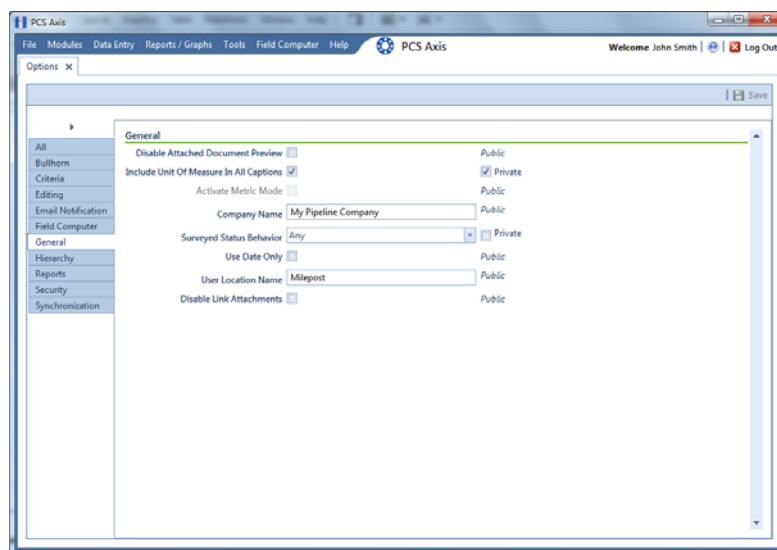

Figure 2-3. Company Name and User Location Name

4 Click the **Hierarchy** tab to open hierarchy options page (Figure 2-4).

5 Click the check box **Hide Parallel Lines** if you want to hide features in PCS Axis that allow you to create and display parallel lines in the hierarchy.

NOTE: When *Hide Parallel Lines* is enabled, parallel lines are hidden in *Select ROWs* and in the *Add New Node* dialog box. Distribution companies with no parallel lines typically use this setting. PCS Axis identifies parallel lines using the fields *Pipe*, *Pipeline Code*, and *Pipeline Name*. For a description of these fields refer to *System Field Descriptions* on page 607.

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6 Identify how many levels to include in the hierarchy. Click the down arrow in the **Levels** field and select the number of hierarchy levels in the selection list.

7 Identify how pipelines are referred to in the system. For example, type *ROW* or *Segment* in the **Level 1** field.

8 Type a description for each additional level in the hierarchy using the fields labeled **Level 2** through **Level 5** as required.

9 Click ![save icon] **Save** and then continue with the next section *Setting Up PCS Axis* (page 24) to continue setting up PCS Axis for operation.
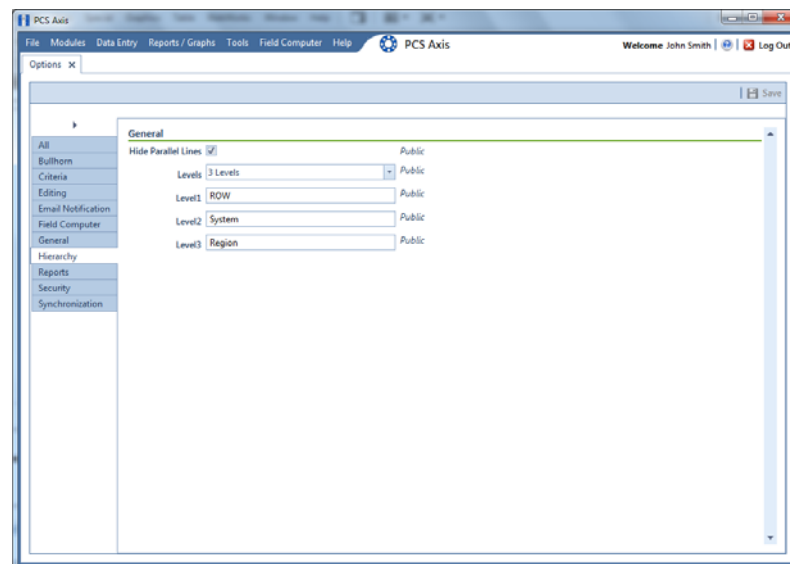

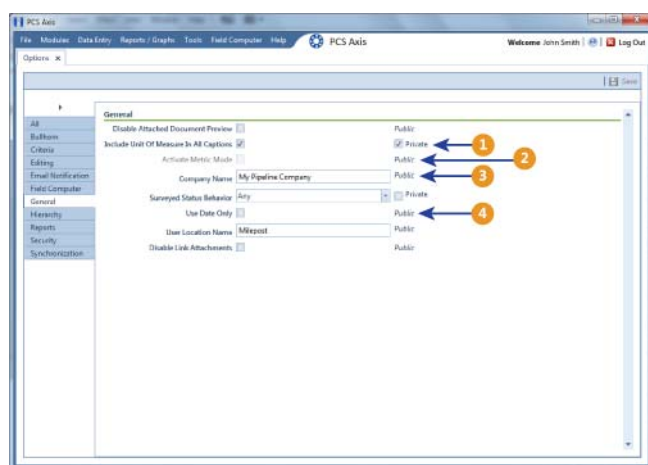**Figure 2-4. Hierarchy Levels**

Setting Up PCS Axis

PCS Axis provides several property settings that allow you to customize the software according to your company's business needs. Other settings effect the functionality of certain PCS Axis features. Information in this section explains how to set each of these property settings. Topics include those in the following list:

- *Understanding Public and Private Property Settings*

- *Setting Options* (page 25)

- *Setting Properties in Field and UDF Customizations* (page 44)

- *Using an Application Scheme* (page 71)

- *Choosing a Printer for PCS Axis* (page 71)

Understanding Public and Private Property Settings

Some property settings in *Options* include a *Public* caption or a *Private* check box. Property settings with a *Public* caption are system-specified and cannot be altered. For example, when pipeline and facility survey data have been added in the database, *Activate Metric Mode* cannot be changed (Figure 2-5). Property settings with a *Public* caption apply globally to all users.

Property settings with a *Private* check box can be changed. When the *Private* check box is enabled, the currently logged in user can change the property setting. Changes are "private" and only apply to the logged in user who makes a change to the setting. If the *Private* check box is disabled for a property setting, the property setting made by the SysAdmin applies globally to all users and users cannot change the setting.

Figure 2-5. Options Public and Private Property Settings

Setting Options

PCS Axis uses property settings in *Options* to perform many functions across all modules, such as arranging data, performing calculations, generating reports, and allowing user-access to certain features. Required settings include *Hierarchy levels*, *Company Name*, *User Location Name*, and *Criteria*. If optional add-ons have been purchased, such as *Bridge* or *Bridge with Bullhorn integration*, setting properties for these features are also required.

Information in this section explains how to set properties in *Options*. The information is intended for users with *SysAdmin* user permissions. Topics in this section include those in the following list:

- *Setting Bullhorn Options*

- *Setting Criteria Options* (page 27)

- *Setting Editing Options* (page 28)

- *Setting Email Notification Options* (page 30)

- *Setting Field Computer Options* (page 33)

- *Setting General Options* (page 34)

- *Setting Hierarchy Options* (page 37)

- *Setting Report Options* (page 37)

- *Setting Security Options* (page 39)

- *Setting Synchronization Options* (page 41)

- *Disabling Synchronization* (page 43)

Setting Bullhorn Options

If you plan to use Bridge to transfer data from your account on Bullhorn® Asset Tracker (BAT™), complete the following steps to set *Bullhorn* property settings in *Options*:

1 Click **Tools** > **Options** > **Bullhorn** tab to open the *Bullhorn* options page (Figure 2-6, page 26).

Clicking the arrow ▶ below the search field and then selecting **Bullhorn** in the selection list also displays the *Bullhorn* options page.

2 Type **http://www.bullhornsys.com/BATAPI/BATAPI.svc/extract** in the field *Extract Endpoint Url*.

3 Type **http://www.bullhornsys.com/BATAPI/BATAPI.svc/mapping** in the field *Mapping Endpoint Url*.

4 Click 💾 **Save** to save changes.

NOTE: Property settings with a *Public* caption refer to system-specified settings that apply globally to all users and can only be changed by the SysAdmin. For more information see *Understanding Public and Private Property Settings* (page 24).
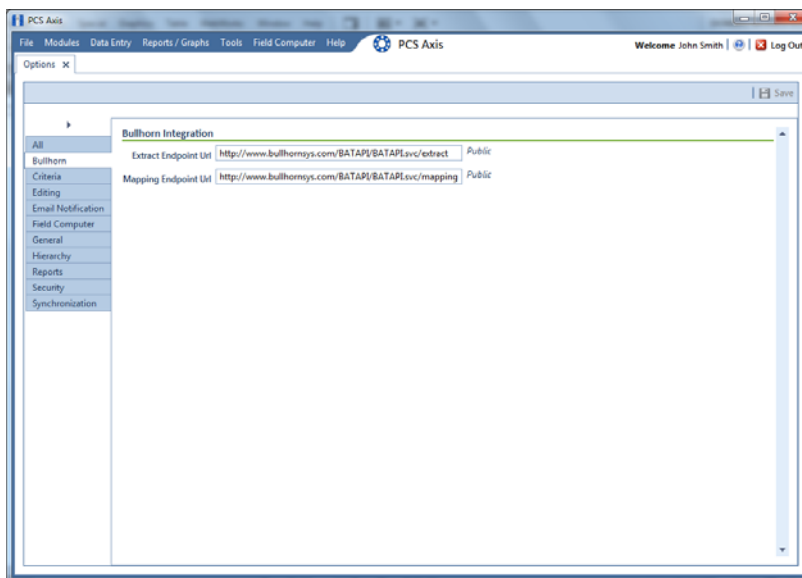

Figure 2-6. Bullhorn Options

Setting Criteria Options

The following procedure explains how to set *Criteria* property settings. If needed, refer to *Understanding Public and Private Property Settings* (page 24) for a description of the *Private* check box and *Public* caption.

Complete the following steps:

1 If the *Options* window is not open, click **Tools** > **Options** to open the window. Then click the **Criteria** tab to open the *Criteria* options page (Figure 2-7).
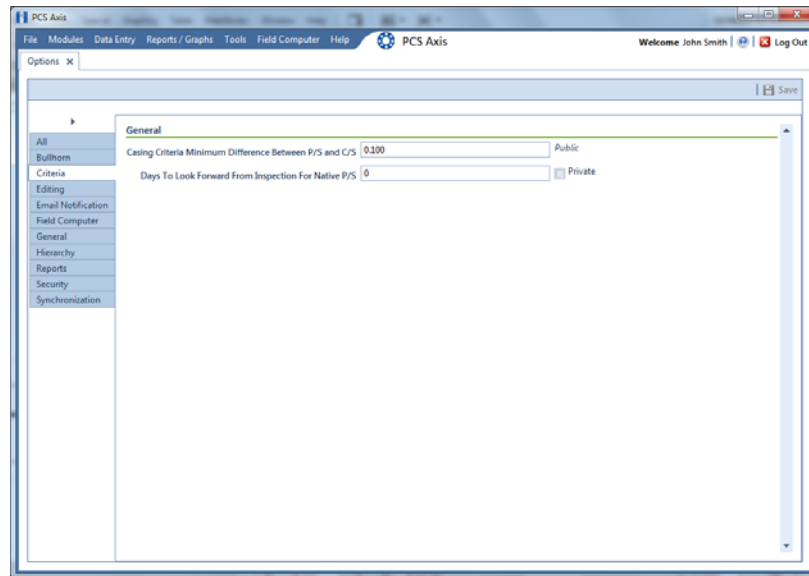

Figure 2-7. Criteria Options

2 Identify the isolation criteria for casing inspections. Type a value in the field **Casing Criteria Minimum Difference Between P/S and C/S** to set the minimum difference allowed between pipe-to-soil (P/S) and casing pipe-to-soil (C/S) readings before the casing is considered shorted. The default setting is 100 mV.

NOTE: PCS Axis displays a warning message when the minimum difference does not meet the casing criteria for an inspection reading entered in the data entry grid. Similarly, an entry is added in the *Field Computer Log* when inspection readings transferred from the Allegro do not meet casing criteria.

3 Identify the number of days after an inspection reading is taken, that a native pipe-to-soil (P/S) reading is taken. Type the number of days in the field **Days To Look Forward From Inspection For Native P/S**.

___

NOTE: The number of days effects the system calculation for the fields *Effective Native P/S* and *Effective Native Date* in data entry grids. Native P/S is a potential reading taken prior to any current placed on the pipeline. It is also referred to as a depolarized or static potential reading.

___

4 Click 💾 **Save** to save changes.

Setting Editing Options

Complete the following steps in the *Editing* page of *Options* to set property settings that apply when entering data in data entry grids:

1 If the *Options* window is not open, click **Tools** > **Options** to open the window.

2 Click the **Editing** tab to open the *Editing* options page (Figure 2-8).
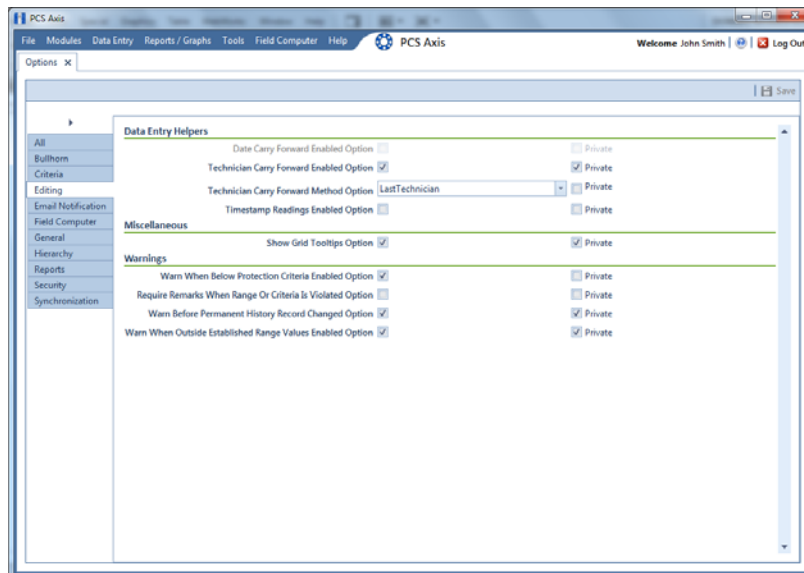
Figure 2-8. Editing Options

3 Review the information in Table 2-2 and then set options as needed in the following manner. When you finish, click ⊞ **Save** to save changes.

- To enable an option, click the option's check box to place a check mark inside the check box. Clicking the check box again removes the check mark and disables the option.

- For options with a *Private* check box, enable or disable the check box based on your company's requirements.

  When the *Private* check box is enabled, the currently logged in user can change the property setting. Changes are "private" and only apply to the logged in user who makes a change to the setting. If the *Private* check box is disabled for a property setting, the property setting made by the SysAdmin applies globally to all users and users cannot change the setting.

Table 2-2. Editing Options

| Option	Description
Date Carry Forward Enabled Option	This option is unavailable for use in the current software release. Future software enhancements will include the ability to use the option.
Technician Carry Forward Enabled Option	When entering inspection data in the *Inspection* grid, automatically enter a person's name in the *Technician* field using one of the following methods:
Technician Carry Forward Method Option	• *Last Technician*: Use the name of the last person entered in the *Technician* field. • *Security*: Use the name of the person currently logged into PCS Axis.
Timestamp Readings Enabled Option	Add today's date as the inspection date when entering readings in the *Inspection* grid.
Show Grid Tooltips Option	Display a field description when the user hovers the mouse over a data entry field.
Warn When Below Protection Criteria Enabled Option	Display a warning message when a user enters an inspection reading that is below the protection criteria value specified in the *Test Point Protection Criteria* field of the facility *Information* grid.
Require Remarks When Range Or Criteria Is Violated Option	Display a message prompting the user to edit the inspection reading or enter a description in the *Inspection Remarks* field when the entered reading is out of range or does not meet the criteria limit specified in *Options* (Tools > Options > Criteria).

Table 2-2. Editing Options (continued)

Option	Description
Warn Before Permanent History Record Changed Option	Display a warning message to the user before changes are made to a permanent history record. AI recommends this option be enabled if your company plans to maintain history records.
Warn When Outside Established Range Values Enabled Option	Display a warning message when a user enters an inspection reading that is out of range or under criteria.

Setting Email Notification Options

Complete the following steps to set property settings that apply when sending email reports to recipients using the *Email Notification* feature:

1 If the *Options* window is not open, click **Tools** > **Options** to open the window. Then click the **Email Notification** tab (Figure 2-9).
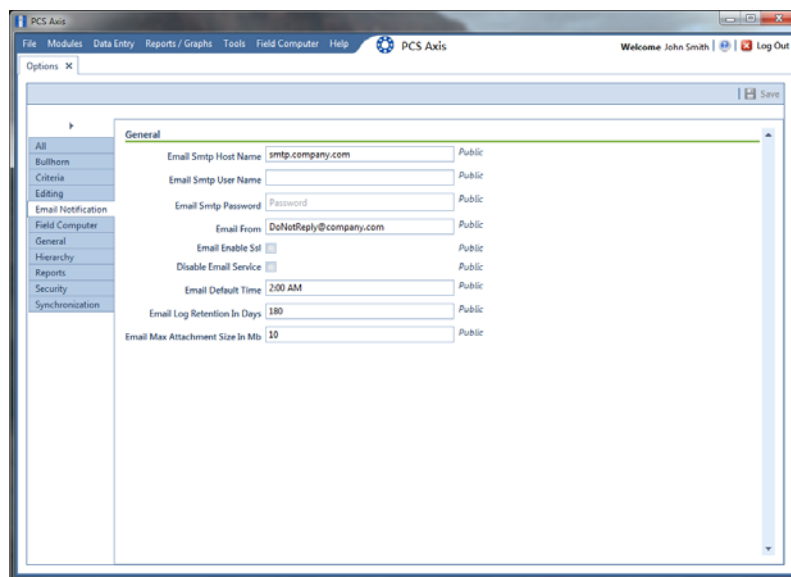
Figure 2-9. Email Notification Options

NOTE: Property settings with a *Public* caption refer to system-specified settings that apply globally to all users and can only be changed by the SysAdmin. For more information see *Understanding Public and Private Property Settings* (page 24).

2 Type the host name of the SMTP email server your company uses to send email in the field **Email Smtp Host Name**.

> **NOTE:** SMTP is an acronym for Simple Mail Transfer Protocol. It is a data transmission format used to send email.

3 Type a user name in the field **Email Smtp User Name** that is associated with the email address you plan to use for sending email notifications.

4 Type a password in the field **Email Smtp Password** that is associated with the user name and email address you plan to use for sending email notifications.

5 In the field **Email From**, type the email address you plan to use for sending email notifications.

6 If the email server supports SSL protocol, click the check box **Email Enable Ssl** to place a check mark inside the check box.

When an email server supports SSL (secure socket layer) protocol, the email server transmits information in an encrypted form for security purposes. If needed, contact your IT System Administrator to determine if your company's email server supports SSL.

> **NOTE:** When *Email Enable Ssl* is disabled (empty check box) and the email server supports SSL protocol, recipients will not receive PCS Axis email notifications. PCS Axis also adds an entry in the log of Job Service Viewer to identify email notification failures (*Tool > Job Service Viewer > Job History > Log*).

7 Use the check box **Disable Email Service** to stop or start sending email notifications to *all* email recipients.

To stop sending email notifications to *all* recipients, click the check box to place a check mark inside the check box. To begin sending email notifications again, clear the check mark by clicking the check box. For more information, refer to *Stopping Delivery of Email Notifications* (page 468).

8 Enter a default time to send email notifications in the field **Email Default Time**. Use 12-hour time format to indicate the hour, minute, and AM/PM setting (HH:MM AM/PM). The default time is used when an email report is not set up with a delivery time in the *Email Reports* tab of *Email Notification* (*Tools > Email Notification > Reports* tab).

IMPORTANT: When setting a default time to send email notifications, choose a time that does not impact other network services or computer resources.

9 In the field **Email Log Retention In Days**, enter the number of days to store a copy of the email log in the database. Entries in the email log are purged from the log after the specified number of days.

IMPORTANT: Storing the email log in the database increases the size of the database. PCS Axis adds an entry in the log each time an email is sent. The log also includes email recipient information; email delivery mode and frequency; hierarchy assignments; and email report attachments in Adobe® PDF format.

10 In the field **Email Max Attachment Size In Mb**, enter a value in megabytes (MB) that identifies the maximum size allowed by the email server for attachments in an email. Because some email servers are set up to process emails no larger than 10 MB in size, it may be necessary to contact your IT department for this information to ensure email recipients receive email notifications.

11 Click ![save icon] **Save** to save changes.

Setting Field Computer Options

If your company plans to use the Allegro Field PC with PCS Axis, complete the following steps to set up *Field Computer* options:

1 If the *Options* window is not open, click **Tools** > **Options** to open the window. Then click the **Field Computer** tab (Figure 2-10).

2 To only use the Allegro digital voltmeter to record voltage readings, enable the option **Require Voltage Readings By Voltmeter**. Enabling this option prevents manual data entry of voltage readings on the Allegro.

3 Enable or disable the **Private** check box based on your company's requirements.

When the *Private* check box is enabled, the currently logged in user can change the property setting. Changes are "private" and only apply to the logged in user who makes a change to the setting. If the *Private* check box is disabled for a property setting, the property setting made by the SysAdmin applies globally to all users and users cannot change the setting.

4 Click 💾 **Save** to save changes.
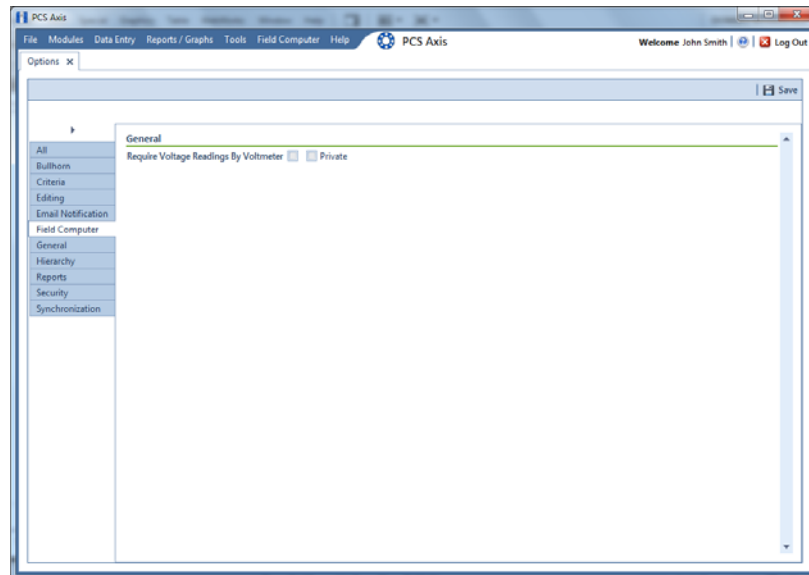
Figure 2-10. Field Computer Options

Setting General Options

To set property settings in the *General* page of *Options*, follow these steps:

1 If the *Options* window is not open, click **Tools** > **Options** to open the window.

2 Click the **General** tab to open the *General* options page (Figure 2-11).
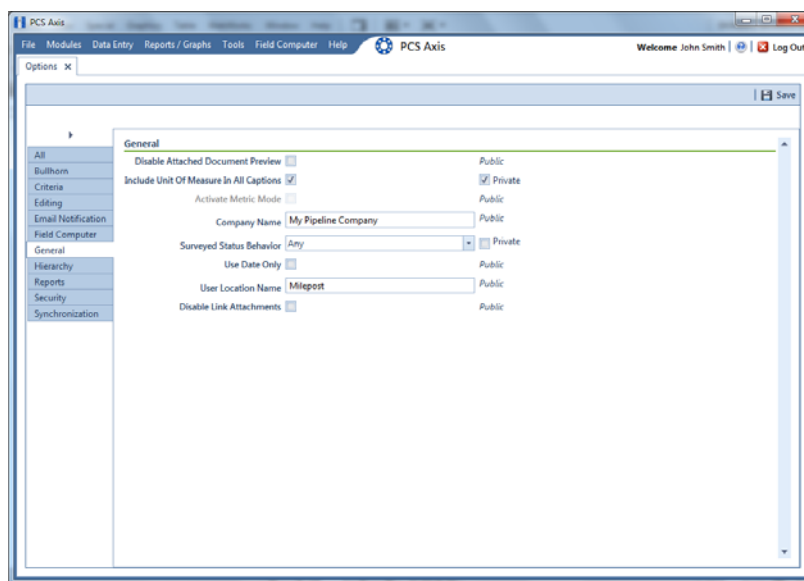
Figure 2-11. General Options

3 Review the information in Table 2-3 (page 35) and then set options as needed in the following manner. When you finish, click 💾 **Save** to save changes.

• To enable an option, click the option's check box to place a check mark inside the check box. Clicking the check box again removes the check mark and disables the option.

• For options with a *Private* check box, enable or disable the check box based on your company's requirements.

When the *Private* check box is enabled, the currently logged in user can change the property setting. Changes are "private" and only apply to the logged in user who makes a change to the setting. If the *Private* check box is disabled for a property setting, the property setting made by the SysAdmin applies globally to all users and users cannot change the setting.

The *Public* caption indicates the property setting applies globally to all users.

Table 2-3. General Options

Option	Description
Disable Attached Document Preview	Applies to documents that have previously been attached to a record in a data grid. When the option is enabled, users are unable to preview an attached document in the *Preview Attached Documents* window. When the option is disabled, users can open an attached document for editing or viewing purposes if the file type of the attached document is associated with a default software program on their local computer. See *Viewing an Attached Document* (page 105) for related information.
Include Unit Of Measure In All Captions	Include the unit of measure in the description of column headings and field captions, such as *Structure P/S (Volts)*.
Activate Metric Mode	Use the metric system of measurements in PCS Axis, such as meters, millimeters, kilometers, and so on. This option must be set before entering pipeline and facility survey data.
Metric Milepost Delimiter	This option displays in the *General* page when using PCS Axis in metric mode. Choose *Period*, *Comma*, or *Plus* in the selection list to identify the delimiter used in the formatting of metric mileposts, such as 0.000 (Period), 0,000 (Comma), or 0+000 (Plus).
Company Name	Provide your company's name. It appears at the top level of the PCS Axis system hierarchy and in the header of all reports.

Table 2-3. General Options (continued)

Option	Description
Survey Status Behavior	Selections for *Survey Status Behavior* effect the inspection field labeled *Surveyed*, which is a PCS Axis calculated field.
	The *Survey Status Behavior* option you select identifies which conditions must be met in order for PCS Axis to determine the facility survey status. When conditions are met, PCS Axis places a check mark in the *Surveyed* check box to indicate the facility has been inspected and a survey reading has been recorded.
	Review the following information and then choose an option in the *Survey Status Behavior* selection list:
	Any: The *Inspection* grid must include at least one inspection field with a survey reading before PCS Axis considers the facility has been surveyed.
	All: All fields related to the inspection field must be populated before PCS Axis considers the facility has been surveyed. Related fields include the *Activate* field for the inspection field in the *Information* grid; a survey reading in the inspection field of the *Inspection* grid; and *Yes* in the property setting for the field labeled *System-Inspection Surveyed* in *Field and UDF Customizations*.
Use Date Only	Only display the date instead of date and time for date fields such as *Inspection Date* in the *Inspection* grid and *Repair Found Date* in the *Maintenance* grid.
User Location Name	Identify the name your company uses to refer to inspection points on a pipeline. For example, type *Milepost*, *Station Number*, or other type of descriptor in the field *User Location Name*.

Table 2-3. General Options (continued)

Option	Description
Disable Link Attachments	*Disable Link Attachments* is a system option that applies when attaching a document to a record in a data grid (*Tools > Options > General*). When the option is enabled, a document can be embedded but not linked to a record. A copy of an embedded document stores in the PCS Axis database and can be accessed by all PCS Axis users. A linked document stores on the local computer of the user who linked the document and can only be accessed by that user.
	If your company prefers that users embed documents instead of linking to documents, enable the option by clicking the check box. A check mark inside the check box indicates the option is enabled. For more information, refer to *Attaching a Document to a Grid Record* (page 250).

Setting Hierarchy Options

Hierarchy options determine how PCS Axis organizes data in the system. For information about how to set up the PCS Axis system hierarchy, refer to the previous sections *Understanding the System Hierarchy* (page 21) and *Setting the System Hierarchy* (page 22).

Setting Report Options

Complete the following steps in the *Reports* page of *Options* to set property settings:

1   If the *Options* window is not open, click **Tools** > **Options** to open the window.

2   Click the **Reports** tab to open the *Reports* option page (Figure 2-12, page 38).

3   If you want to change the default setting used as the caption below the signature line in a *Columnar* report (Surveyor), type a name in the field **Signature Line Caption**.

4 Enable or disable the **Private** check box based on your company's requirements.

When the *Private* check box is enabled, the currently logged in user can change the property setting. Changes are "private" and only apply to the logged in user who makes a change to the setting. If the *Private* check box is disabled for a property setting, the property setting made by the SysAdmin applies globally to all users and users cannot change the setting. For more information see *Understanding Public and Private Property Settings* (page 24).

5 Click 💾 **Save** to save changes.
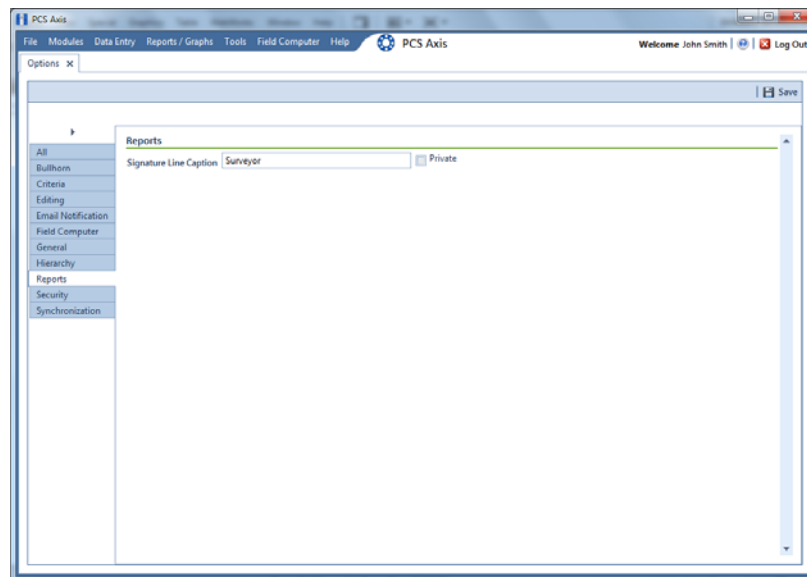
Figure 2-12. Reports

Setting Security Options

Complete the following steps in the *Security* page of *Options* to set property settings:

1 If the *Options* window is not open, click **Tools** > **Options** to open the window.

2 Click the **Security** tab to open the *Security* options page (Figure 2-13).
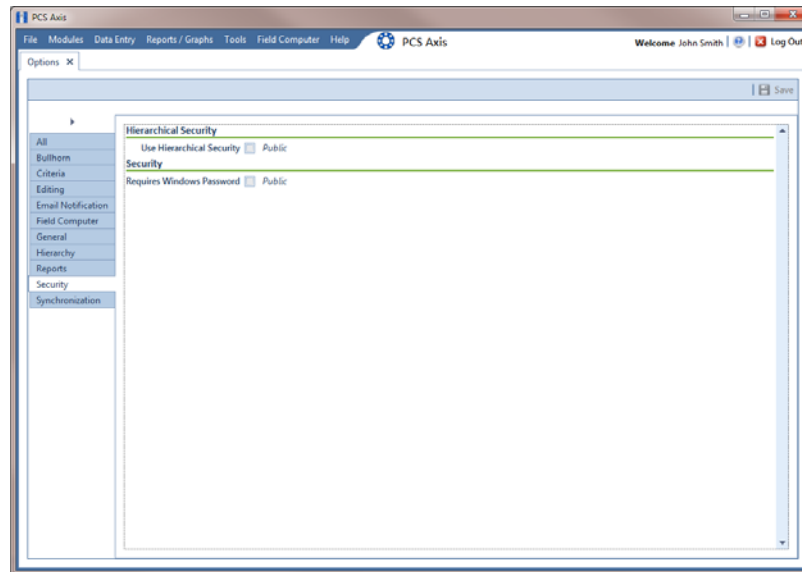
Figure 2-13. Security Options

3 Review the information in Table 2-4 (page 40) and then set options as needed in the following manner. When you finish, click [icon] **Save** to save changes.

• To enable an option, click the option's check box to place a check mark inside the check box. Clicking the check box again removes the check mark and disables the option.

NOTE: The *Public* caption indicates the property setting applies globally to all users. For more information see *Understanding Public and Private Property Settings* (page 24).

Table 2-4. Security Options

Option	Description
Use Hierarchical Security	Enable this option if you plan to set up hierarchy rights in *User Management* for users with *User* and *Read Only* security permissions. Hierarchical security allows you to assign users access rights to certain hierarchy folders in the *Select ROWs* window. When a user does not have access rights to a hierarchy folder, PCS Axis does not display the folder in the *Select ROWs* window.
Requires Windows Password	If you want users to enter their Windows password when logging in to PCS Axis, click the option **Requires Windows Password**. When this option is disabled, the system automatically logs in users with their Windows login credentials (user name and password combination).

Setting Synchronization Options

The following procedure explains how to set property settings for *Synchronization* in system *Options*. If you want to disable *Synchronization*, see *Disabling Synchronization* (page 43).

Complete the following steps:

1   Click **Tools** > **Options** > **Synchronization** to open the synchronization property settings window (Figure 2-14).
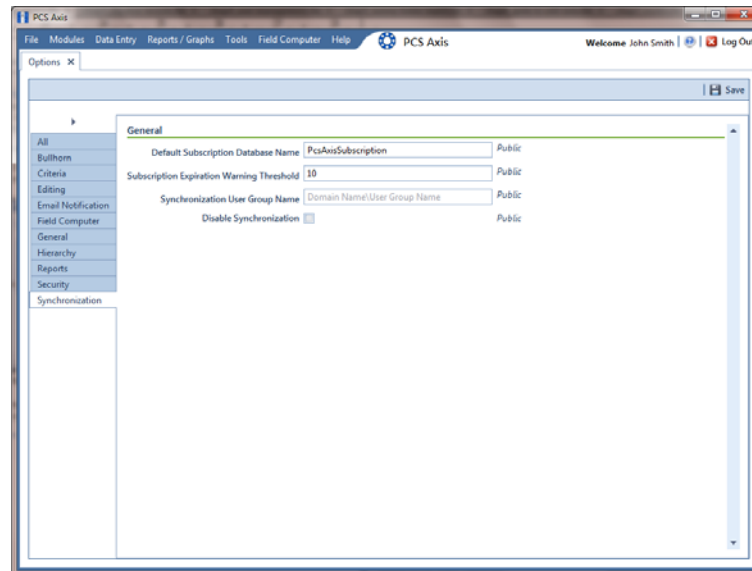
Figure 2-14. Synchronization

2   Review the following information and then set options as needed. When you finish, click ![save icon] **Save** to save changes.

- **Default Subscription Database Name**: This property setting identifies the default name applied to *all* subscription databases when setting up subscribers in *Configure Subscription* (*Tools > Configure Subscription*). If you want to use a different default name, type a name in this field.

   NOTE: You also have the option to use a different name than the default when setting up each subscription database. See *Configuring a Subscription* (page 598) for more information if needed.

- **Subscription Expiration Warning Threshold**: This property setting applies to all subscription databases that have not synchronized with the publication database within the publication retention period.

  The warning threshold is the number of days before a subscription expires that a warning message displays indicating the subscriber must synchronize their subscription database. The default value is 10 days. To change the default setting, type a value in this field.

  IMPORTANT: Publication retention period is also referred to as *subscription expiration period*. A subscription becomes expired (obsolete) when the subscriber does not synchronize their subscription database with the publication database within the publication retention period. An expired subscription *must* be re-initialized at the publisher (network server with publication database).

  The publication retention period is set in the field *Subscription expiration* in the *General* page when using SQL Server Management Studio (SSMS). See *Confirming Share Folder Access* (page 594) for more information.

- **Synchronization User Group Name**: This property setting identifies your company's domain name and the name of the local domain user group set up for PCS Axis on the central database server. If needed, contact your company's IT System Administrator for this information. When entering the *Synchronization User Group Name*, format the information as shown in the following example:

  Example: Domain Name\User Group Name

- **Disabling Synchronization**: See the section titled Disabling Synchronization.

Disabling Synchronization

If your company does not plan to use *Synchronization*, you have the option to disable the feature. When disabled, the *Synchronization* menu command is not included in the *Tools* menu, which prevents creating the publication and subscription databases. You can however activate *Synchronization* at anytime if your company decides later to use the feature.

NOTE: Property settings with a *Public* caption refer to system-specified settings that apply globally to all users and can only be changed by the SysAdmin. For more information see *Understanding Public and Private Property Settings* (page 24).

To disable *Synchronization*, follow these steps:

1 Click **Tools** > **Options** > **Synchronization** to open the synchronization property settings window (Figure 2-15).

2 Click the check box **Disable Synchronization** to place a check mark inside the check box. Then click ![Save icon] **Save**.

The *Synchronization* menu command is no longer available in the *Tools* menu. If you decide later to activate *Synchronization*, clear the check mark by clicking the *Disable Synchronization* check box.
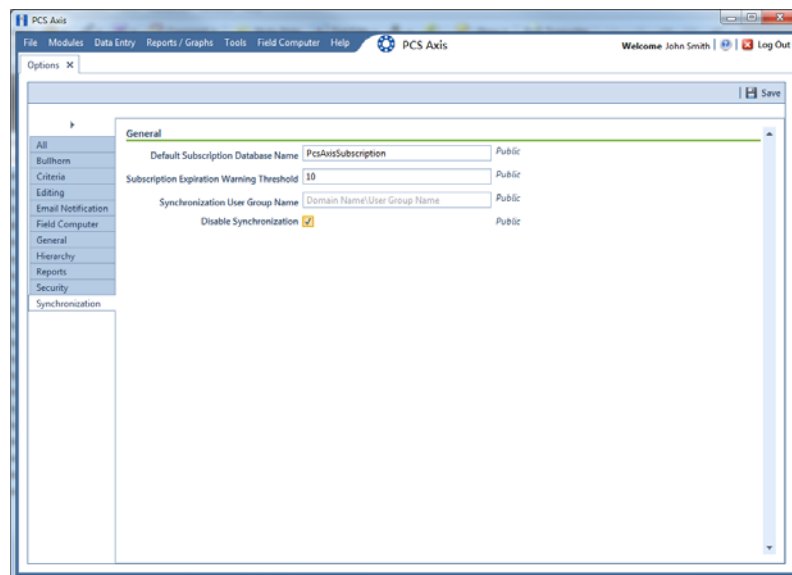
Figure 2-15. Disable Synchronization

Setting Properties in Field and UDF Customizations

Use *Field and UDF Customizations* to modify property settings for certain PCS Axis installed fields and add one or more user-defined fields (UDFs) when PCS Axis does not provide a field for data entry.

Information in this section explains how to use the most common features of *Field and UDF Customizations*. Topics include those in the following list:

- *Navigating Field and UDF Customizations*

- *Editing a PCS Axis Installed Layout Theme* (page 45)

- *Adding a Layout Theme Addition* (page 48)

- *Renaming Field Captions* on page 50

- *Setting Up Range Checking for Inspection Fields* on page 53

- *Adding User Defined Fields* on page 55

Navigating Field and UDF Customizations

The selection tree in the *Properties* panel of *Field and UDF Customizations* includes three main categories labeled *Facility Surveys*, *Continuous Surveys*, and *ROW and Pipeline*. Each of these categories includes related items for selection. For example, items for selection in *Facility Surveys* are based on module and data grid. Items for selection in *Continuous Surveys* are based on data grid and the various continuous survey types.

Selecting an item in the selection tree displays a list of related fields and property settings in the adjacent grid. The grid layout includes columns, rows and cells similar to a spreadsheet. Grid columns at top of the grid identify the names of the various properties you can set up for a field. Each grid row contains property settings for a specific field, such as *Casing Status* shown in the following figure (Figure 2-16, page 45). When a property setting is shaded gray or includes the label *N/A* (not applicable), this indicates the setting cannot be modified.

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.

1   Selection tree.

2   List of fields.

3   Grid column labeled
    with the name of the
    property setting.

4   Grid row with field
    property settings.
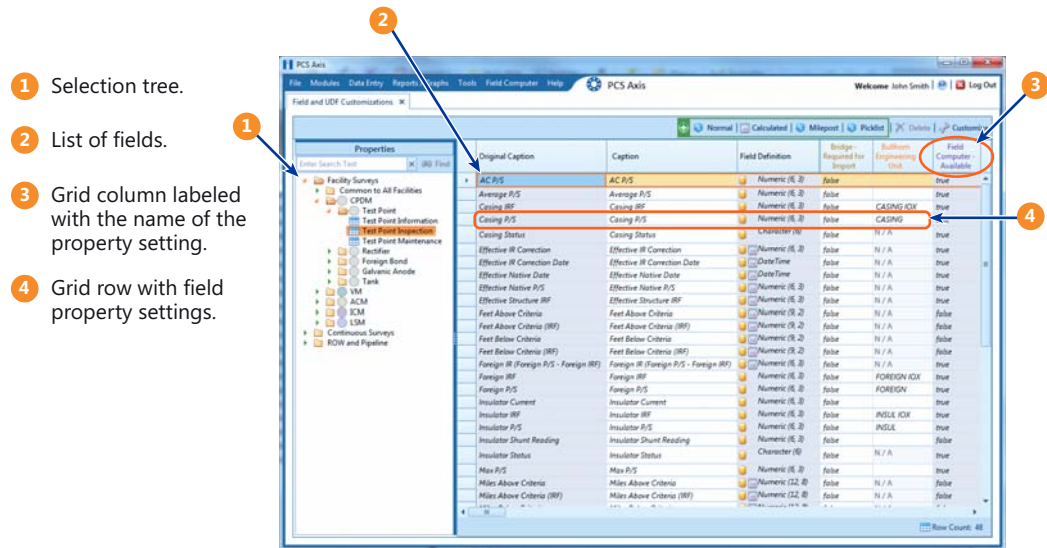
Figure 2-16. Field and UDF Customizations

Editing a PCS Axis Installed Layout Theme

A layout theme is a named set of fields that are present in the grid when working in *Field and UDF Customizations*. Two types of layout themes are available for use. They include *installed* and *addition* layout themes. An installed layout theme is one that has been installed during the PCS Axis software installation, such as *[PCS] All Fields*. A layout theme addition is one that you create.

The procedure in this section explains how to complete the following tasks to edit a PCS Axis installed layout theme:

- add and remove fields in an installed layout theme

- revert an installed layout theme

- save changes as a new baseline installed layout theme

To edit a PCS Axis installed layout theme, follow these steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-17).
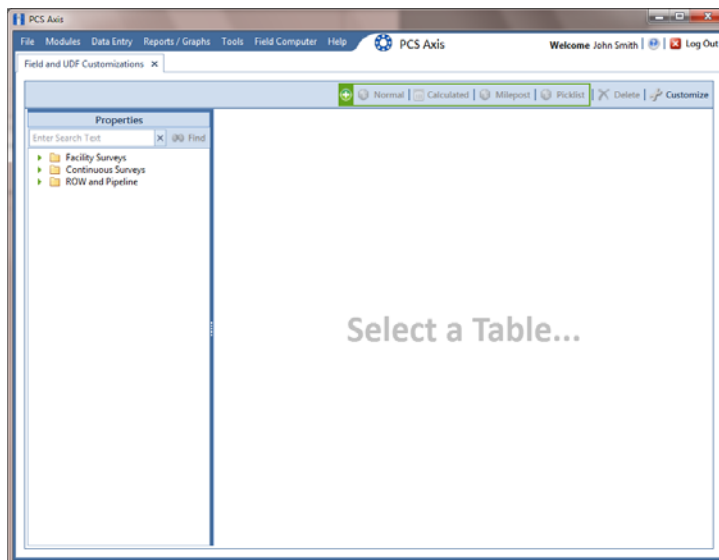
Figure 2-17. Field and UDF Customizations

2 Click **Customize** to open the *Column Selections* dialog box (Figure 2-18).

3 Click the down arrow in **Select Layout Theme** and select a theme in the selection list, such as **[PCS] All Fields**.

NOTE: By default all fields are included in the *[PCS] All Fields* layout theme. If you want to clear all fields listed in the right pane and subsequently remove them from the layout theme, click **Toggle Select**. Clicking the button again moves all fields to the right pane and adds them in the layout theme.

---

4 To remove one or more fields in the layout theme, complete one of the following steps (Figure 2-18, page 47):

a Select a field in the right pane and then click the bottom arrow button to move the field to the left pane.

b Double-click a field in the right pane to move it to the left pane.

> **NOTE:** The grid layout theme includes all fields listed in the right pane of the *Column Selections* dialog box.
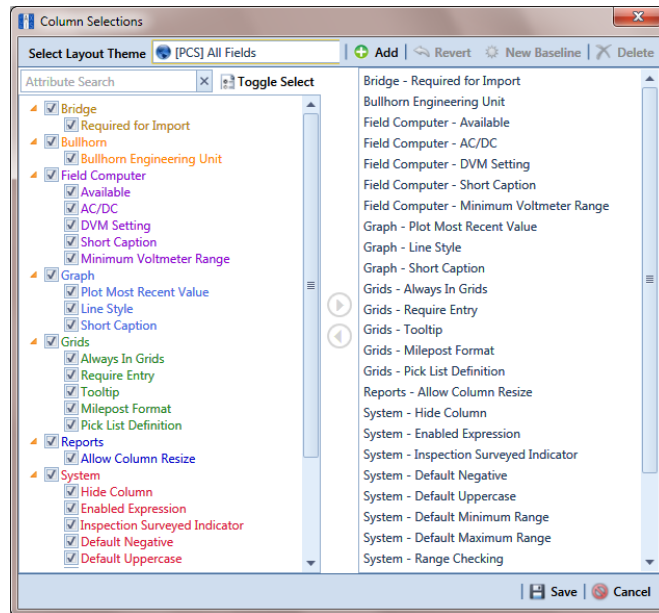
Figure 2-18. Column Selections

5   Click ![save] **Save** to save changes.

6   To revert an installed theme and restore settings prior to editing:

-   Click ![revert] **Revert**, then click **Yes** when the *Confirm Revert* message displays.

7   To save current changes as new baseline settings, click ![baseline] **New Baseline**. When future changes are made and then reverted, PCS Axis restores the theme with baseline settings.

Adding a Layout Theme Addition

Information in this section describes how to add a new grid layout theme in *Field and Customizations*. Adding a layout theme allows you to choose which fields to include in the grid and then save the new layout as a theme for later use.

To add a grid layout theme, follow these steps:

1   Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19).
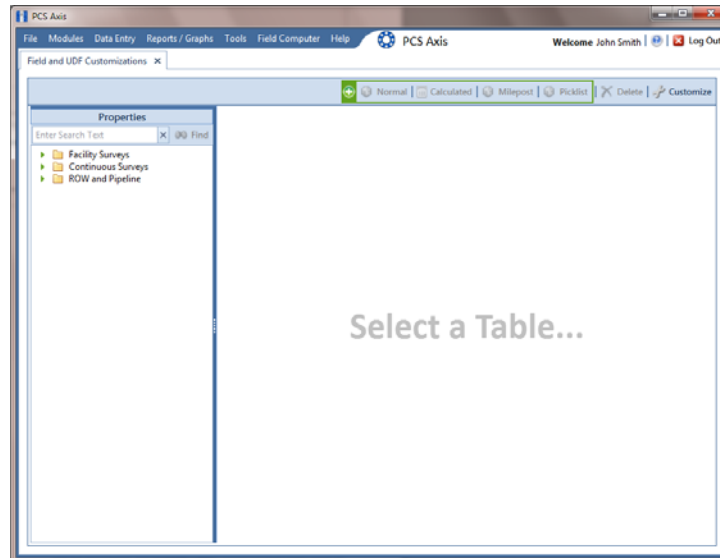
Figure 2-19. Field and UDF Customizations

2   Click ⚙ **Customize** to open the *Column Selections* dialog box (Figure 2-20).
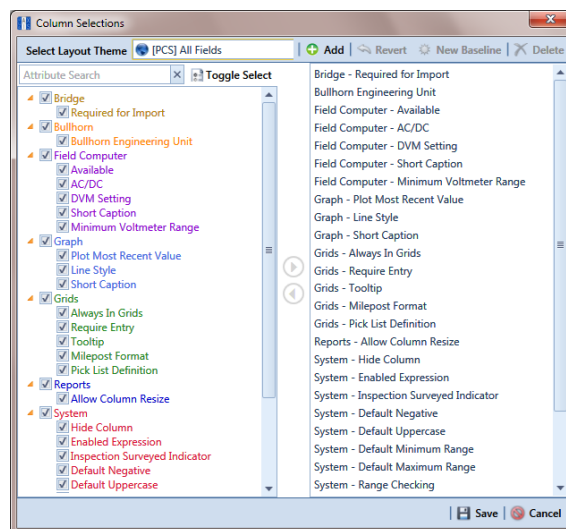
Figure 2-20. Column Selections

3 Click ⊕ **Add** to open the *New Layout Theme* dialog box (Figure 2-21).
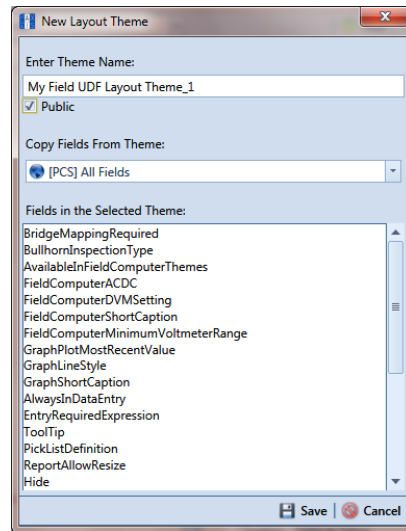
Figure 2-21. New Layout Theme

4 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

---

5 Select a layout theme with fields you want to copy to the new layout theme. Click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

6 Click 🖫 **Save** to save changes and return to the *Column Selections* dialog box.

7 If you want to clear all fields listed in the right pane of the dialog box and subsequently remove them from the grid, click ▦ **Toggle Select**. Clicking the button again moves all fields to the right pane and adds them in the grid.

8 Choose which fields to include in the layout theme. Select a field in the left pane and then click the top arrow button ▶ to move the field to the right pane. Repeat this step as needed (Figure 2-22, page 50).

9 If you want to remove a field in the layout theme, select a field in the right pane and then click the bottom arrow button ◀ to move the field to the left pane.

> **NOTE:** The grid layout theme includes all fields listed in the right pane of the *Column Selections* dialog box.

---

10 Click ![save icon] **Save** to save changes and return to the *Field and UDF Customizations* grid.
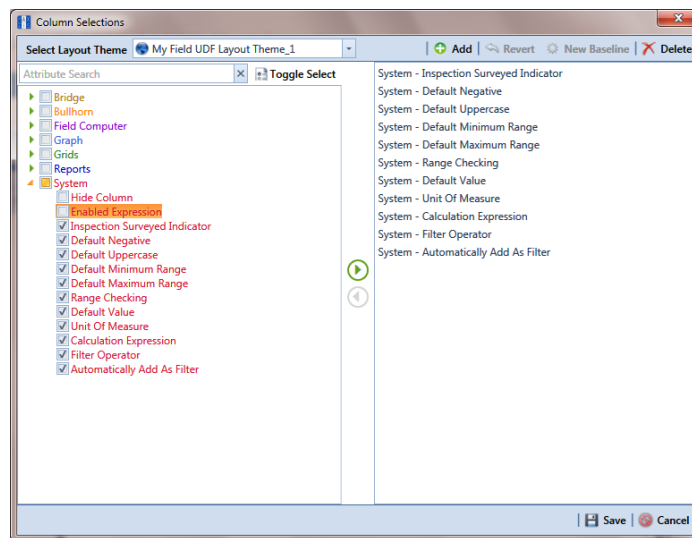
Figure 2-22. Column Selections

Renaming Field Captions

You can rename many of the original PCS Axis field captions with a caption that is more familiar to users in your company. The following procedure explains how to rename field captions. The information is intended for users with *SysAdmin* user permissions.

Complete the following steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2 If you want to select a grid layout theme, follow these steps:

a Click ![customize icon] **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

b Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

c Click ![save icon] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3 Select an item in the *Properties* panel to display related fields and property settings in the grid.

For example, double-click **Facility Surveys** > **Common to All Facilities** > **ROW and Pipeline**. The grid displays related fields and property settings for *ROW and Pipeline* (Figure 2-23).

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.
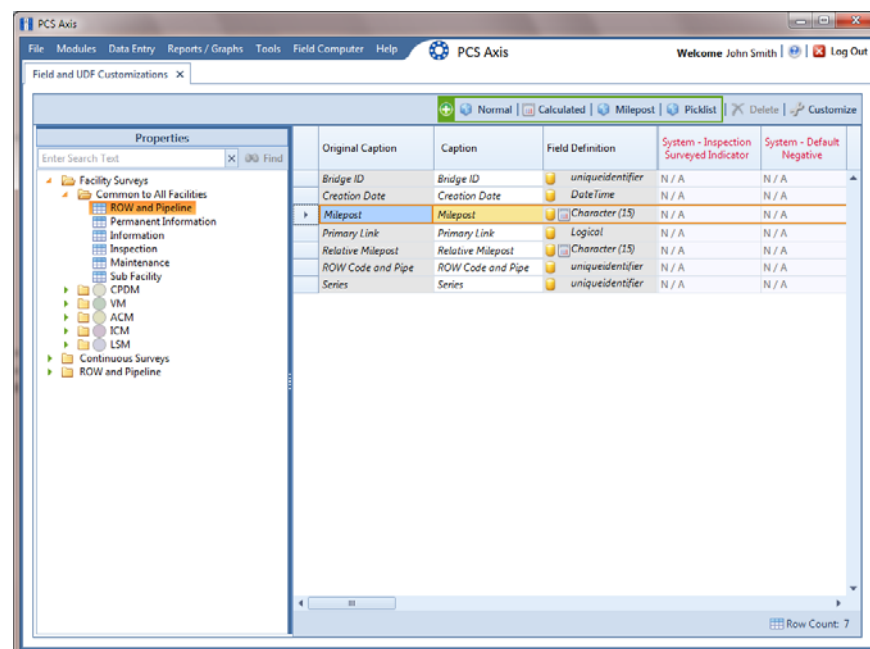
Figure 2-23. Field and UDF Customizations

4 To rename an original field caption listed in the *Original Caption* grid column:

•   Type a name in the adjacent field listed in the *Caption* grid column.

For example, to rename *Milepost*, type a new description in the adjacent field, such as *Station*. Bold text indicates a user-modified field as shown in Figure 2-24, page 52.
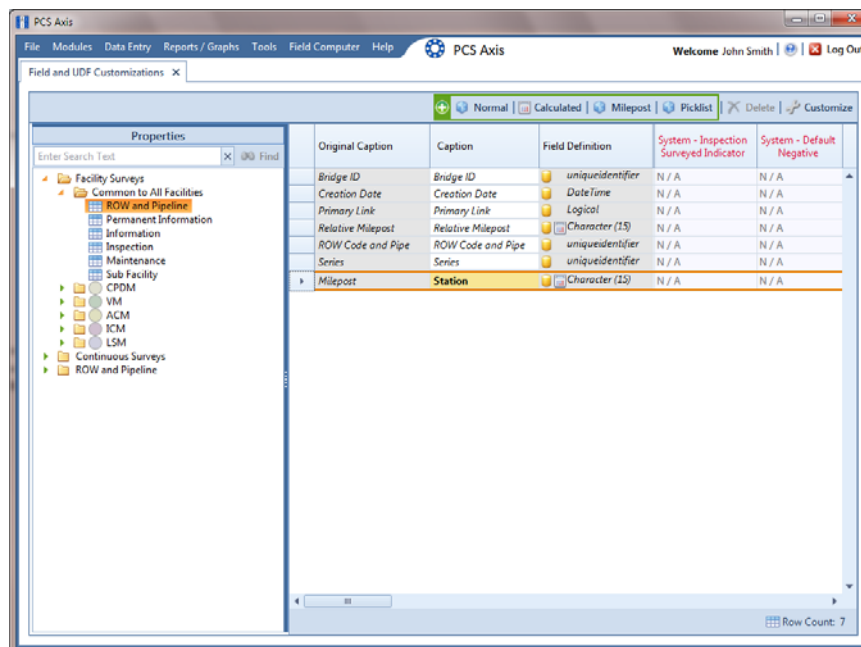
Figure 2-24. Field and UDF Customizations

Returning a Field Caption to its Original Name

To return a field caption to its original name, follow these steps:

1 If the *Field and UDF Customizations* window is not open, click **Tools** > **Field and UDF Customizations** (Figure 2-19, page 48).

2 Select an item in the Properties panel with the field caption you want to return to it's original name.

3 Highlight the name in the *Caption* field and then press the **Delete** key on the computer keyboard.

NOTE: If the cursor is still in the *Caption* field after typing a a new name, you can also press **Ctrl**+**Z** to undo changes and display the original field caption.

Setting Up Range Checking for Inspection Fields

Range checking is the acceptable range of values allowed for data entry in an inspection field.

Setting up range checking allows PCS Axis to alert the user when an incorrect value has been entered in an inspection field. For example, if the acceptable range of values is in a range of -10 to 0 and the user enters a value that is outside this range, a warning message displays allowing the user to correct the invalid entry. Data entry errors are less likely to occur when inspection fields are set up with range checking.

Settings apply system-wide when range checking is set up for an inspection field in *Field and UDF Customizations*. You can also set up range checking at the facility level using the minimum/maximum fields available in the *Information* and *Inspections* data entry grid. Range checking at the facility level overrides range checking at the system level.

Complete the following steps to set up range checking for an inspection field:

1   Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2   If you want to select a grid layout theme, follow these steps:

   a   Click **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

   b   Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

   c   Click **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3   Select an item in the *Properties* panel that includes the inspection field you want to set up for range checking.

   For example, double-click **Facility Surveys** > **CPDM** > **Test Point > Test Point Inspection**. The grid displays related fields and property settings for the *Test Point Inspection* data entry grid (Figure 2-25, page 54).

4   Select the inspection field you want to set up for range checking. For example, select *Casing P/S* as shown in the following figure.

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.
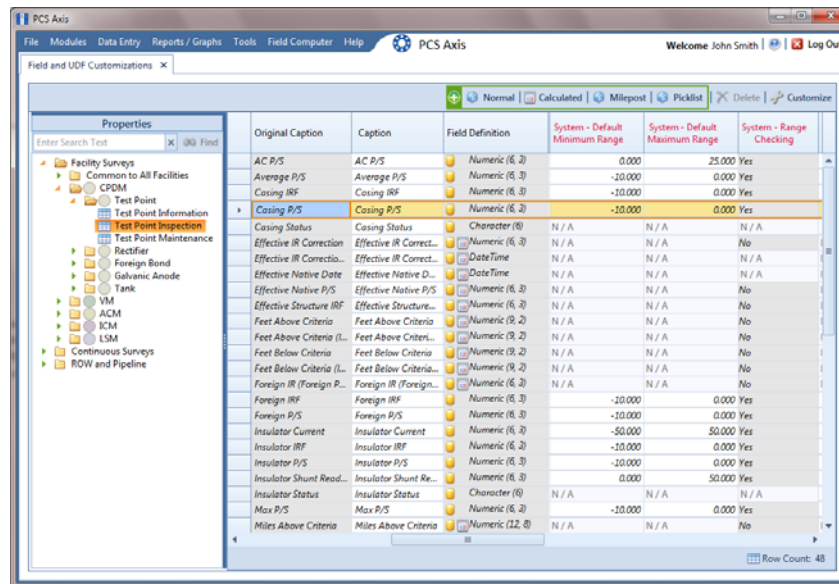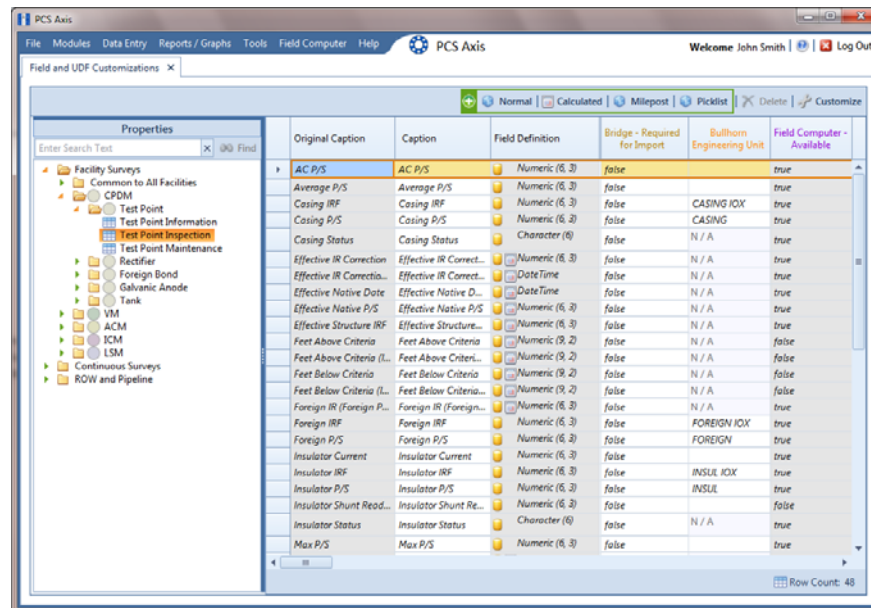

Figure 2-25. Field and UDF Customizations

5 Locate the grid columns labeled *System–Default Minimum Range* and *System–Default Maximum Range.*

6 Type a minimum range value in the field labeled **System–Default Minimum Range** for the selected inspection field.

7 Type a maximum range in the field labeled **System–Default Maximum Range** field for the selected inspection field.

8 If you want to set up another inspection field with range checking, repeat steps 3 through 7. When you finish, click the ⬚ close icon to close the *Field and UDF Customizations* window.

Adding User Defined Fields

A user defined field (UDF) is a field you create when PCS Axis does not provide a field for data entry. The types of UDFs available for use include those in the following list:

- *Normal:* Set up a normal UDF when you want to add any of the following types of fields: character, numeric, date, logical, memo, or date/time field.

- *Calculated:* Set up a calculated UDF when you want PCS Axis to perform calculations based on expressions you set up for the UDF.

- *Milepost:* Set up a milepost UDF when you want to assign a different milepost format to one or more facility types on a pipeline.

- *Picklist:* Set up a picklist UDF when you want to limit data entry to a list of valid choices in a selection list.

Based on the type of UDF you want to create, continue with one of the following procedures:

- *Adding a Normal User Defined Field* (page 56)

- *Adding a Calculated User Defined Field* (page 58)

- *Adding a Milepost User Defined Field* (page 61)

- *Adding a Picklist User Defined Field* (page 63)

- *Setting Up a Picklist for a Data Entry Field* (page 66)

Adding a Normal User Defined Field

To add a *Normal* user defined field (UDF), follow these steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2 If you want to select a grid layout theme, follow these steps:

a Click [icon] **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

b Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

c Click [icon] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3 Select an item in the *Properties* panel that includes the data entry grid you want to add a UDF. For example, double-click **Facility Surveys** > **CPDM** > **Test Point >** **Test Point Inspection** to display a grid with fields and property settings related to the *Test Point Inspection* data entry grid (Figure 2-26).

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.
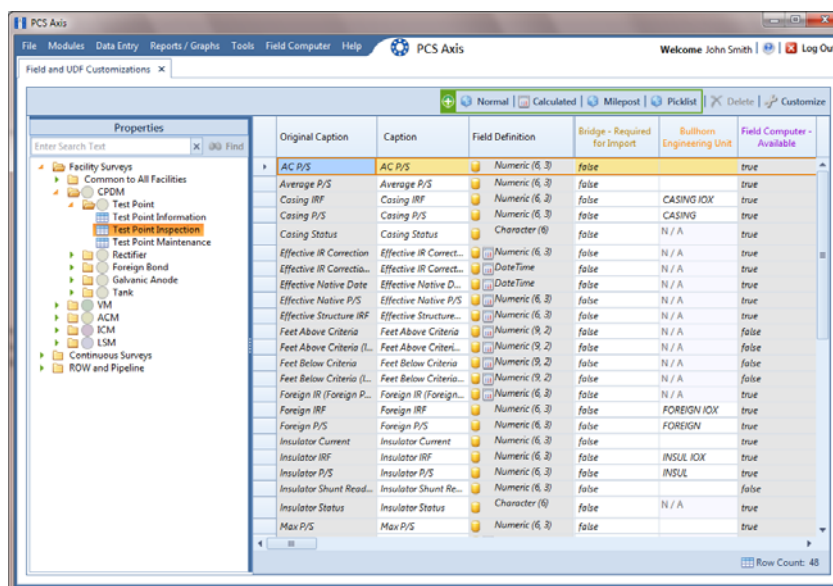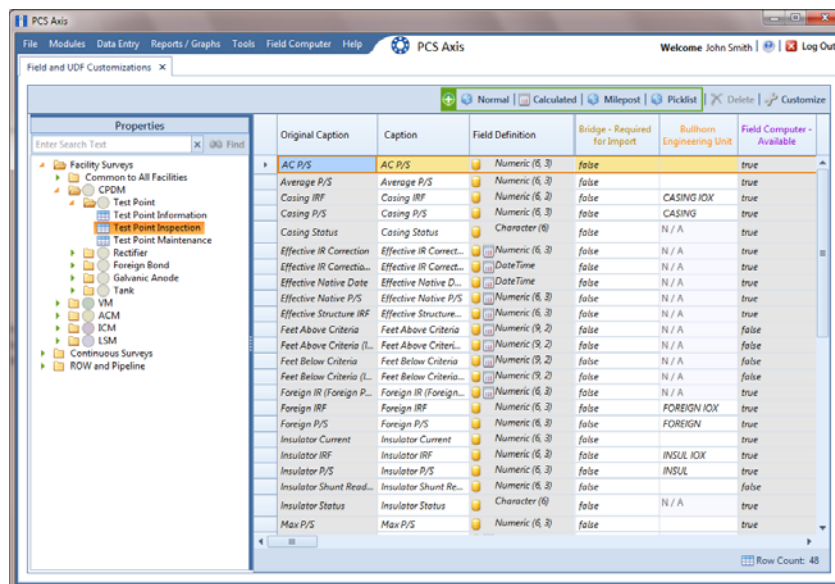

Figure 2-26. Field and UDF Customizations

4   Click ![Normal icon] **Normal** in the toolbar to open the *Add Normal Field* dialog box (Figure 2-27).

5   Type a unique name for the UDF in the **Caption** field.
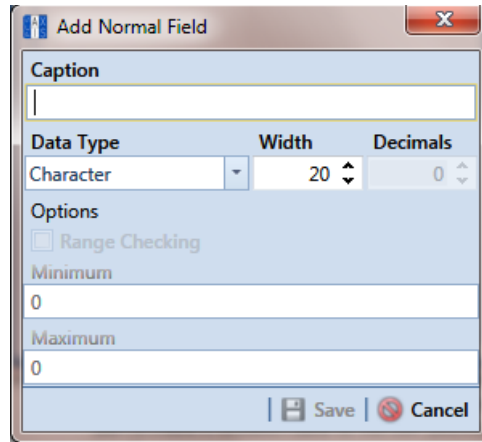
Figure 2-27. Add Normal Field

6   Choose the type of field you want to add. Click the down arrow in the **Data Type** field and select one of the following options:

- *Character*: Supports characters such as A, B, and C. This data type can be used for both character and numeric data. If you plan to use mixed data, such as a number and a character or dash, define the data type as a character. If you plan to create a validation table for the UDF, you must use the *Character* data type.

- *Numeric*: Supports values such as 1, 2, and 3 and numeric values using the following format: 999.999 and –99.999.

- *Date*: Supports a date format using MM/DD/YYYY (month, day, year), such as 11/12/2012.

- *Logical*: Supports a yes/no selection in the form of a check box to enable or disable an option in the data entry grid.

- *Memo*: Supports more than 255 characters and carriage returns.

- *DateTime*: Supports a date and time format using HH:MM:SS (hours, minutes, seconds) and MM/DD/YYYY (month, day, year). Such as 11:15:45, 12/11/2012.

- *Integer*: Supports a positive or negative whole number, or zero. Such as -2, 4, 123, and 3,245.

7   If you selected the *Character* or *Numeric* data type earlier, set the length of the field by typing the number of characters required for the UDF in the **Width** field.

Clicking the up arrow in the *Width* field increases the value; clicking the down arrow decreases the value.

8   If you selected the *Numeric* data type earlier, set the number of decimal places required for the UDF by typing a value in the **Decimals** field.

9   If you selected the *Numeric* data type earlier and want to set up range checking for the UDF, click the **Range Checking** option and then type a minimum and maximum value in the respective fields.

NOTE: Range checking is the acceptable range of values allowed for data entry in a field. Setting up range checking allows PCS Axis to alert the user when an incorrect value has been entered.

---

10   Click ![save icon] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

The UDF is now available for adding in a data entry grid. If needed, see *Working with Themes and Filter Groups* (page 232) for information about how to add fields in a data entry grid.

Adding a Calculated User Defined Field

The procedure in this section includes an example that describes how to define an expression for a user defined field (UDF) labeled *Shorted P/S*. In the example, if *Casing P/S* is below protection criteria (less than or more negative than –0.8495), PCS Axis enables *Shorted P/S* for data entry in the grid. The field is not enabled for data entry when *Casing P/S* meets protection criteria.

NOTE: An expression is a logical statement with specific conditions that must be met before PCS Axis enables the field for data entry. Logical statements are either "true" or "false" based on the conditions defined in the expression for the UDF.

To add a *Calculated* UDF, follow these steps:

1   Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2   If you want to select a grid layout theme, follow these steps:

    a   Click ⚙ **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

    b   Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

    c   Click 💾 **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3   Select an item in the *Properties* panel that includes the data entry grid you want to add a UDF. For example, double-click **Facility Surveys** > **CPDM** > **Test Point > Test Point Inspection** to display a grid with fields and property settings related to the *Test Point Inspection* data entry grid (Figure 2-28).

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.

Figure 2-28. Field and UDF Customizations

4 Click 🔳 **Calculated** in the toolbar to open the *Add Calculated Expression* dialog box. If you want to work with the expression editor in advanced mode, click ➡ **Switch To Advanced Mode** (Figure 2-29).
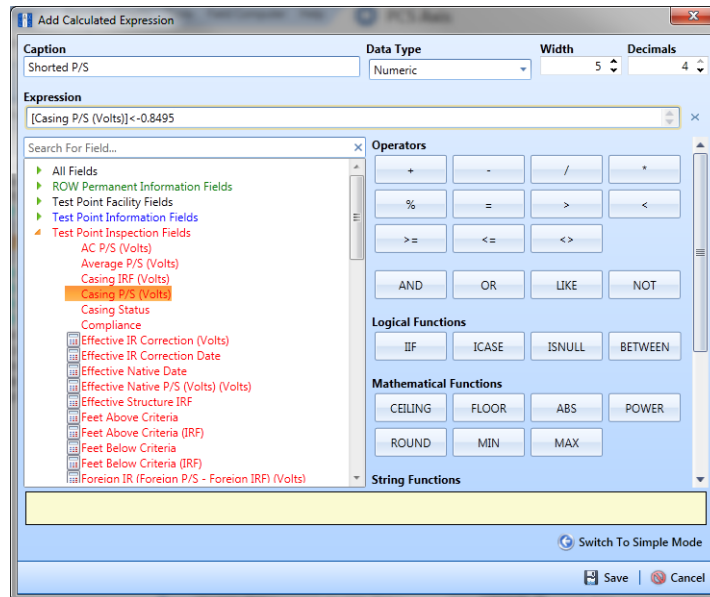
Figure 2-29. Add Calculated Expression (Advanced Mode)

5 Type a unique name for the UDF in the **Caption** field. Then click the down arrow in the **Data Type** field and select a data type in the selection list, such as *Numeric*.

6 If you selected the *Character* or *Numeric* data type earlier, set the length of the field by typing the number of characters required for the UDF in the **Width** field. Clicking the up arrow in the *Width* field increases the value; clicking the down arrow decreases the value.

7 If you selected the *Numeric* data type earlier, set the number of decimal places required for the UDF by typing a value in the **Decimals** field.

8 Click a toggle button ▶ to open a field category, such as *Test Point Inspection Fields* shown in Figure 2-28, page 59. Double-click a field in the list of fields to add it in the *Expression* field. Define the UDF using the operator and functions buttons.

NOTE: Hovering the mouse over a function or operation button displays a tooltip with a description of the button. A description also displays below the folder tree.

9 Click 💾 **Save** to close the dialog box and return to the *Field and UDF Customizations* window. The UDF is now available for adding in a data entry grid. If needed, see *Working with Themes and Filter Groups* (page 232) for information about how to add fields in a data entry grid.

Adding a Milepost User Defined Field

Set up a *Milepost* user defined field (UDF) when you want to assign a different milepost format to a facility type on a pipeline. For example, if coupons require a different milepost format than other facility types on a pipeline, set up a milepost UDF and then assign the UDF at the facility type level in the *Facility Location ID Formats* mini-grid of *Edit ROW Detail* (Data Entry > Edit ROW Detail).

To add a *Milepost* UDF, follow these steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2 If you want to select a grid layout theme, follow these steps:

a Click ⚒ **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

b Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

c Click 💾 **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3 Select an item in the *Properties* panel that includes the data entry grid you want to add a UDF.

For example, double-click **Facility Surveys** > **Common to All Facilities** > **ROW and Pipeline** to display a grid with fields and property settings related to the *Edit ROW Detail* grid (Figure 2-30, page 62).

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.
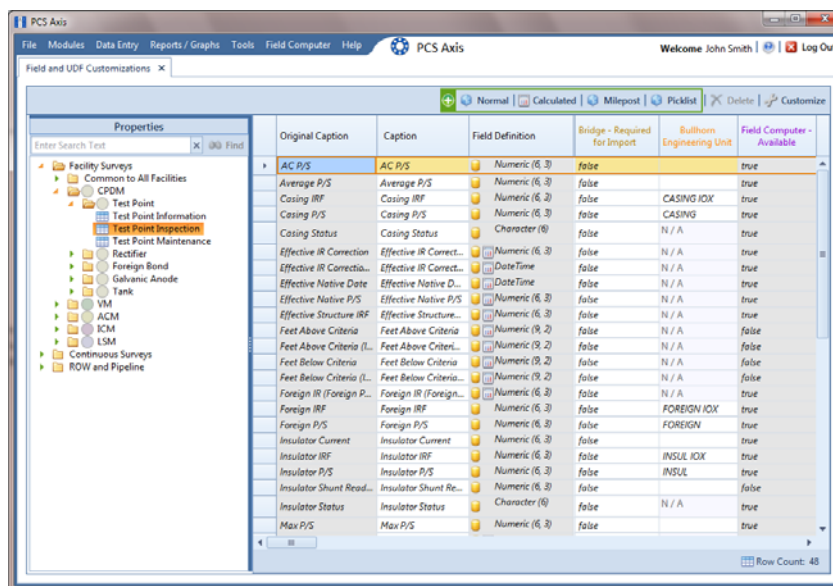
Figure 2-30. Field and UDF Customizations

4 Click ![icon] **Milepost** in the toolbar to open the *Add Milepost Field* dialog box (Figure 2-31).

5 Type a unique name for the UDF in the **Caption** field.

6 Click the down arrow in the **Milepost Formats** field and select a milepost format in the selection list.

7 Click ![icon] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

The UDF is now available for selection in the *Facility Location ID Formats* mini-grid of *Edit ROW Detail*. If needed, see *Working with Pipeline Records* (page 87) for more information.
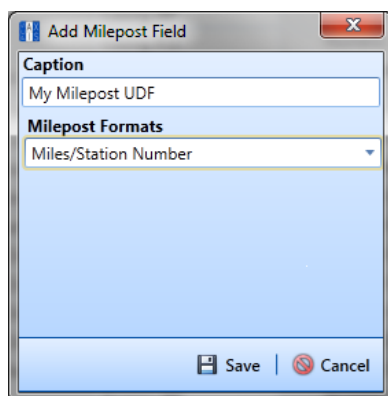
Figure 2-31. Add Milepost Field

Adding a Picklist User Defined Field

A picklist is a list of acceptable choices for a field in a data entry grid that a user selects from when entering data. This feature improves data consistency and accuracy by allowing users to select from a list of predefined choices instead entering data manually.

A picklist contains a list of valid items for selection, a description of each item, and a value assigned to each item that determines the sorting order of items in the list.

NOTE: Picklists in PCS Axis are similar to validation tables in PCS version 7 and earlier.

To add a *Picklist* user defined field (UDF), follow these steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2 If you want to select a grid layout theme, follow these steps:

    a Click **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

    b Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

    c Click **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3 Select an item in the *Properties* panel that includes the data entry grid you want to add a UDF.

For example, double-click **Facility Surveys** > **CPDM** > **Test Point > Test Point Inspection** to display a grid with fields and property settings related to the *Test Point Inspection* data entry grid (Figure 2-32, page 64).

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.

Figure 2-32. Field and UDF Customizations

4   Click 🔷 **Picklist** in the toolbar to open the *Customize Picklist* dialog box
(Figure 2-33).

5   Type a unique name for the UDF in the **Caption** field.

6   Set the length of the field by typing the number of characters required for the UDF
in the **Width** field.

Clicking the up arrow in the *Width* field increases the value; clicking the down
arrow decreases the value.
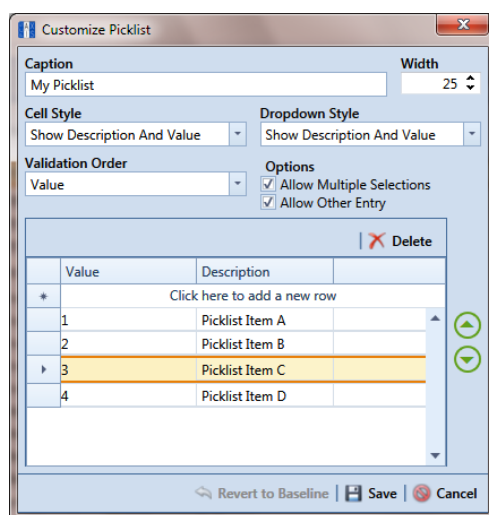
Figure 2-33. Customize Picklist

7 Choose an option for displaying the UDF in data entry grids. Click the down arrow in the field **Cell Style** and select one of the following options in the selection list:

- *Show Value*: Displays the assigned value of the selected item in the picklist.

- *Show Description*: Displays the description of the selected item in the picklist.

- *Show Value And Description*: Displays the assigned value and description of the selected item in the picklist.

- *Show Description And Value*: Displays the description and assigned value of the selected item in the picklist.

8 Choose an option for displaying items in the picklist. Click the down arrow in the field **Dropdown Style** and select one of the following options in the selection list:

- *Show Value*: Displays only the assigned value of items in the picklist.

- *Show Description*: Displays only the description of items in the picklist.

- *Show Value And Description*: Displays the assigned value and description of items in the picklist.

- *Show Description And Value*: Displays the description and assigned value of items in the picklist.

9 Select an option for sorting items in the picklist. Click the down arrow in the field **Validation Order** and select one of the following options in the selection list:

- *Value*: Sorts items numerically based on values assigned to items in the picklist.

- *Description*: Sorts items alphanumerically based on the description of items in the picklist.

- *Define*: Sorts items based on the order of items listed in the *Customize Picklist* dialog box.

10 If you want the UDF to support multiple selections in the picklist, click the check box **Allow Multiple Selections**.

11 If you want the UDF to allow data entry of other data in addition to picklist items for selection, click the check box **Allow Other Entry**.

12 To add picklist items for selection, follow these steps:

a Click the message *Click here to add new row* to add an empty row of fields for data entry (Figure 2-33, page 64).

b Type a description for the picklist item in the **Description** field. Then type a value in the **Value** field to associate a code number with the picklist item.

c Press **Enter** on the computer keyboard to add another empty row of fields for data entry.

d Type a value in the **Value** field and then press the **Tab** key on the computer keyboard to advance the cursor to the **Description** field. Type a description for the picklist item.

e Repeat steps "c" and "d" as needed until all picklist items have been added. When you finish, click ![save] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

The UDF is now available for adding in a data entry grid. If needed, see *Working with Themes and Filter Groups* (page 232) for information about how to add fields in a data entry grid.

Setting Up a Picklist for a Data Entry Field

A picklist is a list of acceptable choices for a field in a data entry grid that a user selects from when entering data. This feature improves data consistency and accuracy by allowing users to select from a list of predefined choices instead entering data manually.

For example, setting up a picklist with valid repair codes or status conditions allows users to choose from a list of valid items instead of typing information to describe the repair status or condition of a facility test station or pipeline.

A picklist contains a list of valid items for selection, a description of each item, and a value assigned to each item that determines the sorting order of items in the list.

NOTE: Picklists in the current version of PCS Axis are similar to validation tables in previous versions of PCS Axis.

To set up a picklist for a data entry field, follow these steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 2-19, page 48).

2 If you want to select a grid layout theme, follow these steps:

a Click ![icon] **Customize** to open the *Column Selections* dialog box (Figure 2-22, page 50).

b Click the down arrow in **Select a Layout Theme** and select a theme in the selection list.

c Click ![icon] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

3 Select an item in the *Properties* panel that includes the data entry field you want to set up as a picklist.

For example, double-click **Facility Surveys** > **Common to All Facilities** > **Maintenance** to display a grid with fields and property settings related to all *Maintenance* data entry grids (Figure 2-34).

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.

4 Using the horizontal scroll bar near the bottom of the grid, display the grid column labeled *Grids–Picklist Definition*. Then select the data entry field you want to set up as a picklist. For example, select *Repair Priority* as shown in the following example.
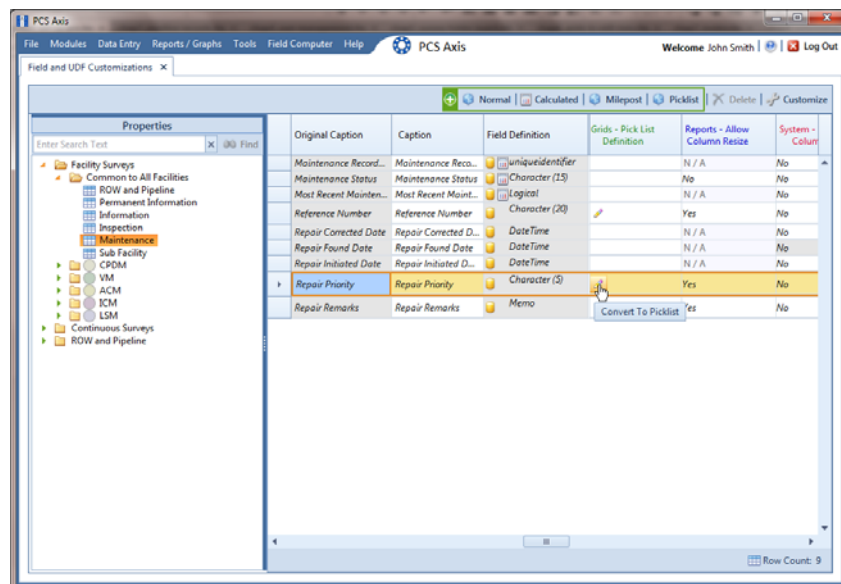
Figure 2-34. Field and UDF Customizations

5 Convert the selected data entry field to a picklist field. Click the edit icon 🖊 in the *Grids-Picklist Definition* field for the data entry field selected earlier, such as *Repair Priority* (Figure 2-34, page 67).

When a data entry grid includes existing data for the data entry field you convert to a picklist, PCS Axis displays a message to notify you of the number of affected records. You can either click *Yes* in the message to continue converting the field to a picklist or *No* to cancel the operation. Selecting *Yes* allows PCS Axis to use existing data as valid items for selection in the picklist. Using the merge button 🟢 allows you to edit these selection items as needed (Figure 2-35).

If you decide later you want to convert the picklist back to a normal data entry field, click the revert button 🔙 and then click *Yes* when a confirmation message displays. PCS Axis then re-populates affected fields in the data entry grids with unaltered data that was available prior to the field conversion.
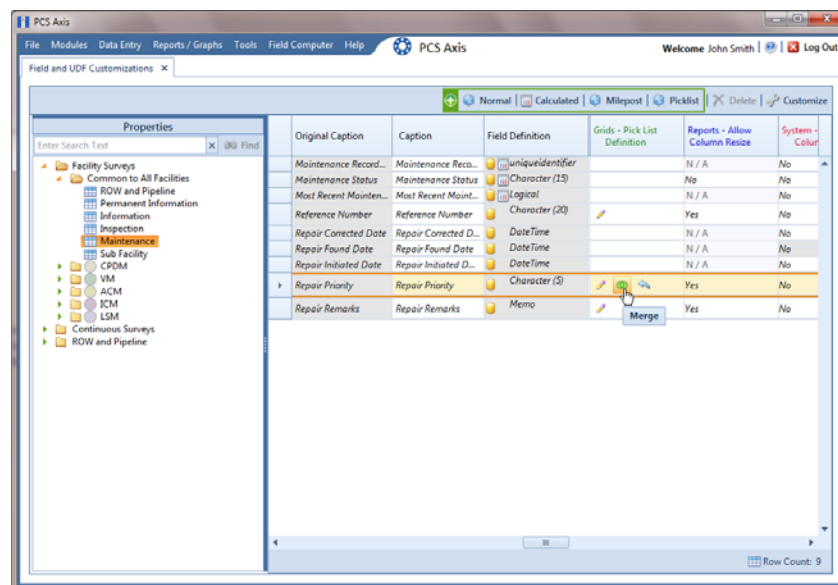
Figure 2-35. Field and UDF Customizations

6 Click the edit icon 🖊 again for the data entry field converted earlier to a picklist to open the *Customize Picklist* dialog box (Figure 2-36).
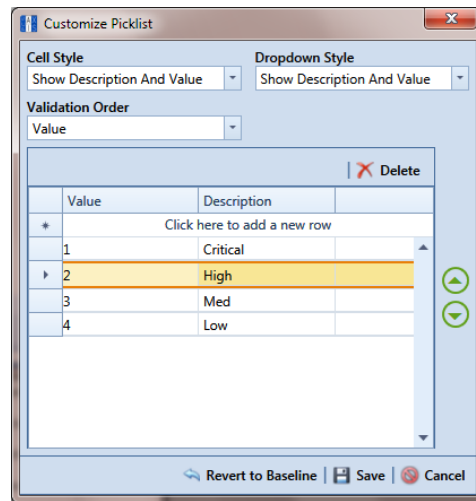
Figure 2-36. Customize Picklist

7 Choose an option for displaying the UDF in data entry grids. Click the down arrow in the field **Cell Style** and select one of the following options in the selection list:

- *Show Value*: Displays the assigned value of the selected item in the picklist.

- *Show Description*: Displays the description of the selected item in the picklist.

- *Show Value And Description*: Displays the assigned value and description of the selected item in the picklist.

- *Show Description And Value*: Displays the description and assigned value of the selected item in the picklist.

8 Choose an option for displaying items in the picklist. Click the down arrow in the field **Dropdown Style** and select one of the following options in the selection list:

- *Show Value*: Displays only the assigned value of items in the picklist.

- *Show Description*: Displays only the description of items in the picklist.

- *Show Value And Description*: Displays the assigned value and description of items in the picklist.

- *Show Description And Value*: Displays the description and assigned value of items in the picklist.

9 Select an option for sorting items in the picklist. Click the down arrow in the field **Validation Order** and select one of the following options in the selection list:

- *Value*: Sorts items numerically based on values assigned to items in the picklist.

- *Description*: Sorts items alphanumerically based on the description of items in the picklist.

- *Define*: Sorts items based on the order of items listed in the *Customize Picklist* dialog box.

10 To add picklist items for selection, follow these steps:

a Click the message *Click here to add new row* to add an empty row of fields for data entry (Figure 2-36, page 69).

b Type a description for the picklist item in the **Description** field. Then type a value in the **Value** field to associate a code number with the picklist item.

c Press **Enter** on the computer keyboard to add another empty row of fields for data entry.

d Type a value in the **Value** field and then press the **Tab** key on the computer keyboard to advance the cursor to the **Description** field. Type a description for the picklist item.

e Repeat steps "c" and "d" as needed until all picklist items have been added. When you finish, click ![save icon] **Save** to close the dialog box and return to the *Field and UDF Customizations* window.

The UDF is now available for adding in a data entry grid. If needed, see *Working with Themes and Filter Groups* (page 232) for information about how to add fields in a data entry grid.

Using an Application Scheme

An application scheme is a group of named property settings that change the overall appearance of the PCS Axis interface. Currently PCS Axis only provides a default application scheme which cannot be customized (*Tools > Application Schemes*). Future software enhancements will allow you to create application schemes for customizing the PCS Axis interface, such as choosing a different color scheme.

Choosing a Printer for PCS Axis

PCS Axis uses your computer's default printer to print reports and graphs. If a color printer is available, you may want to print graphs on a color printer. If you need to add or set up a local or network printer, contact your company's network administrator or IT department for assistance.

Working with Pipeline Series

Information in this section explains how to work with *Pipeline Series*. Topics include those in the following list:

- *About Pipeline Series*

- *Adding and Applying Pipeline Series* (page 73)

About Pipeline Series

When a discontinuity occurs in a pipeline, use *Pipeline Series* to adjust facility numbers on the pipeline. A discontinuity typically occurs when an extension is added to the pipeline; the pipeline is re-routed; or when a company designates two pipelines as parallel lines. Instead of physically renumbering pipeline location numbers on-site, *Pipeline Series* allows you to shift pipeline numbering in PCS Axis.

Additional characteristics of *Pipeline Series* include those in the following list:

- All facilities on the pipeline must be assigned to a *Pipeline Series* when a *Pipeline Series* is used with a segment of the same pipeline. An entire pipeline can be made up of several *Pipeline Series*.

  The starting milepost of a *Pipeline Series* corresponds to the starting milepost for a segment of the pipeline. The ending milepost of the *Pipeline Series* corresponds to the ending milepost for the same segment of pipeline. Each *Pipeline Series* joins together, end-to-end, to make up the entire pipeline. *Pipeline Series* defines each segment and is then used to calculate the *Relative Milepost*.

- A pipeline with several different numbering schemes can be converted into a sequential line using a *Pipeline Series* for each segment of the pipeline. This allows you to graph the entire distance of the pipeline using the *Relative Milepost*.

- Red facility records in a data entry grid identify milepost numbers that require a *Pipeline Series* be applied to the record.

- As an option, you can set up a *Pipeline Series* to sort numerically in a data entry grid based on a *Series Order* assigned to the *Pipeline Series*. If the *Pipeline Series* is not set up with a *Series Order*, it sorts alphanumerically based on a unique identifier assigned to the *Pipeline Series* using the *Series Number* field.

Adding and Applying Pipeline Series

The procedure in this section describes how to add a *Pipeline Series* definition and then apply it to effected milepost numbers in a facility data entry grid. The example in the procedure adds a pipeline extension with mileposts numbers set in reverse order as shown in the following example (Figure 2-37).
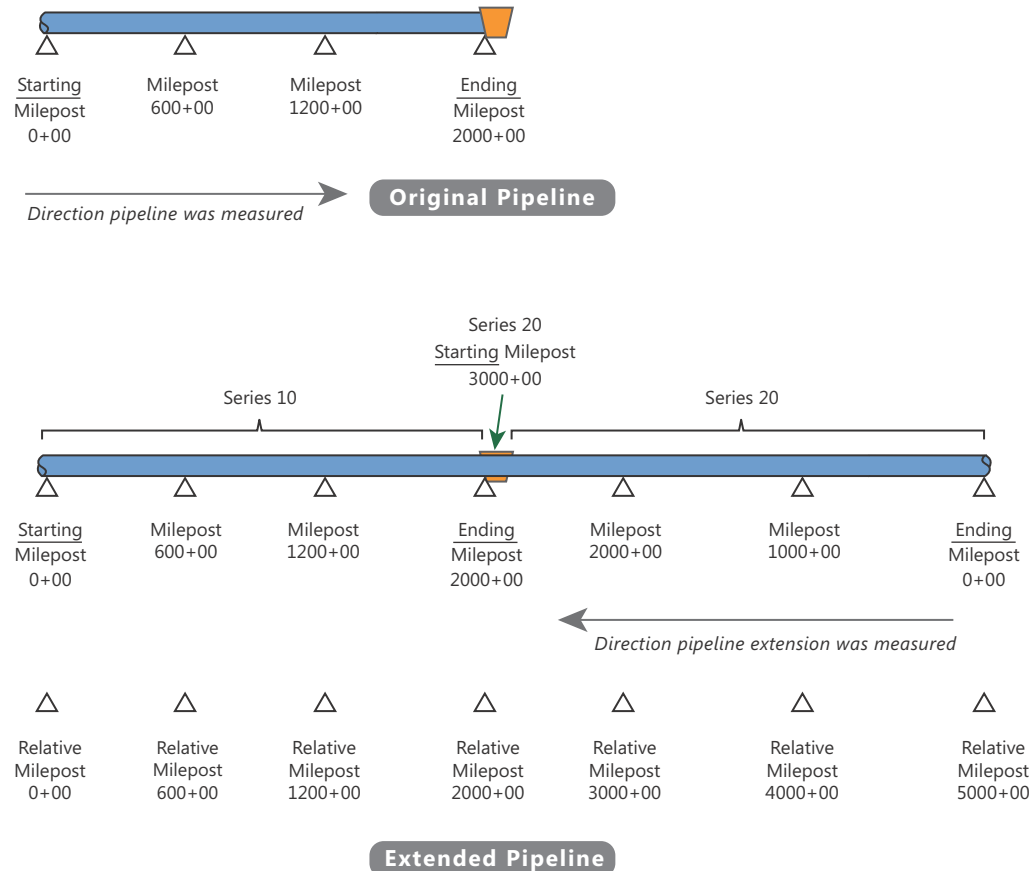
Figure 2-37. Example of an Extended Pipeline with Mileposts Set in Reverse Order

To add and apply a *Pipeline Series*, follow these steps:

1   Click the **Select ROWs** button ⌕ to open the *Select ROWs* window (Figure 2-38, page 74). Select one or more pipeline segments with facilities you want to work with, then click 💾 **Save** to close the window.
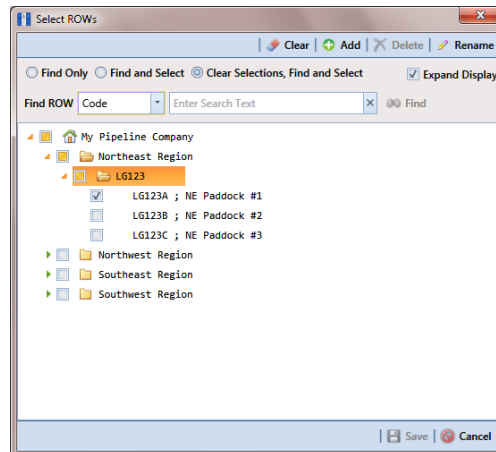
Figure 2-38. Select ROWs

2 Select the PCS Axis module you want to work with, such as the CPDM module. Click **Modules** > **Cathodic Protection Data Manager (CPDM)**.

3 Click **Data Entry** > **Pipeline Series** to open the *Pipeline Series* window (Figure 2-39).
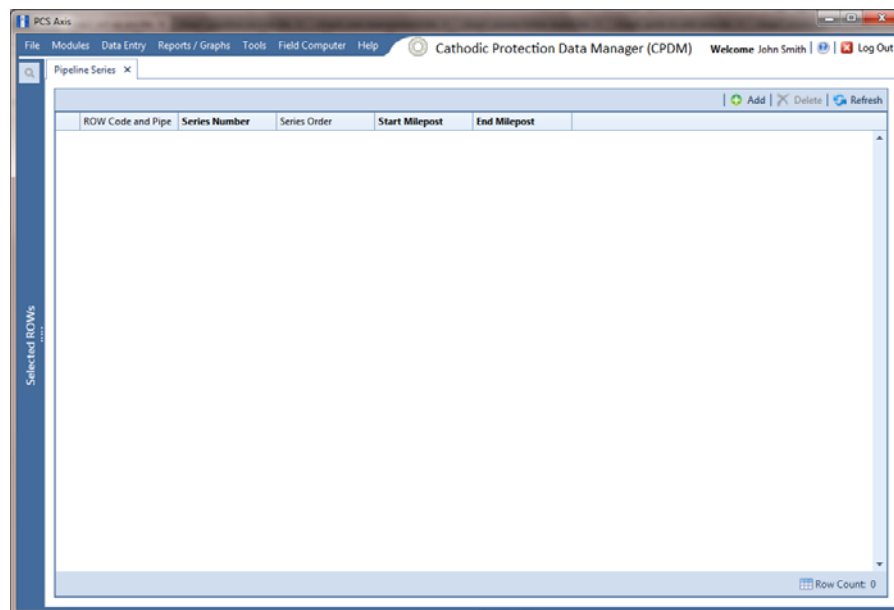
Figure 2-39. Pipeline Series

4 Click ➕ **Add** and select the pipeline you want to work with in the dialog box that opens (Figure 2-40). Then click 💾 **Save** to close the dialog box and return to the *Pipeline Series* window (Figure 2-41).
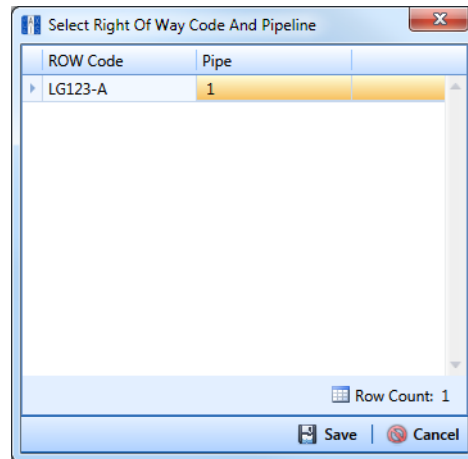
Figure 2-40. Select Right Of Way Code And Pipeline

5 Type a unique identifier for the *Pipeline Series* in the **Series Number** field. This field accepts up to 10 alphanumeric characters including spaces and special characters, such as a hyphen (-) or pound sign (#).

NOTE: Fields requiring information include a ❌ red icon, such as *Series Number*, *Start Milepost*, and *End Milepost* shown in the next example (Figure 2-41).
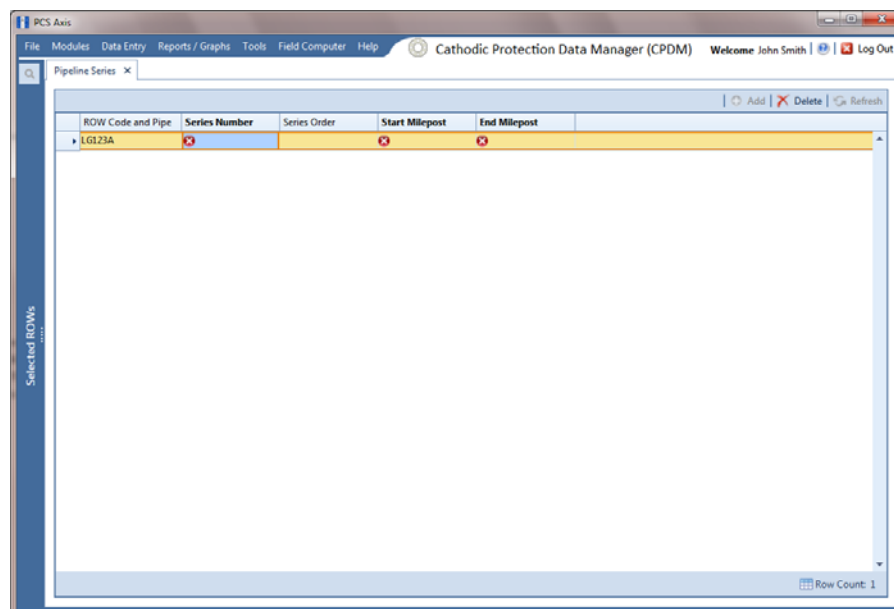
Figure 2-41. Pipeline Series

6   *Series Order* is an optional property setting. If you want facility records sorted numerically in the data entry grid based on the *Series Order* assigned to the *Pipeline Series*, type a value in the **Series Order** field or click the up/down arrow to select a value. Valid entries include any number from 0 to 99.

NOTE: When a *Pipeline Series* is not set up with an optional *Series Order*, facility records sort alphanumerically in the data entry grid using the unique identifier assigned to the *Pipeline Series* in the *Series Number* field.

---

7   Set the *Pipeline Series* start and end milepost numbers. Type the starting milepost in the **Start Milepost** field and the ending milepost in the **End Milepost** field (Figure 2-42).

The starting milepost of the *Pipeline Series* corresponds to the starting milepost for a segment of the pipeline. The ending milepost of the *Pipeline Series* corresponds to the ending milepost for the same segment of pipeline.

In the example shown in Figure 2-37 (page 73), *Series 10* was added for the original pipeline segment with a start and end milepost of 0+00 and 2000+00 respectively. *Series 20* was added for the pipeline extension. Because the mileposts are in reverse order in *Series 20*, the *Pipeline Series* is set up with a start and end milepost of 3000+00 and 0+00 respectively (Figure 2-41).

8   To add another *Pipeline Series* for a segment of the same pipeline, repeat steps 5 through 7.
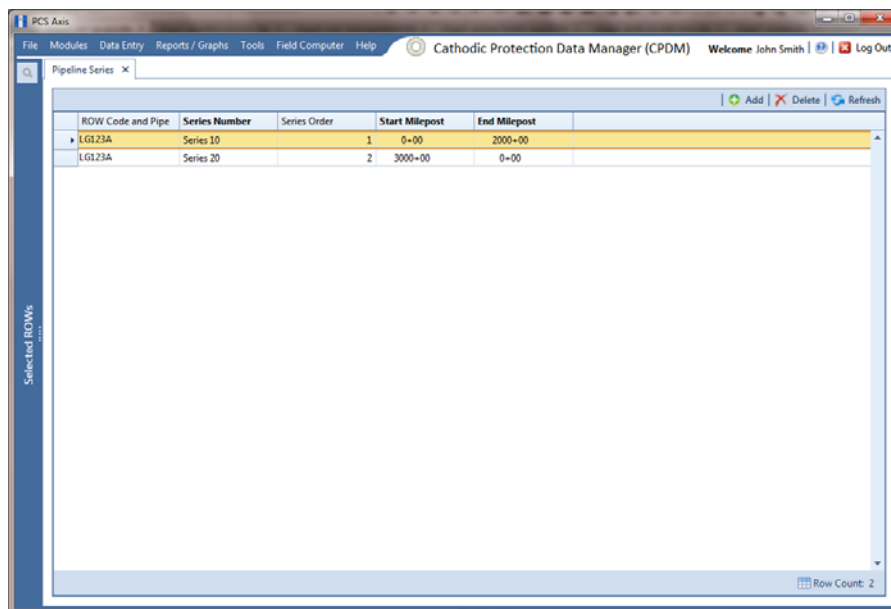
Figure 2-42.   Pipeline Series

9 When you finish adding *Pipeline Series*, click the ⬚ close button to close the *Pipeline Series* window.

10 When a message similar to the following example displays, click ✔ **OK** to apply *Pipeline Series* to effected mileposts (Figure 2-43). Or, click the Windows close button ⬚✖⬚ to cancel the operation and close the message.

The following message displays to notify you of the facilities that need to have *Pipeline Series* applied in the facility data entry grid. Red facility records in the data entry grid identify milepost numbers that require a *Pipeline Series* applied to the record.
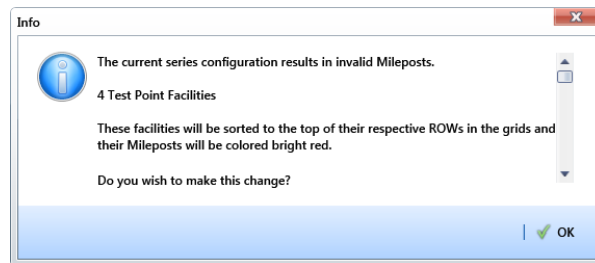
Figure 2-43. Pipeline Series Message

The remaining steps explain how to apply *Pipeline Series* to effected mileposts in a data entry grid.

11 Open the data entry grid with the mileposts you want to apply *Pipeline Series*, such as the *Test Point Inspection* data grid shown in the next example (Figure 2-44, page 78).

> **NOTE:** Red facility records in the data grid identify milepost numbers that require a *Pipeline Series* applied to the record.

12 Select the **Series** field for a facility record in the grid to display a drop-down arrow. Click the arrow and select a *Pipeline Series* in the selection list. Repeat this step for each effected facility record in the data grid.
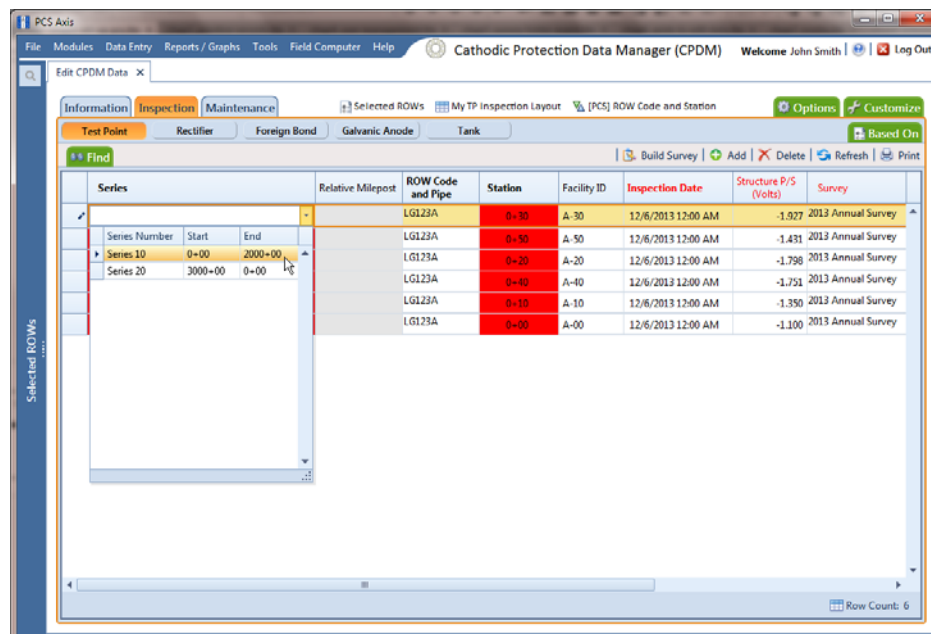
Figure 2-44. Pipeline Series

13 Click 🔄 **Refresh** to update data in the grid.

PCS Axis automatically calculates the *Relative Milepost* for each facility record assigned a *Pipeline Series* (Figure 2-45).
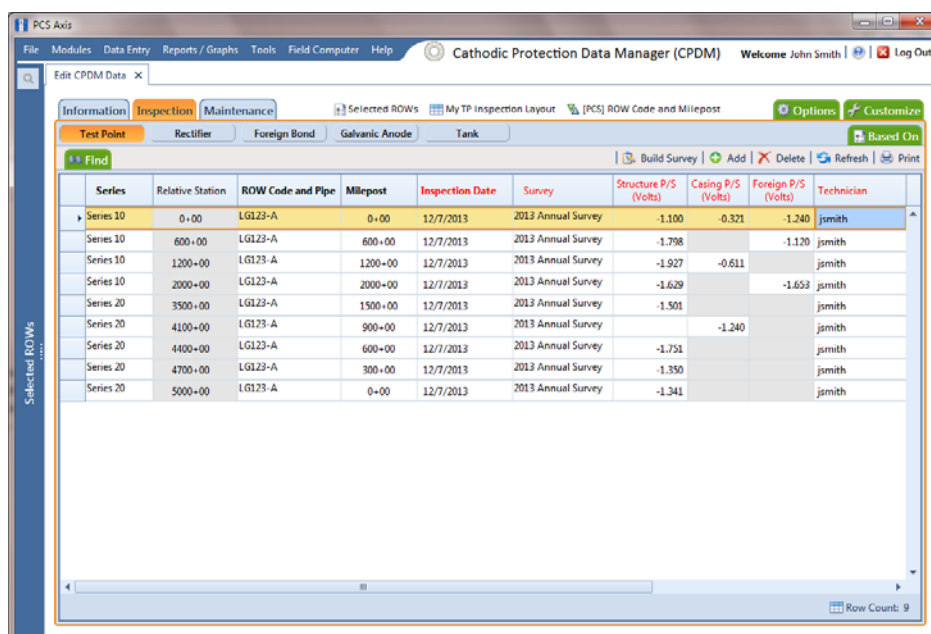
Figure 2-45. Relative Milepost

Working with a User Defined Module

If you need to manage compliance data for facility types not included in PCS Axis, use Custom Module Management (CMM) to add a user defined module with up to six (6) user defined facility types. For example, adding a user defined module with user defined facility types allows you to manage compliance data for major components associated with a cathodic protection electrical system or a gas odorization system.

CMM is an optional add-on feature that requires an activation key for operation. If your company has purchased the CMM module, use the information in this section to set up one or more user defined modules. Topics in this section include those in the following list:

- *Understanding a User Defined Module* (page 79)

- *Adding a User Defined Module* (page 81)

- *Deleting a User Defined Module* (page 85)

Understanding a User Defined Module

A user defined module (UDM) provides the same features and functions as a system installed module. It is available for use throughout PCS Axis, such as the *Modules*, *Data Entry*, and *Reports/Graphs* menus; *Field and UDF Customizations*, *Bridge*, and *Email Notification*.

Likewise, the following features provided with a system installed module are also provided with a user defined module: *Information*, *Inspection*, and *Maintenance* data entry grids; layout, sorting, and filter themes; reports and graphs; and optional routes, schedules, and scheduling types for user defined facility types.

The process for adding a user defined module includes the following tasks (Figure 2-46):

- Add a user defined module with user defined facility type(s) in Custom Module Management (*Modules > Custom Module Management*).

- Add one or more user defined fields (UDFs) as needed to be used throughout the

- system, such as data entry grids, reports, and graphs (*Tools > Field and UDF*

1 Select the **Series** field for a facility record in the grid to display a drop-down arrow. Click the arrow and select a *Pipeline Series* in the selection list. Repeat this step for each effected facility record in the data grid.

- *Customizations*).

- Set up data entry grids (*Data Entry > Edit <module> Data*); reports and graphs (*Reports/Graphs*); scheduling (*Data Entry > Edit Schedule Settings* and *Define Schedules*); and routes (*Data Entry > Define Routes*).

1 **Add User Defined Module**

Set properties in CMM (Modules > Custom Module Management)

◆ Add User Defined Module(s)

◆ Add User Defined Facility Type(s)

◆ Set Option for Schedules and Routes

2 **Set Up System Features**

Set properties as needed for the following system features:

◆ Add User Defined Fields
   (Tools > Field and UDF Customizations)

◆ Set Up Data Entry Grids with Layout, Sorting, and Filter Themes
   (Data Entry > Edit <module> Data)

◆ Set Up Reports/Graphs with Layout, Sorting, and Filter Themes
   (Reports/Graphs)

◆ Set Up Scheduling and/or Routes
   (Data Entry > Edit Schedule Settings & Define Schedules; Define Routes)

Figure 2-46. Workflow for Adding a User Defined Module

Adding a User Defined Module

Information in this section explains how to add a user defined module with one or more user defined facility types. A user defined module supports up to six (6) user defined facility types.

Complete the following steps:

1 Click **File** > **Select ROWs** to open the *Select ROWs* window. Select one or more pipeline segments and then click ⊟ **Save** to close the window (Figure 2-47).
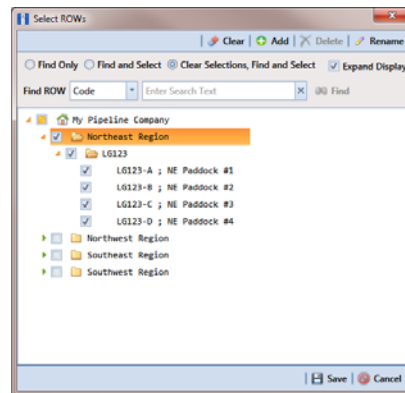
Figure 2-47. Select ROWs

2 Open CMM and add a user defined module. Click **Modules** > **Custom Module Management** > ⊕ **Add Module** (Figure 2-48).

PCS Axis adds a group of fields for the new user defined module. Fields with an error icon ⊗ indicate a required data entry field.
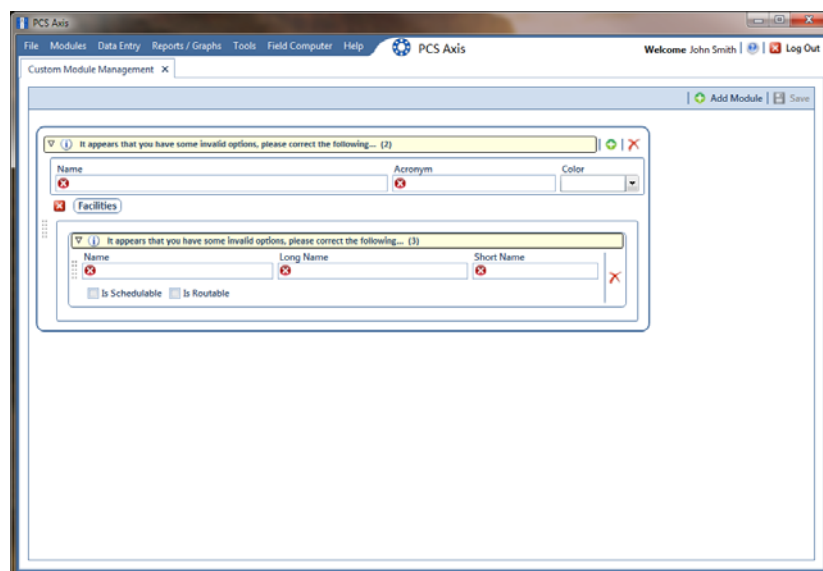
Figure 2-48. Custom Module Management

3 To set *Name*, *Acronym*, and *Color* properties for the user defined module, follow these steps (Figure 2-49):

    a Type a name in the **Name** field. The field accepts up to 50 alphanumeric characters including spaces and special characters.

> **NOTE:** Clicking the ▽ toggle button in the ⓘ information bar displays information related to required property settings.

    b Type an acronym in the **Acronym** field. This field accepts up to four (4) alpha characters. It does not support numeric or special characters.

    c Click the down arrow in the **Color** field and select a color in the color palette.

The following example shows a user defined module with the following property settings: module name is *My CP Electrical System*, module acronym is *MCPE*, and module color is *Aquamarine*.
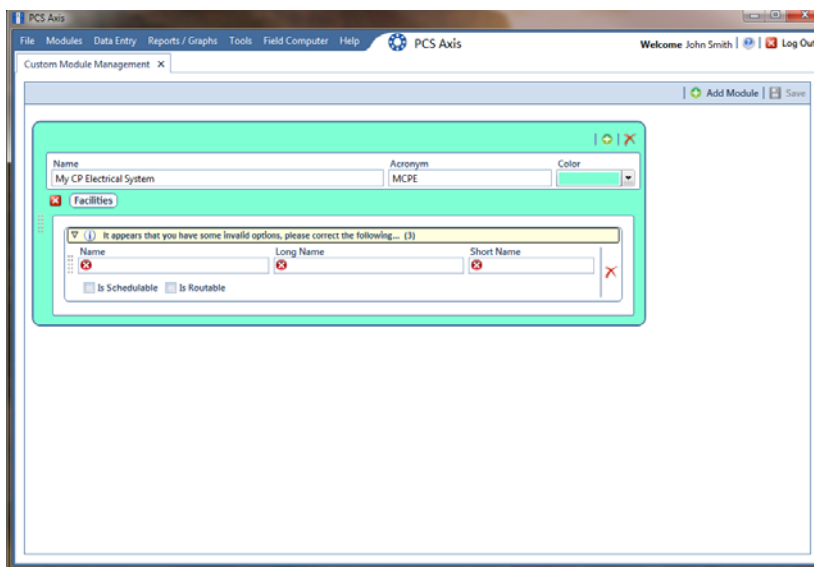
Figure 2-49. Custom Module Management

4   To set properties for one or more user defined facility types, complete the following steps (Figure 2-50):

a   Type a name in the **Name** field. The field accepts up to 30 alphanumeric characters including spaces and special characters. The name you provide appears in data entry grids, reports and graphs, scheduling, routes, and so on.

b   Type a longer name for the user defined facility in the **Long Name** field. This field accepts up to 40 alphanumeric characters including spaces and special characters.

c   Type an acronym for the user defined field in the **Short Name** field. The field accepts up to four (4) alpha characters. It does not support numeric or special characters.

d   If you want the facility type available for selection when setting up a schedule, click the check box **Is Schedulable**. Likewise, click the check box **Is Routable** to have the facility type available for selection when setting up a route.

The following example shows a user defined module with user defined facility types labeled *Electric Meters*, *Transformers*, *Power Poles*, and *Circuit Breakers* (Figure 2-50).

Figure 2-50. Custom Module Management

e   To add another user defined facility type, repeat steps "a" through "d". You can add up to six (6) user defined facility types for each user defined module.

f   Click ![save icon] **Save**.

NOTE: Clicking the ![close icon] close icon in the group box of user defined facility types closes the group box. Use this feature when you only want to view property settings of user defined modules. To re-open the group box, click the ![open icon] open icon.

---

5   Click ![close icon] to close the *Custom Module Management* window.

6   Set up the following system features as needed:

a   Add fields related to the user defined module in *Fields and UDF Customizations > Facility Surveys*. Refer to *Setting Properties in Field and UDF Customizations* (page 44).

b   Set up data entry grid *Layouts*, *Sorts*, and *Filters*. Refer to *Working with Themes and Filter Groups* (page 232).

c   Set up reports and graphs. Refer to *Using Reports and Graphs* (page 529).

d   Set up scheduling and routes. Refer to *Using a Schedule* (page 349) and *Using a Route* (page 283).

Deleting a User Defined Module

Deleting a user defined module also deletes all user defined facility types, reports, graphs, schedules, routes, and facility data associated with the module.

To delete a user defined module, follow these steps:

1   Click **File** > **Select ROWs** to open the *Select ROWs* window. Select one or more pipeline segments and then click ![save icon] **Save** to close the window (Figure 2-47, page 81).

2   Open CMM. Click **Modules** > **Custom Module Management**.

3   Click the ![delete icon] delete button for the user defined module you want to delete (Figure 2-51).

4   When the warning message *Confirm module delete* opens, click ![delete icon] **Delete** to delete the module or ![cancel icon] **Cancel** to cancel the operation.

5   Click ![close icon] to close the *Custom Module Management* window.
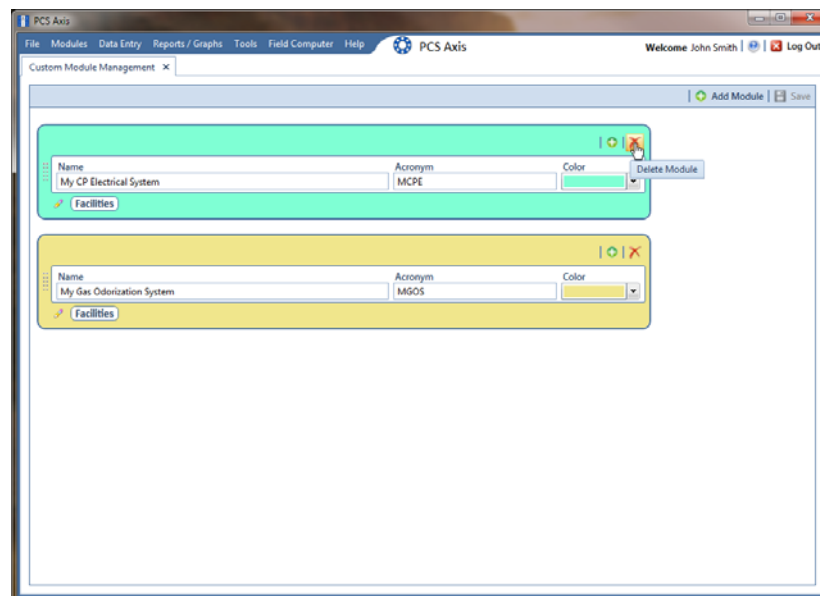
Figure 2-51. Custom Module Management

Notes

3

Working with Pipeline Records

This chapter explains how to work with folders and pipelines in the system hierarchy tree. The information is intended for users with *SysAdmin* user permissions unless noted otherwise.

Topics in chapter include those in the following list:

Adding a Folder in the Hierarchy

The hierarchy is an organizational structure of one or more folders. Folders are organized in a tree structure based on the number of hierarchy levels set up in the system. The top level of the hierarchy is the root level that identifies your company's name. All hierarchy folders are added below the root level. The lowest level of the hierarchy includes a folder with pipelines added in the system (Figure 3-1, page 88).

To add a folder in the hierarchy, follow these steps:

1   Click **File** > **Select ROWs** to open the *Select ROWs* window (Figure 3-1).

2   Select a level in the hierarchy you want to add a folder. The following example shows level 2 selected in a three level hierarchy tree.
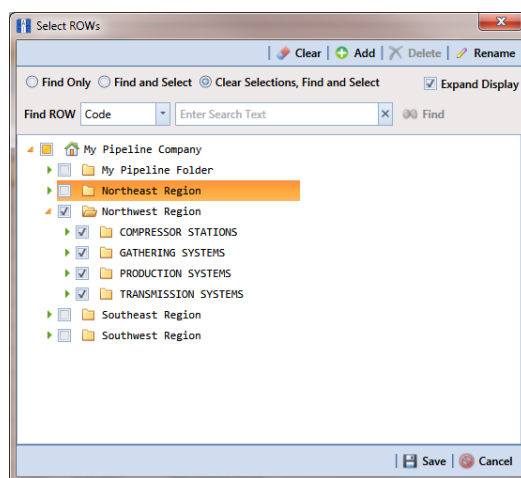
Figure 3-1. Select ROWs

3   Click ⊕ **Add** to open the *Add New Node* dialog box (Figure 3-2, page 89).

NOTE: You can also open the *Add New Node* dialog box by right-clicking a selection in the hierarchy tree and selecting *Add* in the shortcut menu that opens.

---

4   Add information for the new hierarchy folder. Fields requiring information include a ⊗ red icon, such as *System* and *ROW Code* shown in the next figure.

5   Click the option **Expand After Adding** if you want to expand the selection tree after clicking *Apply*.

6   Click 💾 **Apply**. Repeat steps 2 through 5 as needed to add additional folders in the hierarchy tree.
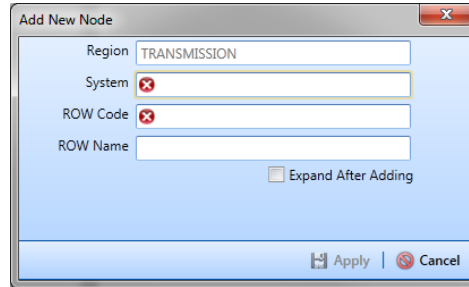
Figure 3-2. Add New Node

Adding a Pipeline in the Hierarchy

To add a pipeline in the hierarchy, follow these steps:

1   If the *Select ROWs* window is not open, click **File** > **Select ROWs** (Figure 3-3).

2   Select a folder in the hierarchy you want to add a pipeline. In the following example, another pipeline will be added in the *Mains* folder.
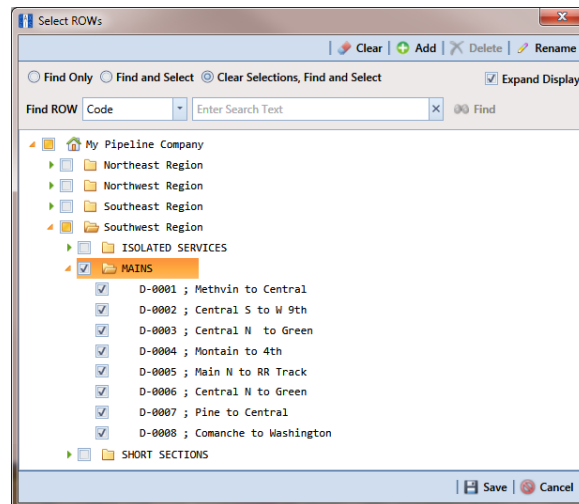
Figure 3-3. Select ROWs

3 Click ⊕ **Add** to open the *Add New Node* dialog box (Figure 3-4). Right-clicking the selected hierarchy folder and selecting *Add* in the shortcut menu also opens the *Add New Node* dialog box.
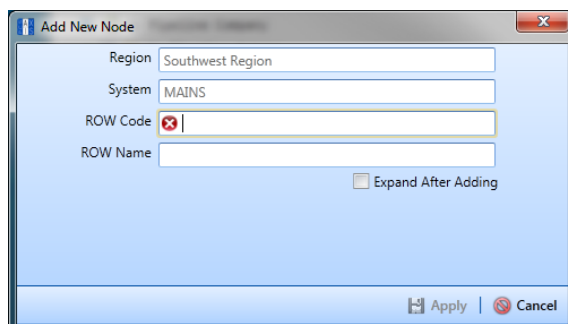
Figure 3-4. Add New Node

4 Enter a pipeline code for the new pipeline in the **ROW Code** field. Fields requiring information include a ⊗ red icon, such as *ROW Code* in the previous figure (Figure 3-4).

5 Type a name for the pipeline in the **ROW Name** field.

6 Click the option **Expand After Adding** if you want to expand the selection tree after clicking *Apply*.

7 Click 💾 **Apply**. Repeat steps 3 through 6 as needed to add another pipeline in the selected hierarchy folder.

8 Continue with *Understanding Default Location Formats (page 94)* for information about setting this required field for all pipelines in the system.

Using Find in Select ROWs

Use the Find drop-down list in the Select ROWs window when searching for a particular pipeline segment in the hierarchy. The Find drop-down list includes the following options for locating and selecting a pipeline segment in the hierarchy:

• **Code:** searches the hierarchy by ROW Code.

• **Name:** searches the hierarchy by ROW Name.

• **Code and Name:** searches the hierarchy by ROW Code and Name. Using this option requires that you include the semi-colon separator between the ROW Code and ROW Name, *such as LG123A ; NE Paddock LG123*.

To search the hierarchy for a particular pipeline segment in the *Select ROWs* window, follow these steps:

1   Click **File** > **Select ROWs** to open the *Select ROWs* window (Figure 3-5).

2   Choose an option in the *Find Now* drop-down list to search for a pipeline segment in the hierarchy. Click the down arrow in **Find ROW** and select **Code**, **Name**, or **Code and Name**.

3   Based on the selected search option, type the *ROW Code*, *ROW Name*, or the *ROW Code and Name* of the pipeline segment in the field **Enter Search Text**.

4   Select one of the following options to choose how search results are handled: **Find Only**, **Find and Select**, **Clear Selections, Find and Select**. Hovering the mouse over an option displays a tooltip with a description of option.

5   Click the check box **Expand Display** if you want PCS Axis to expand the hierarchy when a search match is located.

6   Click 👓 **Find**.
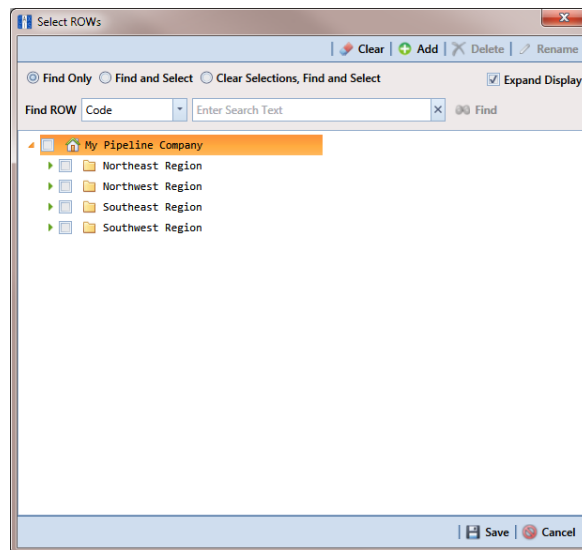
Figure 3-5. Select ROWs

Moving and Renaming a Pipeline

Complete the following steps to move or rename a pipeline in the hierarchy:

1   If the *Select ROWs* window is not open, click **File** > **Select ROWs** and then select a pipeline in the hierarchy (Figure 3-6).

2   To move the selected pipeline to a different hierarchy folder, right-click the pipeline and select **Cut** in the shortcut menu that opens. Right-click the hierarchy folder you want to move the pipeline to and then select **Paste** in the shortcut menu that opens (Figure 3-6).
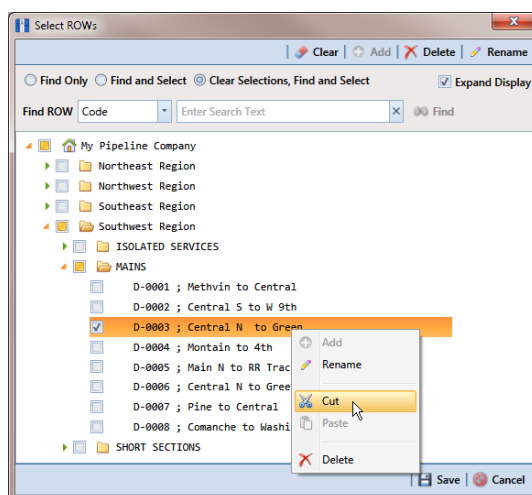
Figure 3-6.   Move Pipeline

3   To rename the selected pipeline, follow these steps:

a   Click ✏ **Rename** to open the *Rename* dialog box (Figure 3-7). Right-clicking the selected pipeline and selecting *Rename* in the shortcut menu also opens the dialog box.

b   Type a name for the pipeline in the pipeline *Code* field. In the following example, *D-1234* has been entered in the *ROW Code* field. Click 💾 **Save** to apply the change and close the dialog box.
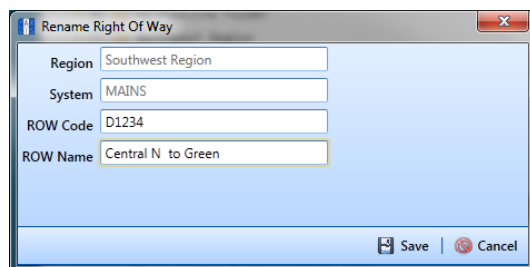
Figure 3-7. Rename Pipeline

Deleting a Pipeline

The procedure in this section explains how to delete a pipeline in the hierarchy. Deleting a pipeline also deletes all facilities and history records associated with the pipeline.

IMPORTANT: Instead of deleting a pipeline, consider creating a new hierarchy folder labeled *Sold*, *Abandoned*, or something similar and then moving the pipeline to that folder. Another option is to change the operational status of the pipeline by disabling the *Active* check box in *Edit ROW Detail* (Data Entry > Edit ROW Detail). Using either of these methods will preserve data for future references.

To delete a pipeline, follow these steps:

1   Click **File** > **Select ROWs** to open the *Select ROWs* window. Select a pipeline in the hierarchy you want to delete (Figure 3-8).
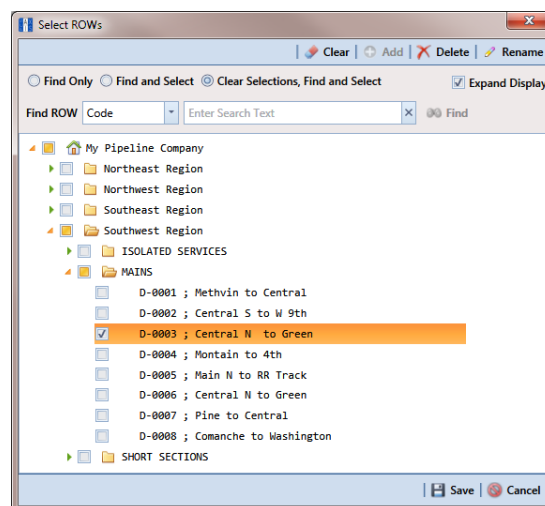
Figure 3-8. Select ROWs

2   Click ✘ **Delete** to open the *Confirm Delete* dialog box (Figure 3-9, page 94). Or, right-click the selected pipeline in the hierarchy tree and select **Delete** in the shortcut menu to open the *Confirm Delete* dialog box.

NOTE: The *Confirm Delete* dialog box identifies the pipeline and number of associated facilities to be deleted in the *Count* column (Figure 3-9, page 94).

3 Click ✗ **Delete** to delete the pipeline or 🚫 **Cancel** to cancel the operation.
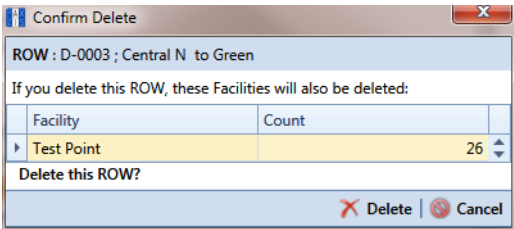
Figure 3-9. Confirm Delete

Understanding Default Location Formats

The following table (Table 3-1) identifies milepost formats available for selection when setting the *Default Location Format* for a pipeline in *Edit ROW Detail*. Choosing a *Default Location Format* allows PCS Axis to automatically apply the correct formatting to milepost values you enter for a facility location on a pipeline.

Table 3-1. Description of Default Location Formats

Location Format	Format Example	Description
Milepost (3 Decimals)	12345.567 -or- 1234.567AB	Measurements are in miles. This format can include two alpha characters at the end of the milepost and can also be graphed.
Milepost (4 Decimals)	123.5678 -or- 1234.5678A	Measurements are in miles. This format can include one alpha character at the end of the milepost and can also be graphed.
Reading Number	12345678AB	Numeric format with two alpha characters at the end. This format is typically used for stations. This format cannot be graphed and the *CP Compliance Report* does not calculate total feet, total miles, or miles below criteria.

Table 3-1. Description of Default Location Formats

Location Format	Format Example	Description
Location ID	1234567891 -or- ABCDEFGHIJ	**NOTE:** Location ID cannot be changed once it is setup. Use *Location ID* when footages are not applicable. This format is typically used in distribution systems. Other features include those in the following list: • Accepts alphanumeric characters, but cannot be graphed. • *CP Compliance Report* does not calculate total feet, total miles, or miles below criteria when using this format.
Station Number	12345+67AB	Measurements are in feet. This format can be graphed and also supports two alpha characters at the end.
Miles+100 Feet	12345+12 -or- 12345+12AB	Format uses miles plus two digits to the right to indicate hundreds of feet. For example, 110+12 indicates 110 miles and 1,200 feet. Do not enter values greater than 53 feet; doing so indicates another mile. Other characteristics include: • Format can be graphed. • Two alpha characters can be used after the first 3 numbers. • *CP Compliance Report* does not calculate total feet, total miles, or miles below criteria.
Miles/Station Number	123A 45+67 -or- 123A 12+34	Format uses Miles<space>Station Number with Milepost (3 Decimals) in graphs.

Adding Pipeline Information

Information in this section explains how to set up *Default Location Format* and other pipeline information. A *Default Location Format* must be set for each pipeline added in the system hierarchy. See *Understanding Default Location Formats (page 94)* for information about available formats.

Complete the following steps:

1 Click **File** > **Select ROWs** to open the *Select ROWs* window (Figure 3-10).

2 Select one or more pipelines and then click ![save icon] **Save** to close the window.
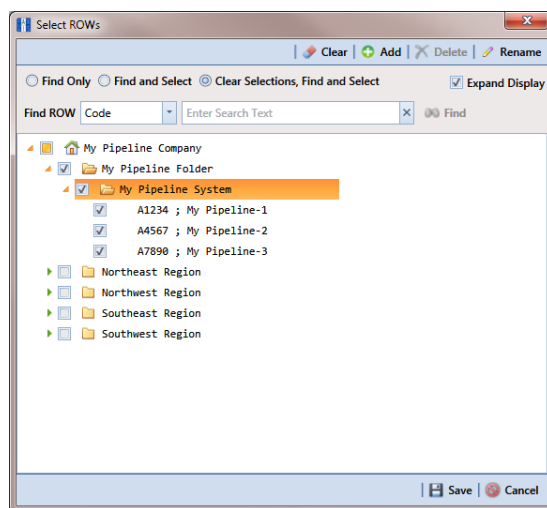
Figure 3-10. Select ROWs

3 Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window (Figure 3-11, page 97).

4 If you want to collapse the *Selected ROWs* panel to view more of the *Edit ROW Detail* grid, click **Selected ROWs**. To expand the panel, click **Selected ROWs** again.

5 Select a pipeline in the *Information* grid.

6 Select the field **Default Location Format** to display a drop down arrow. Click the arrow and select a location format in the selection list. (See *Understanding Default Location Formats (page 94)* for a description of available choices.)

7 Click ➕ **Add** in the *Facility Location ID Formats* mini-grid. A list of all facility types display in the mini-grid with the location format selected in step 6. If you want to change the location format for a particular facility type listed in the mini-grid, follow these steps:

a Select a row of records in the mini-grid with the facility type you want to change the location format.

b Select the field **Facility Location Format** to display a drop down arrow. Click the arrow and select a location format in the selection list.

8 Set up other pipeline information as needed then click 🔄 **Refresh**. When you finish, click the ✖ close icon to close the *Edit ROW Detail* window.

Click the Selected ROWs bar to expand and collapse the Selected ROWs panel.
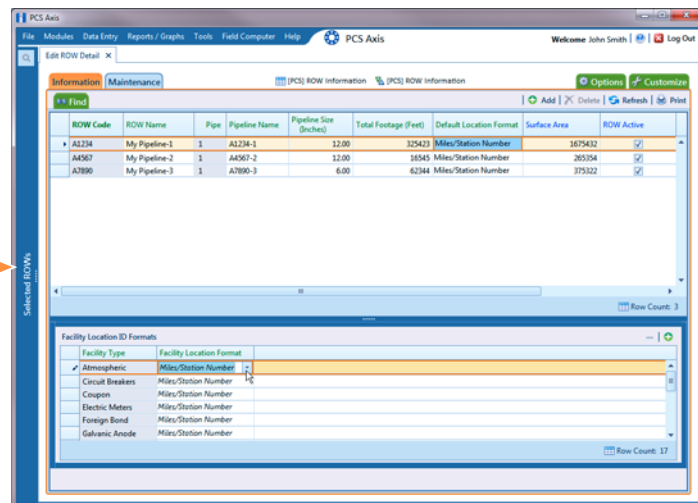
Figure 3-11. Edit ROW Detail

Attaching a Document to a Pipeline Record

Attaching a document to a pipeline record in *Edit ROW Details* is similar to attaching a document to a record in a data entry grid (page 250). Use the *Attached Document* field in the *Information* and *Maintenance* grid of *Edit ROW Details* to link or embed a file or webpage address to a pipeline record. Supported file types include image, video, HTML, XML, music, and text files (such as Microsoft Word, WordPad, Notepad, or PowerPoint files).

As an example, you can attach an image of a pipeline; a document describing your company's safety procedures; or a document identifying a manufacturer's specification for a piece of equipment.

Linking a document identifies the file location on a local computer, company network, FTP site, or webpage on the Internet. Linking documents stored on a local computer are accessible only from that computer. Embedding a document stores a copy of the file in the PCS Axis database.

NOTE: Storing copies of documents in the PCS Axis database increases the size of the database.

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, clicking *Open* opens the attached document for editing or viewing purposes.

Editing an embedded document applies changes only to the copy stored in the PCS Axis database; changes do not apply to the source file stored outside of PCS Axis. Likewise, editing a source file applies changes only to the source file, not the copy stored in PCS Axis.

Topics in this section include those in the following list:

- *Adding the Attached Document Field in the Grid*

- *Attaching a Document to a Pipeline Record* (page 100)

- *Viewing an Attached Document* (page 105)

NOTE: For information about how to attach a document to a record in a data entry grid, see *Chapter 6*, *Using Data Entry Grids* (page 161).

Adding the Attached Document Field in the Grid

If the *Attached Document* field is not present in the *Information* or *Maintenance* grid of *Edit ROW Details*, complete the following steps to add the field:

1   Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click ![save] **Save** to close the window.

2   Click **Data Entry** > **Edit ROW Details** to open the *Edit ROW Detail* window (Figure 3-12).
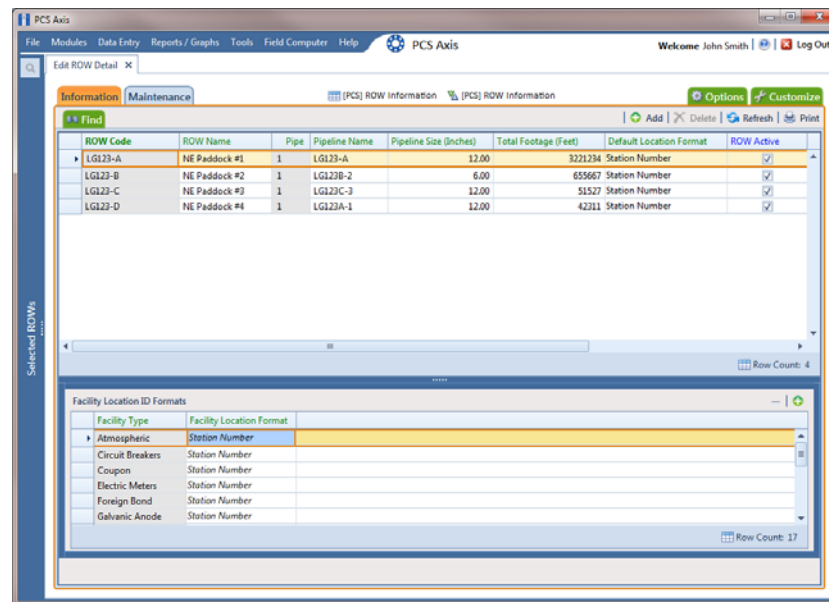
Figure 3-12. Edit ROW Detail

3   If you want to collapse the *Selected ROWs* panel to view more of the *Edit ROW Detail* grid, click **Selected ROWs**. To expand the panel, click **Selected ROWs** again (Figure 3-12, page 99).

4   Based on the grid you want to add the *Attached Document* field, click the **Information** Information or **Maintenance** Maintenance tab if either of these grids is not visible.

5   Click the **Customize** tab ![Customize] to view the *Layouts* page (Figure 3-13, page 100).

6   Choose a grid layout theme. Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.

7   Double-click ![icon] **All Fields** in the left pane of the window to view a list of fields available for selection.

8   Add the field *ROW Attached Documents* in the layout theme. Double-click **ROW Attached Documents** in the left pane of the *Layouts* page to move it to the right pane. Add other fields as required. The layout theme includes all fields listed in the right pane (Figure 3-13).

9   To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the ⬆ up or ⬇ down button.

10 Click 💾 **Save and Close** to save changes and return to the grid.
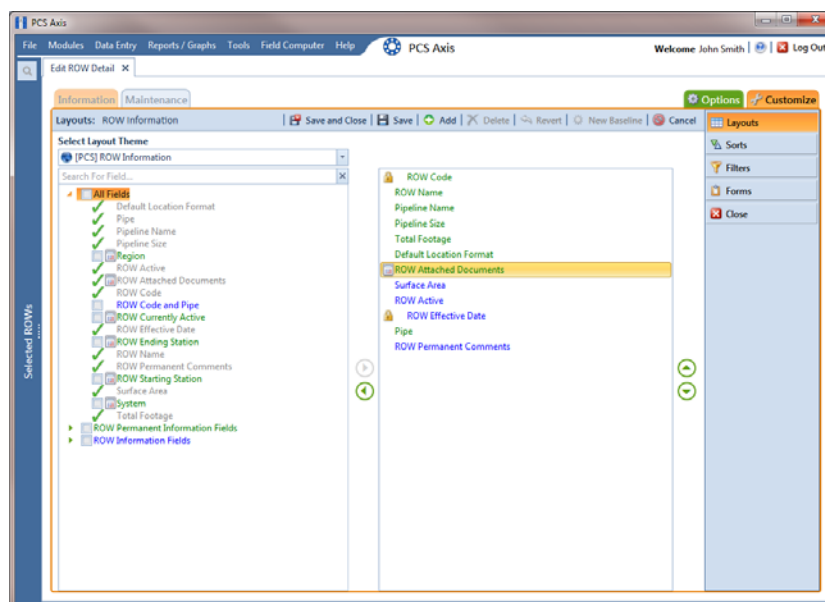
Figure 3-13. Layouts

Attaching a Document to a Pipeline Record

Complete the following steps to attach a document to a pipeline record in the *Information* or *Maintenance* grid of *Edit ROW Detail*:

1   Select one or more pipeline segments you want to work with in the *Select ROWs* window. Click 💾 **Save** to close the window.

2   Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window (Figure 3-14).

3   If you want to collapse the *Selected ROWs* panel to view more of the *Edit ROW Detail* grid, click **Selected ROWs**. To expand the panel, click **Selected ROWs** again.

4   If you want to attach a document to a pipeline record in the *Information* grid, click the **Information** tab if the grid is not visible.

To attach a document to a pipeline record in the *Maintenance* grid, click the **Maintenance** tab to display the *Maintenance* grid.

5   Click the edit icon 🖉 in the **ROW Attached Document** field for the pipeline record you plan to attach a document (Figure 3-14).
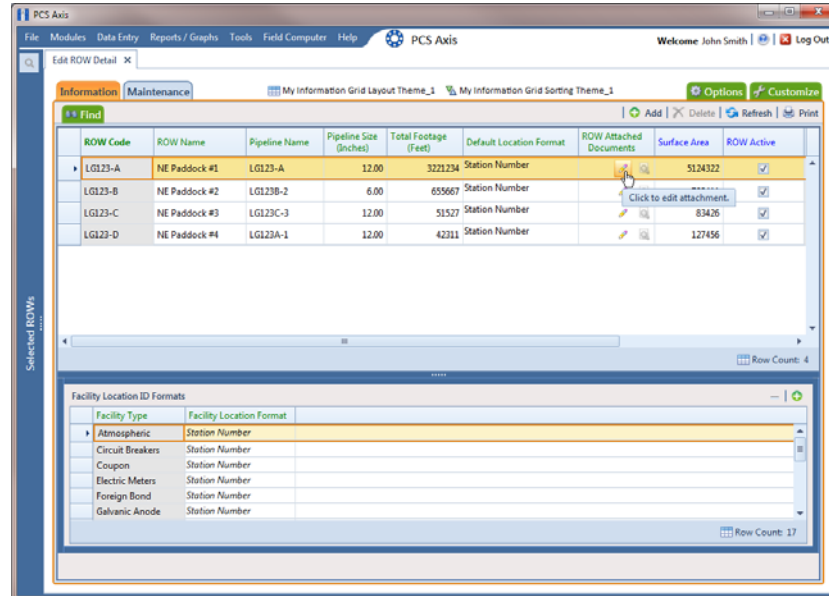
Figure 3-14. Edit ROW Detail

6   When the *Maintain Attached Documents* dialog box opens, click ➕ **Attach** and then select one of the following options (Figure 3-15, page 102):

- **Link Document**: Select *Link Document* if you plan to link to a document on a local computer or company network, or want to add a link to a webpage on the Internet. Then continue with step 7 (page 102) or step 8 (page 103).

- **Embedded Document**: Select *Embedded Document* if you want to store a copy of an attached document in the PCS Axis database. Then continue with step 9 (page 104).

NOTE: Storing copies of attached documents in the database increases the size of the database.

7 If you selected *Link Document* in step 6 and want to link to a file on a local computer or company network, follow these steps (Figure 3-15):

a Click the ellipsis button **...** in the **Document** field to open the *Link File* dialog box. Then navigate to the file and select it. Click **Open** to link to the file and close the dialog box.

b Type a description for the linked file in the **Description** field of the *Maintain Attached Documents* dialog box. When a description is not provided, PCS Axis uses the filename of the linked document as the description.

NOTE: A list of attached documents display in the dialog box. Selecting an item in the list displays its location in the *Document* field.
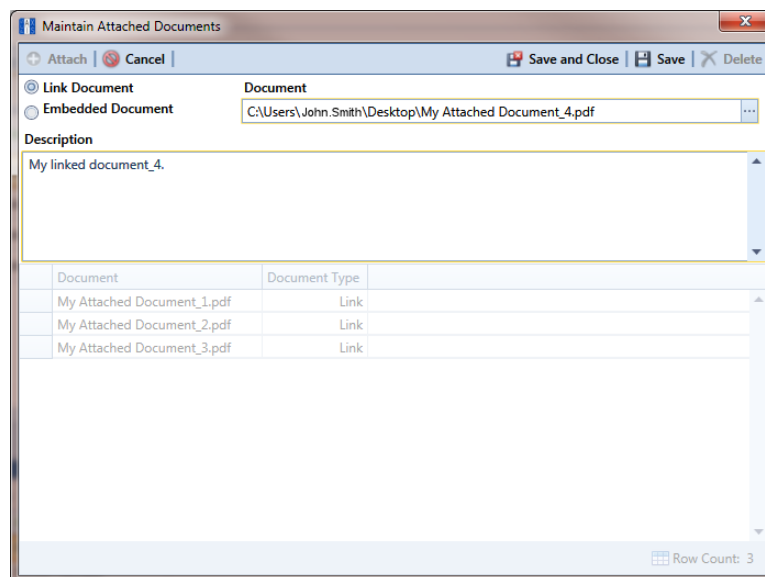
Figure 3-15. Maintain Attached Documents

c Click ![icon] **Save and Close** to save changes and close the dialog box. When the following message displays click ![icon] **OK**:

Linked Document won't be replicated. Do you want to continue?

NOTE: Linked documents are not copied and stored in the PCS Axis database as noted in the previous message. To store a copy of an attached document in the database, use the *Embedded Document* option instead.

---

8 If you selected *Link Document* in step 6 and want to add a link to a webpage on the Internet, follow these steps (Figure 3-16):

a Type an Internet address in the **Document** field. For example, type http://www.aiworldwide.com in the field.

b Type a description for the link in the **Description** field. When a description is not provided, PCS Axis uses the Internet address in the *Document* field as the description.
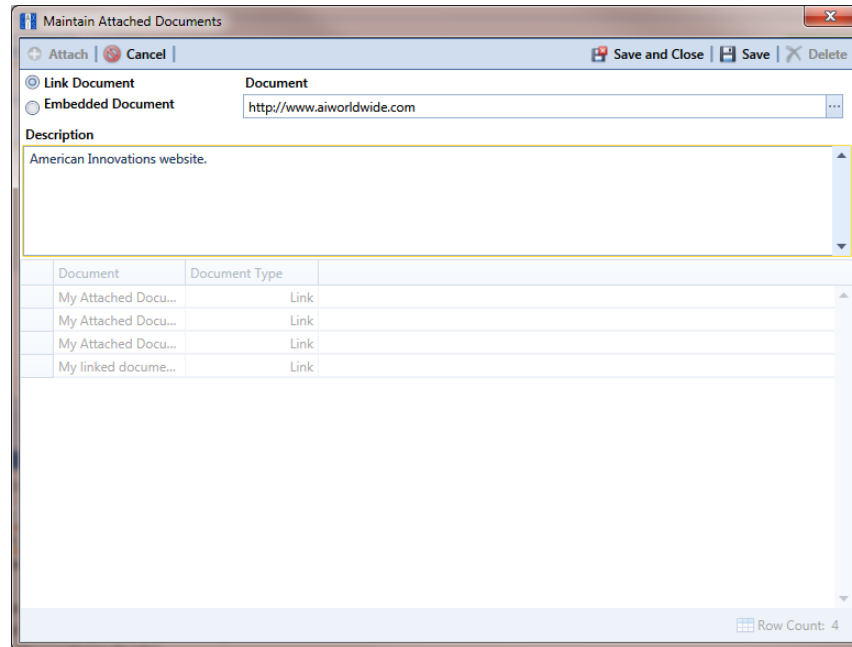
Figure 3-16. Maintain Attached Documents

c Click **Save and Close** to save changes and close the dialog box. When the following message displays click **OK**:

Linked Document won't be replicated. Do you want to continue?

NOTE: Linked documents are not copied and stored in the PCS Axis database as noted in the previous message. To store a copy of an attached document in the database, use the *Embedded Document* option instead.

9 If you selected *Embedded Document* in step 6, complete the following steps (Figure 3-17):

a Click the ellipsis button **...** in the **Document** field to open the *Embed File* dialog box. Then navigate to the file and select it. Click **Open** to embed a copy of the file and close the dialog box.

b Type a description for the embedded file in the **Description** field. If a description is not provided, PCS Axis uses the filename of the embedded file as the description.

NOTE: A list of attached documents display in the dialog box. Selecting an item in the list displays its location in the *Document* field.

Figure 3-17. Embedded Document

c Click ![icon] **Save and Close** to save changes and close the dialog box. When the following message displays click ![icon] **OK**:

Local changes made to embedded documents won't be saved into PCS. Do you want to continue?

NOTE: Editing an embedded document applies changes only to the copy stored in the PCS Axis database; changes do not apply to the source file stored outside of PCS Axis. Likewise, editing a source file applies changes only to the source file, not the copy stored in PCS Axis.

6   Select a file in the list on the left side of the window to view the file in the *Preview Attached Documents* window (Figure 3-19).

7   If the file type of the attached document is associated with a default software program on the local computer, click 📂 **Open** to open the file.

8   Click the close button ▬▬ to close the *Preview Attached Documents* window.

> **NOTE:** When you open and then edit an embedded document, changes apply only to the copy stored in the PCS Axis database; changes do not apply to the source file stored outside of PCS Axis. Likewise, editing the source file applies changes to the source file, not the copy stored in the PCS Axis database.
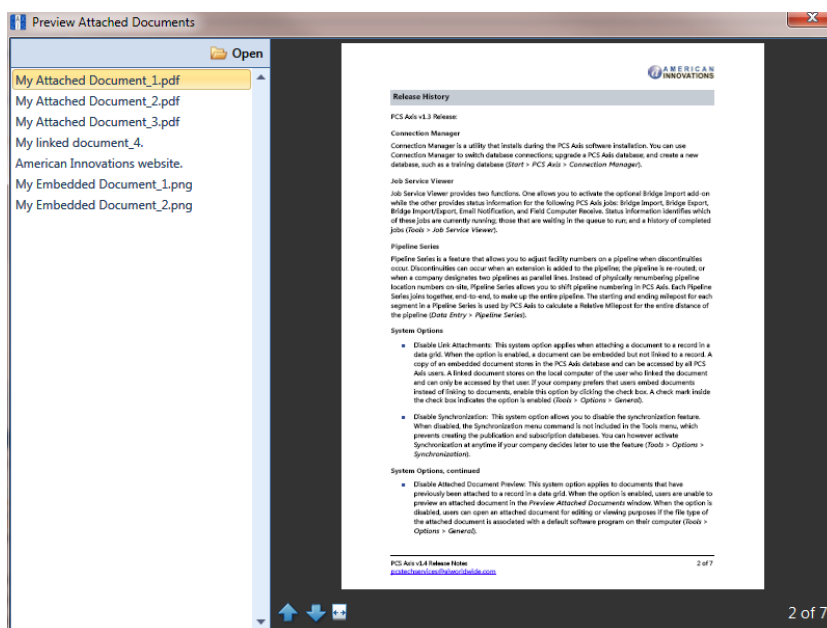
Figure 3-19. Preview Attached Documents

Working with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS Axis software installation. PCS Axis installed themes are public themes available to all PCS Axis users. These themes are identified with a globe icon and PCS in brackets [PCS], such as **[PCS] ROW Information**.

A filter group is a named set of one or more filters that affect the data output in the *Edit ROW Detail* grid. PCS Axis provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Edit ROW Detail* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. When you apply a filter group to the grid, PCS Axis processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and an optional filter group in the *Information* and *Maintenance* grids of *Edit ROW Detail*. Topics include those in the following list:

- *Adding a Layout Theme*

- *Adding a Sort Theme* (page 112)

- *Adding an AND Filter Group* (page 115)

- *Adding an OR Filter Group* (page 118)

- *Editing and Arranging Filters and Filter Groups* (page 120)

NOTE: Also see *Filtering Data in a Grid* (page 123) for information about filtering the data output in a data entry grid.

Adding a Layout Theme

A layout theme is a group of fields in a grid layout. Adding a new *Layouts* theme allows you to choose which fields you want to include in the grid layout and then save the layout as a theme for later use.

To add a layout theme for the *Information* or *Maintenance* grid, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![save icon] **Save** to close the window (Figure 3-20).
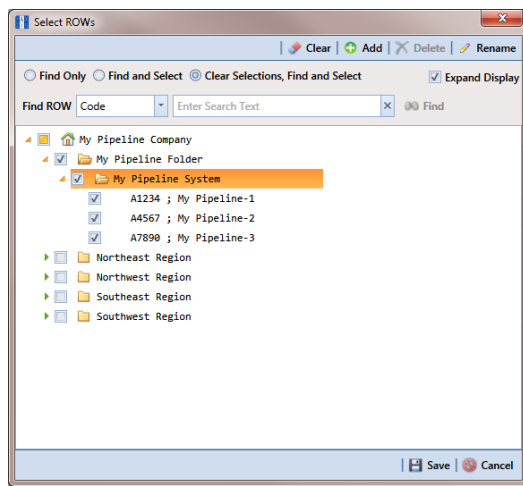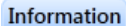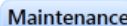
Figure 3-20. Select ROWs

2 Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window. If you want to collapse the *Selected ROWs* panel to view more of the *Edit ROW Detail* grid, click **Selected ROWs**. To expand the panel, click **Selected ROWs** again (Figure 3-21, page 109).

3 To add a layout theme for the *Information* grid, click the **Information** tab `Information` if the grid is not visible. Click the **Maintenance** tab `Maintenance` to display the *Maintenance* grid if you want to create a layout theme for this grid.
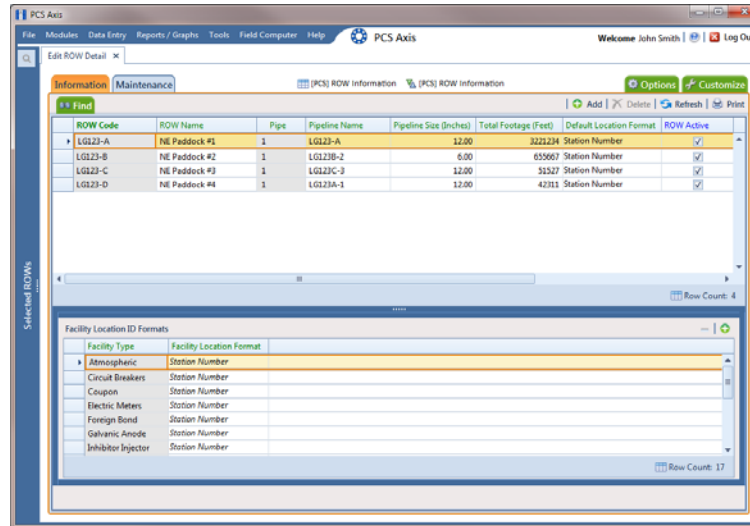
Figure 3-21. Edit ROW Detail

4 Click the **Customize** tab ✦ Customize then ⊕ **Add** to open the *New Layout Theme* dialog box. The following figure shows an example when adding a layout for the *Information* grid (Figure 3-22).
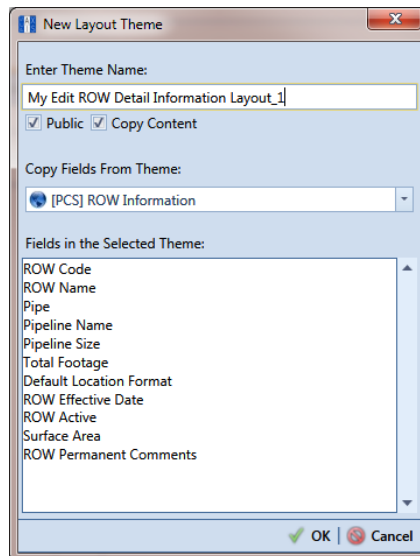
Figure 3-22. New Layout Theme

5 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

6 Select a layout theme with fields you want to copy to the new layout theme. Click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

7 Click ✔ **OK** to save changes and return to the *Layouts* page (Figure 3-23).

Figure 3-23. Layouts

8 Complete the following steps in the *Layouts* page to add and remove fields in the new layout theme as needed:

a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

b Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* page.

c To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

NOTE: Fields with a lock icon 🔒 are required and cannot be removed from the theme, such as 🔒 **ROW Code** shown in the previous example (Figure 3-23, page 110).

---

9 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the ⊙ up or ⊙ down button.

10 Click 💾 **Save** to save changes.

11 To apply the new layout theme to the data entry grid:

    a   Click the **Options** tab ⚙ Options to open the options page (Figure 3-24).

    b   Click the down arrow in the field **Select Layout Theme** and select the new layout theme in the selection list.

    c   Click 💾 **Apply** to save and apply changes and then return to the grid. To cancel changes, click the **Options** tab ⚙ Options or 🚫 **Cancel** to return to the grid.
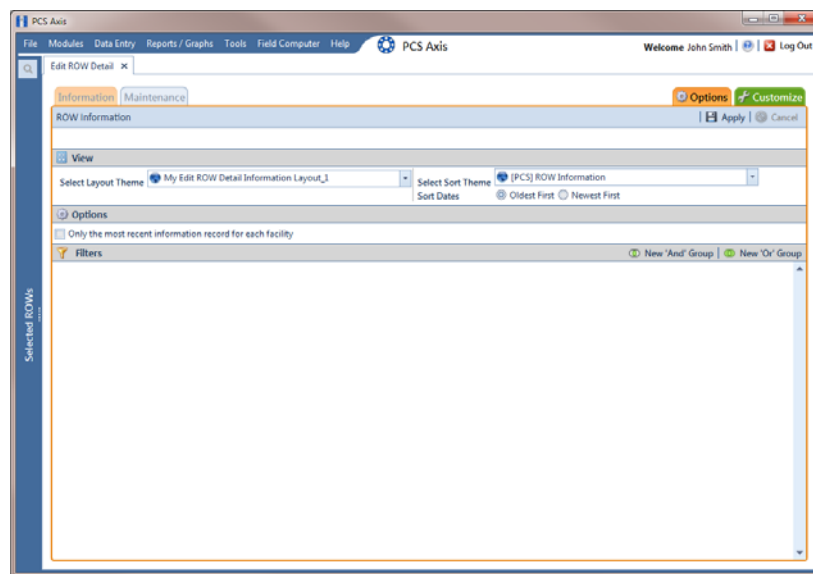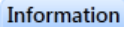

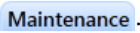**Figure 3-24. Options**

Adding a Sort Theme

A sort theme determines how PCS Axis sorts records in a data entry grid. Adding a sort theme allows you to choose which field(s) to sort records by and if records sort alphanumerically in ascending or descending order.

To add a sort theme, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![save] **Save** to close the window (Figure 3-20, page 108).

2 Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window (Figure 3-21, page 109).

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

3 To add a sort theme for the *Information* grid, click the **Information** tab `Information` if the grid is not visible. Click the **Maintenance** tab `Maintenance` to display the *Maintenance* grid if you want to create a sort theme for this grid.

4 Click the **Customize** tab `Customize` then the **Sorts** button `Sorts` to open the *Sorts* page (Figure 3-25).
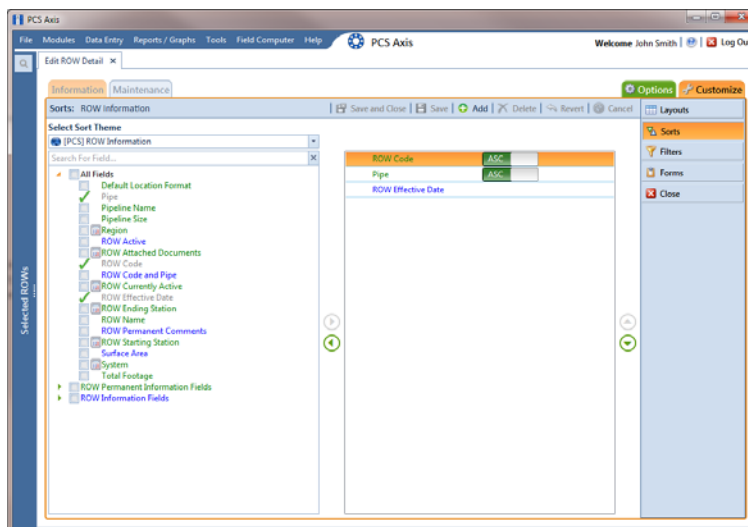
Figure 3-25. Sorts

5   Click ➕ **Add** to open the *New Sort Layout* dialog box (Figure 3-26).
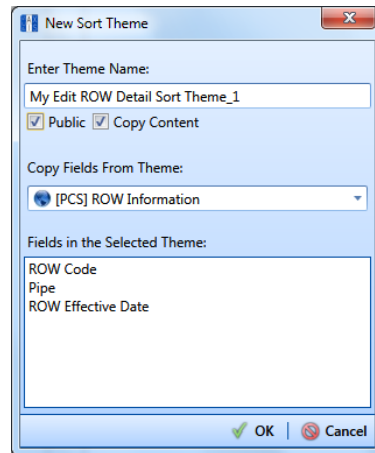
Figure 3-26. New Sort Layout

6   Type a name for the sort theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the sort theme saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

7   Select a sort theme with fields you want to copy to the new sort theme. Click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

8   Click ✔ **OK** to save changes and return to the *Sorts* page (Figure 3-27, page 114).

9   Complete the following steps in the *Sorts* page to add and remove fields in the new sorting theme as needed:

a   Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

b   Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The sorting theme includes all fields listed in the right pane.

c   If you want to remove a field in the sorting theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

10 Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC** [ASC]. To sort in descending order, click the toggle button to select **DESC** [DESC].

11 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⊙ or down ⊙ button.

Figure 3-27. Sorts

12 Click ⊟ **Save** to save changes.

13 To apply the new sort theme to the data entry grid, follow these steps:

a   Click the **Options** tab [Options] to open the options page (Figure 3-28, page 115).

b   Click the down arrow in the field **Select Sort Theme** and select the new sort theme in the selection list.

c   Click ⊟ **Apply** to save and apply changes and then return to the data entry grid. To cancel changes, click the **Options** tab [Options] or ⊘ **Cancel** to return to the grid.
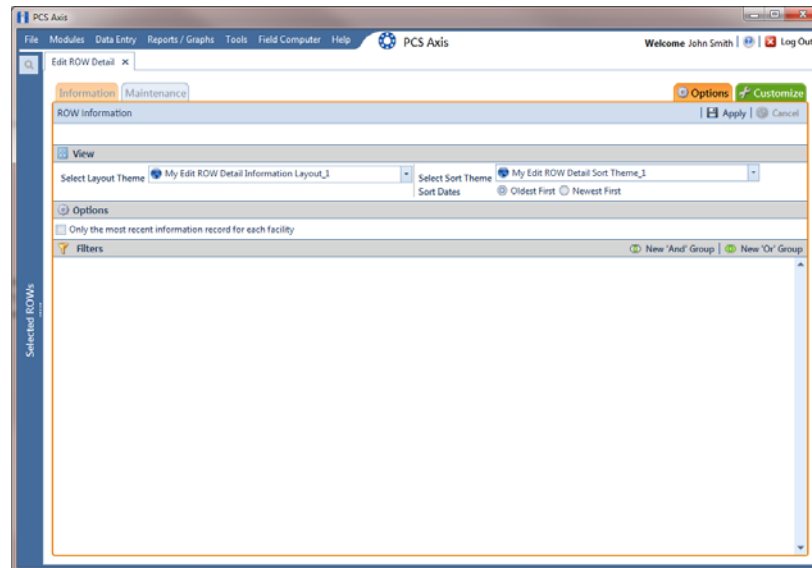
Figure 3-28. Options

Adding an AND Filter Group

An AND filter group is a named set of one or more filters that affect the data output in the *Edit ROW Detail* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an AND filter group, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click 🖫 **Save** to close the window (Figure 3-20, page 108).

2   Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window (Figure 3-21, page 109).

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

3   Select the grid you want to work with by clicking the **Information** tab Information or the **Maintenance** tab Maintenance .

4   Click the **Customize** tab Customize then the **Filters** button Filters to open the *Filters* page (Figure 3-29, page 116).

5   Click New 'And' Group to open the filter properties group box.
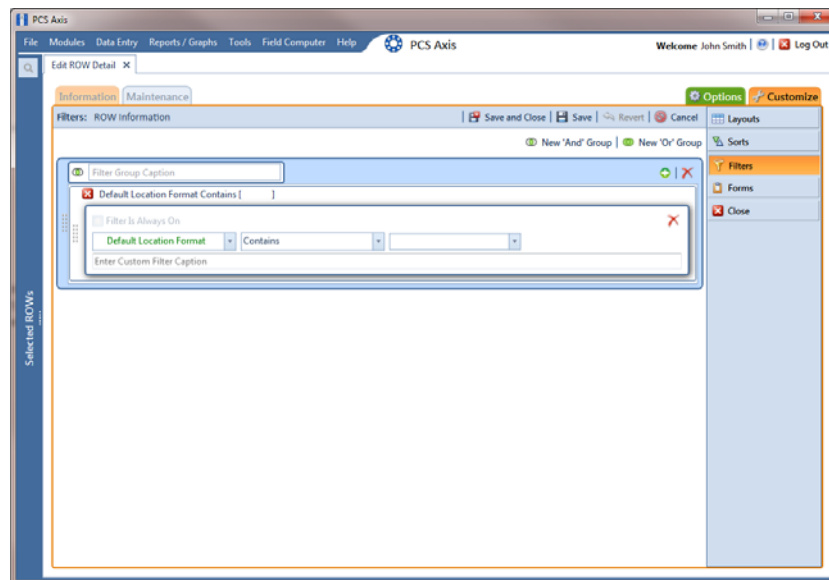
Figure 3-29. Filters

6 Type a name for the filter group in the field **Filter Group Caption**.

7 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

8 If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the *Options* page using the filter's check box.

9 Type a name for the filter in the field **Enter Custom Filter Caption**.

10 If you want to set up additional filter criteria for the filter group:

a Click ➕ **Add** to open another filter properties group box. Then click the ✏ edit icon to display selection fields.

b Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps 7 through 9 to set up filter criteria.

11 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

a Point the mouse at the filter handle ⁞ to change the cursor to a vertical resize cursor ↕.

b Drag and drop the filter or the filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

12 Click 🖫 **Save**.

NOTE: Clicking the 🖊 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

13 To apply one or more custom filter groups to the data entry grid of *Edit ROW Detail*, follow these steps (Figure 3-30, page 117):

a Click the **Options** tab ⚙ Options to open the options page.

b Click the check box for each filter you want to apply.

c Click 🖫 **Apply** to save changes and return to the data entry grid. To cancel changes, click the **Options** tab ⚙ Options or 🚫 **Cancel** to return to the data entry grid.
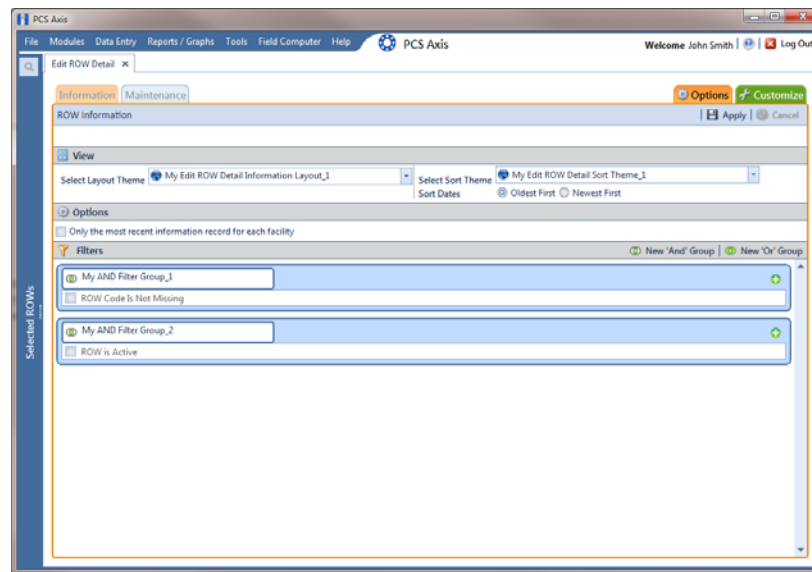
Figure 3-30. Options

Adding an OR Filter Group

An OR filter group is a named set of one or more filters that affect the data output of a report. Adding an OR filter group produces a subset of records that meet any filter condition. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an OR filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![icon] **Save** to close the window (Figure 3-20, page 108).

2 Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window (Figure 3-21, page 109).

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

3 Select the grid you want to work with by clicking the **Information** tab `Information` or the **Maintenance** tab `Maintenance`.

4 Click the **Customize** tab `Customize` then the **Filters** button `Filters` to open the *Filters* page (Figure 3-31).

5 Click ![icon] **New 'Or' Group** to open the filter properties group box.
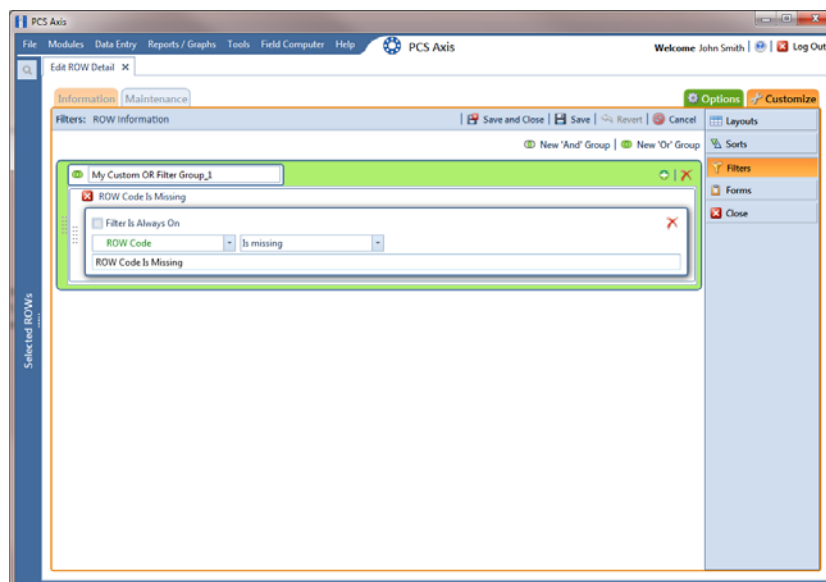
Figure 3-31. Filters

6   Type a name for the filter group in the field **Include records that match any of these conditions** (Figure 3-31, page 118).

7   Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

8   If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the *Options* page using the filter's check box.

9   Type a name for the filter in the field **Enter Custom Filter Caption**.

10 If you want to set up additional filter criteria for the filter group:

   a   Click ⊕ **Add** to open another filter properties group box.

   b   Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps 7 and 8 to set up filter criteria.

11 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

   a   Point the mouse at the filter handle ⦙ to change the cursor to a vertical resize cursor ⇕.

   b   Drag and drop the filter or the filter group to a new location.

   NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

   ---

12 Click 💾 **Save**.

   NOTE: Clicking the 🖊 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

   ---

13 To apply one or more custom filter groups to the data entry grid of *Edit ROW Detail*, follow these steps (Figure 3-32, page 120):

   a   Click the **Options** tab ⚙ Options to open the options page.

b Click the check box for each filter you want to apply.

c Click ![save icon] **Apply** to save changes and return to the data entry grid. To cancel changes, click the **Options** tab ![Options button] or ![cancel icon] **Cancel** to return to the data entry grid.
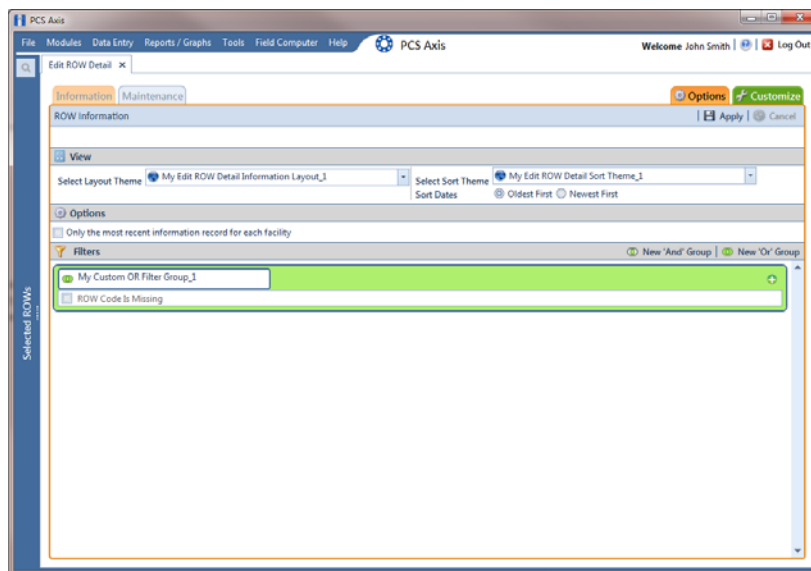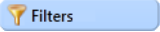
Figure 3-32. Options

Editing and Arranging Filters and Filter Groups

PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![save icon] **Save** to close the window (Figure 3-20, page 108).

2 Click **Data Entry** > **Edit ROW Detail** to open the *Edit ROW Detail* window (Figure 3-21, page 109).

3 Select the grid you want to work with by clicking the **Information** tab ![Information button] or the **Maintenance** tab ![Maintenance button].

4   Click the **Customize** tab 🔧 Customize then the **Filters** button 🔽 Filters to open the *Filters* page (Figure 3-33).

5   Click the edit icon 🖊 to display a filter's property settings.
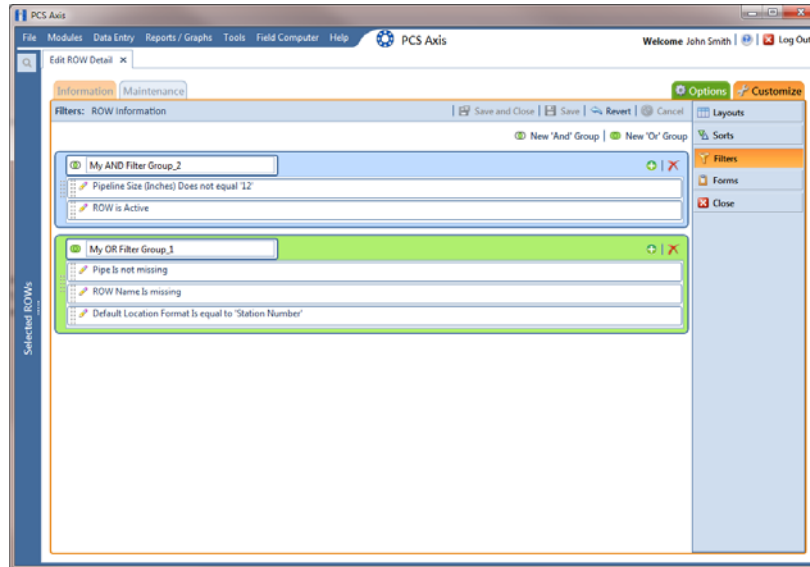
Figure 3-33. Filters

6   To delete a filter in a filter group, click the filter's ✖ delete button (Figure 3-34). Then click ✔ **Yes** when the *Delete* message displays.

7   To rename a filter, type a description in the filter's name field.

8   To change filter criteria, use filter selection fields to select a PCS Axis field, operator, and one or more filter conditions.

9   To enable a filter for all sessions of the data entry grid, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

10   Click the ✖ close button to close the filter's property settings group box.

11 To move a filter to a different position in a filter group, or to move a filter group to a different position, follow these steps:

a Point the mouse at the handle ⦂ of a filter or filter group to display a vertical resize cursor ↕.

b Drag and drop the filter or filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

12 Click ⊞ **Save and Close** to save changes and return to the data entry grid.

Figure 3-34. Filters

Filtering Data in a Grid

Information in this section explains how to filter the data output in any data entry grid in *Edit ROW Detail*. It includes a description of the options and filters available in the *Options* page when working with the *Information* and *Maintenance* grids. Filtering data allows you to work with only those records you are interested seeing in the grid.

Topics in this section include those in the following list:

- *Filtering Data in the Information Grid*

- *Filtering Data in the Maintenance Grid* (page 124)

Filtering Data in the Information Grid

To filter the data output in the *Information* grid of *Edit ROW Detail*, follow these steps:

1 Click **Data Entry** > **Edit ROW Detail**.

2 Click the **Information** tab `Information`, then the **Options** tab `Options` to open the *Options* page (Figure 3-35).
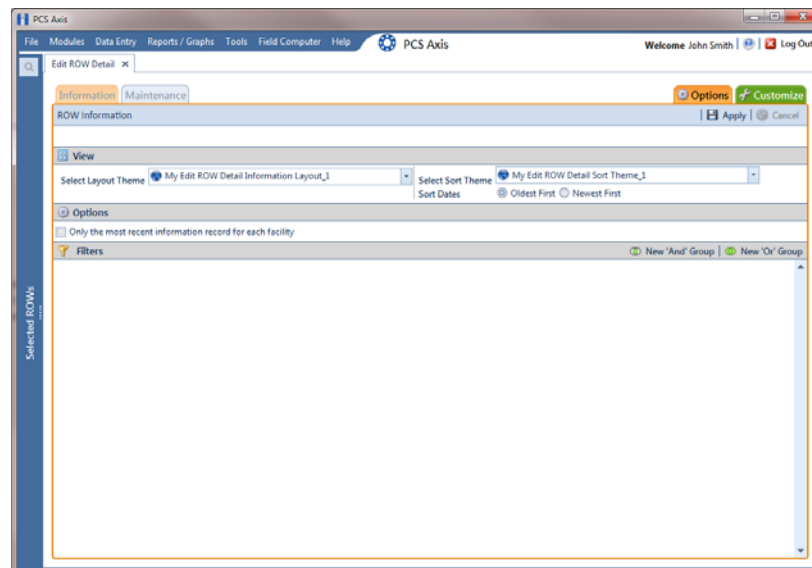
Figure 3-35. Options/Information Grid
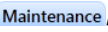
3   To include only the most recent information record for each pipeline, select the check box **Only the most recent information record for each facility**. This option uses the *Effective Date* to filter the data output.

NOTE: When using the *Filters* group box to apply additional filters to the data output, the most recent information record is found first, and then all other filters are applied to the data output. For more information about filters, see *Adding an AND Filter Group* (page 115) and *Adding an OR Filter Group* (page 118).

---

4   Click **Apply** to save and apply changes and then return to the *Information* grid. To cancel changes, click the **Options** tab or **Cancel** to return to the grid.

Filtering Data in the Maintenance Grid

To filter the data output in the *Maintenance* grid of *Edit ROW Detail*, follow these steps:

1   Click **Data Entry** > **Edit ROW Detail**.

2   Click the **Maintenance** tab , then the **Options** tab to open the *Options* page (Figure 3-36).
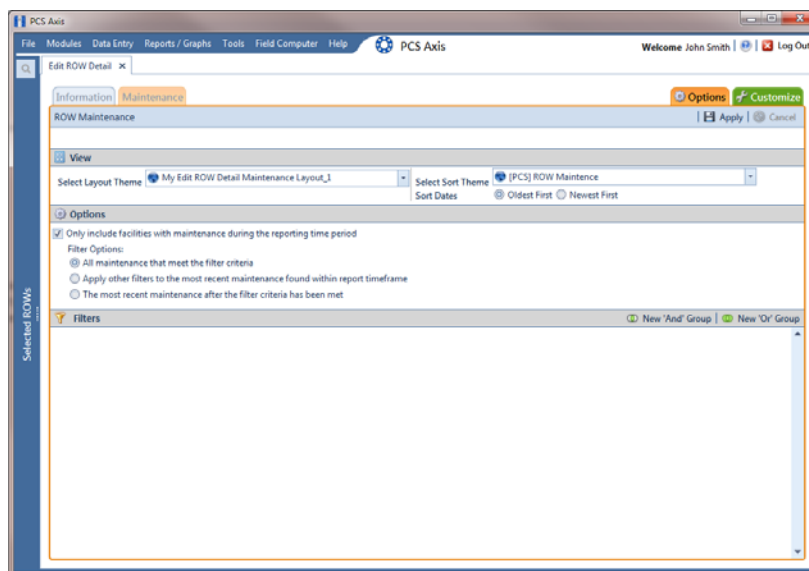
Figure 3-36. Options/Maintenance Grid

3 Review the following descriptions and then select one or more filter options as required:

- *Only include facilities with maintenance during the reporting time period*: The data output for this option only includes those maintenance records that meet the filter criteria defined for a particular date or date range. Filter criteria is defined by filter settings in the *Filters* group box for any of the following time period fields: *Effective Date*, *Repair Found Date*, *Repair Initiated Date*, and *Repair Corrected Date*.

- *All maintenance that meet the filter criteria*: This option includes all maintenance records in the data output that meet filter criteria based on filter settings in the *Filters* group box.

- *Apply other filters to the most recent maintenance found within the report timeframe*: This option finds the most recent maintenance record within the reporting time frame first, and then applies other filter settings to the data output. Filter criteria for both of these are defined in the *Filters* group box. Use any of the following fields when defining filter criteria for the reporting time frame: *Effective Date*, *Repair Found*, *Repair Initiated*, and *Repair Complete*.

- *The most recent maintenance after the filter criteria has been met*: The data output for this option includes the most recent maintenance record only for those pipeline records that meet all other filter criteria first. Filter criteria for both of these are defined in the *Filters* group box. Use any of the following fields when defining a time period for the most recent maintenance record: *Effective Date*, *Repair Found*, *Repair Initiated*, and *Repair Complete*.

NOTE: For more information about filters, see *Working with Themes and Filter Groups* (page 107).

4 Click 💾 **Apply** to save and apply changes and then return to the *Maintenance* grid. To cancel changes, click the **Options** tab ⚙ **Options** or 🚫 **Cancel** to return to the grid.

Notes

4

Setting Up User Management

This chapter explains how to work with PCS Axis user accounts in *User Management*. The information is intended for users with *SysAdmin* security permissions. Topics in this chapter include those in the following list:

- *Understanding User Management*

- *Using Computer Name User Authentication* (page 128)

- *Adding and Editing Users* (page 128)

Understanding User Management

User Management controls system security using a role based method. Each PCS Axis user is defined in *User Management* and assigned a PCS Axis installed user role. A user role is a collection of security permissions that tells PCS Axis which system features a user has access to and if the user is allowed to add and edit data.

The following list identifies the three types of PCS Axis installed user roles. Each type gives users a different level of security permissions. Users are assigned only one user role. The *SysAdmin* user role has full control of all PCS Axis features and functions. For a list of user role permissions assigned to the *User* and *Read Only* user roles, see Appendix C (page 645).

- SysAdmin

- User

- Read Only

When PCS Axis first installs, it creates the first system account using *Computer Name* user authentication. This account is automatically assigned the *SysAdmin* user role, which has the highest set of privileges. See *Using Computer Name User Authentication* (page 128) for more information.

Using Computer Name User Authentication

PCS Axis uses *Computer Name* user authentication when logging users in to the PCS Axis database. If more than one user will share a single computer installed with PCS Axis, contact your IT department for information about setting up the required Windows user accounts on the computer. Login credentials must be unique for each PCS Axis user. If needed, refer to Windows Help and Support (*Start > Help and Support*), or visit the Microsoft website at the following address to learn more about Windows user accounts:
http://windows.microsoft.com/en-US/windows7/User-accounts-recommended-links.

Adding and Editing Users

Information in this section explains how to work with user accounts in User Management. The information is intended for the PCS Axis SysAdmin. Topics include those in the following list:

- *Adding a New User* (page 129)

- *Editing an Existing User Account* (page 130)

- *Changing User Account Status from Active to Inactive* (page 131)

Adding a New User

To add a new user in PCS Axis, follow these steps:

1 Click **Tools** > **User Management** > ⊕ **Add** (Figure 4-1).
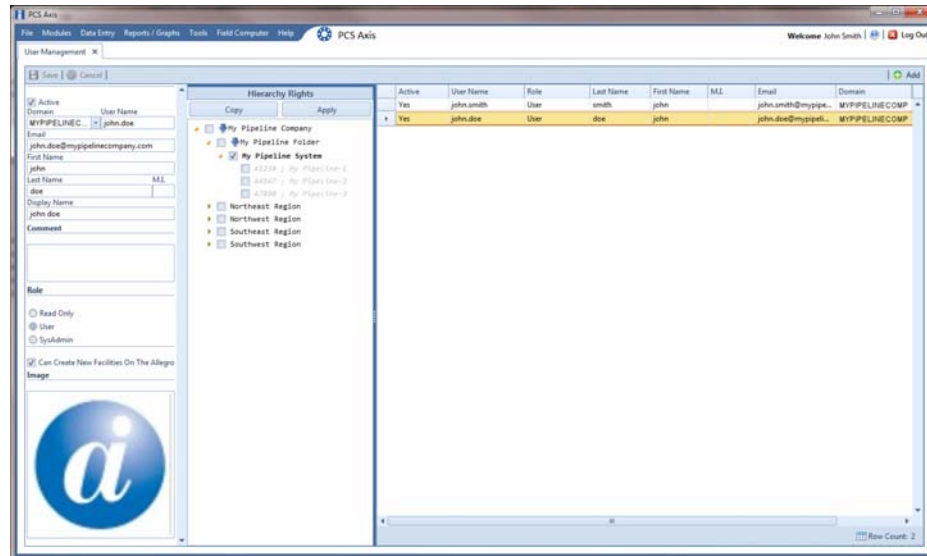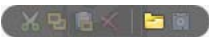
Figure 4-1. Adding a New User

2 Type a user name in the **User Name** field and the user's email address in the **Email** field.

3 Complete the following steps as needed:

a Edit information in the fields **First Name**, **Last Name** and **Display Name**.

b Type information in the **Comment** field.

4 Select a PCS Axis user role by clicking the **Read Only**, **User**, or **SysAdmin** button. If needed, see *System Security* (page 645) for information about user role security permissions.

5 If you want to allow the user to create new facilities on the Allegro Field PC, click the check box **Can Create New Facilities On the Allegro**.

NOTE: Clicking the *Hierarchy Rights* bar collapses the *Hierarchy Rights* panel allowing you to view more of the grid. Clicking the bar again expands the panel.

6 If you want to include an image in the user account, complete the following steps. Maximum image size is 150 x 150 (measured in pixels). Valid image formats are BMP, JPG, GIF, and PNG.

a Hover the mouse over the **Image** field to display a toolbar .

b Click the open icon in the image toolbar to open Windows Explorer. Locate and select an image, then click **Open** to close the window.

7 If PCS Axis i set up with *Hierarchical Security* in *Options*, set permissions in **Hierarchy Rights** to identify which parts of the hierarchy the user will have access. This step applies only to users assigned with the *User* or *Read Only* user role. SysAdmin has full access to all items in the hierarchy.

To grant access, click the check box for an item in the hierarchy to place a check mark inside the check box. To remove access, click the check box again to remove the check mark. When you finish, click **Apply**. For information about *Hierarchical Security* in *Options*, see *Setting Security Options* (page 39).

NOTE: Items in the hierarchy with a check mark indicate the user has access. If a check mark is not present, the user does not have access.

8 Click **Save** to save changes.

Editing an Existing User Account

Complete the following steps to edit an existing user account in *User Management*:

1 Click **Tools** > **User Management** (Figure 4-1, page 129).

2 Select a user record in the grid.

3 Change user information and *Hierarchy Rights* as needed. User information includes all fields, such as *Domain*, *User Name*, *Email*, *Display Name*, and so on.

4 Click **Save** to save changes

Changing User Account Status from Active to Inactive

If a user no longer requires access to PCS Axis, change the status of the user account in the following manner:

1   Click **Tools** > **User Management** (Figure 4-2).

2   Select a user record in the grid. PCS Axis indicates a selection by highlighting the record and displaying an arrow next to the Active property field.

3   Click the **Active** check box to remove the check mark and change the user account status from active to inactive.

4   Click **Save** to save changes.

The *Active* property setting changes from *Yes* to *No* indicating the user account is now inactive (Figure 4-2).
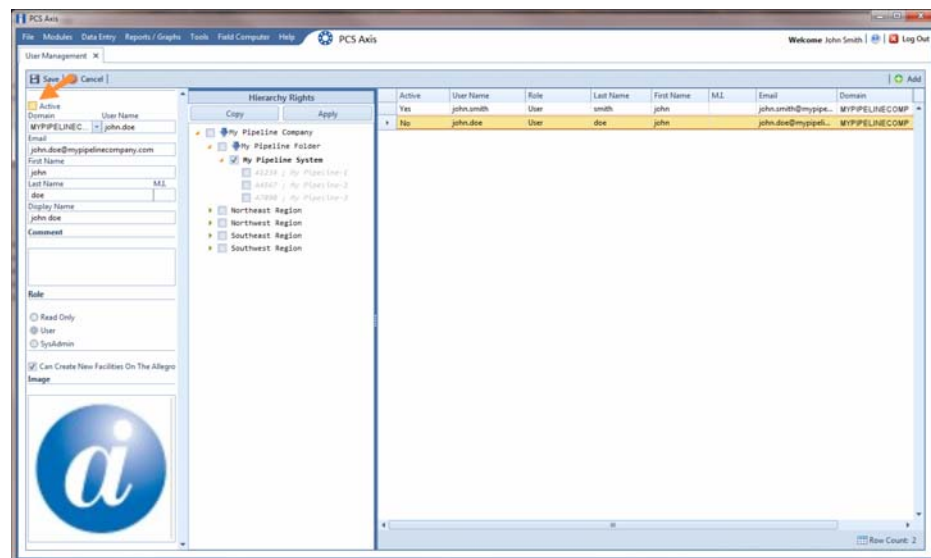
Figure 4-2. User Account Status

Notes

5

Using Survey Folder Maintenance

This chapter explains how to add, delete, and manage facility and continuous survey folders in *Survey Folder Maintenance*. The information is intended for users with *SysAdmin* security permissions unless noted otherwise. Topics in this chapter include those in the following list:

- *Working with a Facility Survey Folder* (page 133). Information applies to all modules except Indirect Survey Manager.

- *Working with a Continuous Survey Folder* (page 136). Information applies only to Indirect Survey Manager (ISM).

Working with a Facility Survey Folder

A facility survey folder is a group of inspection readings in a facility survey. PCS Axis uses facility survey folders to organize and track facility survey data. Facility survey folders are used throughout PCS Axis, including data entry grids, reports, Bridge, and Field Computer. You can also use a facility survey folder as an optional filter in a grid or report to easily retrieve a specific set of inspection records.

Names of facility survey folders typically follow regulatory requirements for surveying pipeline segments and facilities. For example, when you create an annual survey folder labeled *2012 Annual Survey*, you can then assign inspection readings to the facility survey folder throughout the year as they are completed. Names of facility survey folders are editable allowing you to name a survey folder using a naming convention that best suits your business needs. Examples of typical survey folder names include *2012 Feb Monthly Survey* and *2001-2010 Ten Year Survey* (Figure 5-1, page 134).

Continue with the following topics for information about how to add, delete, and manage a facility survey folder:

- *Adding a Facility Survey Folder* (page 134)

- *Deleting a Facility Survey Folder* (page 135)

- *Using a Facility Survey Folder* (page 136)

Adding a Facility Survey Folder

A facility survey folder is typically added in PCS Axis before entering inspection readings in a data entry grid or importing inspection readings using Bridge or Field Computer. Adding a survey folder requires that you enter a survey folder name; select a survey start date; and then select a survey frequency. Based on this information PCS Axis automatically calculates the survey end date.

If no survey folders exist when adding a new survey folder, PCS Axis names the survey folder using the current year, such as *2013 Annual Survey*. When other survey folders do exist, PCS Axis increments the year by 1. For example, if the latest annual survey folder is *2002 Annual Survey*, PCS Axis names the next new survey folder as *2003 Annual Survey*. Survey folder names are editable allowing you to name a survey folder based on your company's standards.

To add a survey folder, follow these steps:

1 Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window (Figure 5-1).

2 Click the ➕ **Add** button to add a row in the grid.
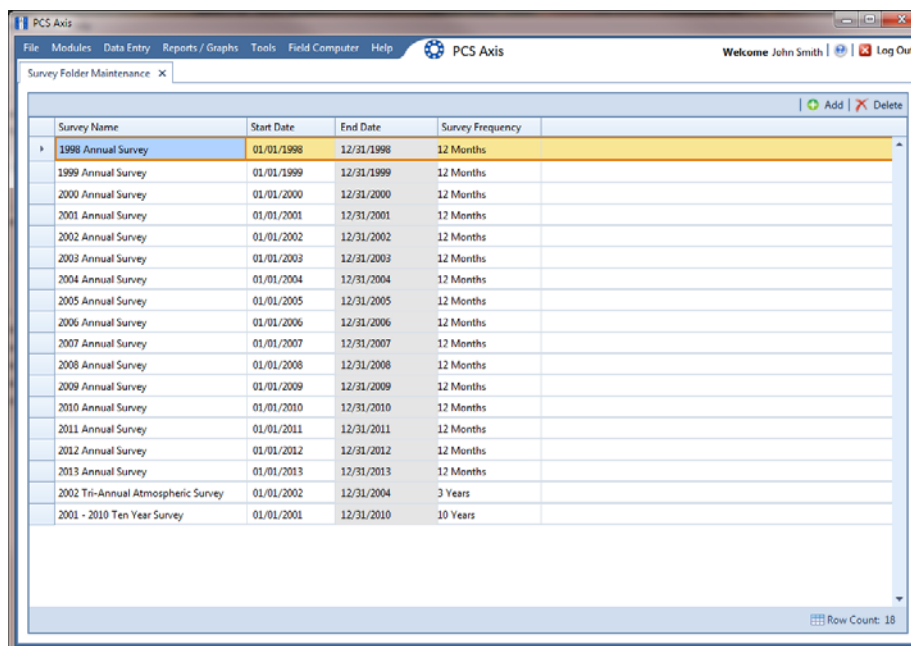
Figure 5-1. Survey Folder Maintenance

3 If you want to rename the newly added survey folder, type a name in the **Survey Name** field.

4 Type the survey start date in the **Start Date** field. Or, click the down arrow in the field to choose a date using a calendar.

5   Select a survey frequency in the field **Survey Frequency** field. Click the field to display a drop-down arrow, then click the drop-down arrow and select an option in the selection list.

The new survey folder is now available for use in data entry grids, reports, Bridge, Field Computer, and as an optional filter selection. For more information, see *Using a Facility Survey Folder* (page 136).

Deleting a Facility Survey Folder

Deleting a survey folder removes all references to the survey folder throughout PCS Axis. For example, when facility inspection records have been assigned to a survey folder you plan to delete, PCS Axis removes references to the survey folder for each inspection record assigned to the survey folder. Inspection records are not deleted however, only references to the survey folder are deleted.

Deleting a survey folder typically occurs when you want to clean up data that is no longer needed or when a survey folder has been created accidentally. A message displays listing all facility records assigned to the survey folder allowing you to either cancel the operation or delete the survey folder (Figure 5-2).

To delete a survey folder, follow these steps:

1   Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window (Figure 5-1, page 134).

2   Select a survey folder in the grid, then click the ✗ **Delete** button.

3   When the *Delete* message displays, click ✔ **Yes** to delete the survey folder or ✗ **No** to cancel the operation (Figure 5-2).
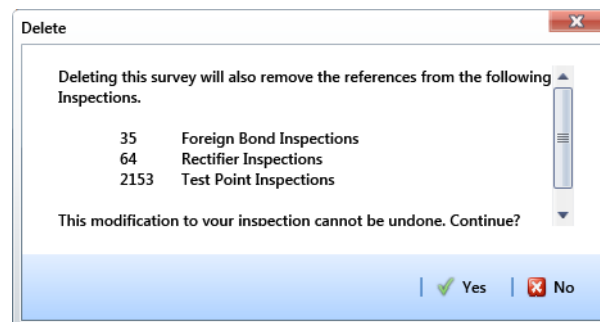
Figure 5-2. Example of Survey Folder Delete Message

Using a Facility Survey Folder

You can assign inspection readings to a survey folder in any of the following areas of PCS Axis:

- *Inspection data entry grid*. Assign an inspection record to a survey folder using the *Survey* field in the *Inspection* data entry grid.

- *Bridge import file*. Use the options in the *Add Data Item* group box to assign inspection readings to an annual and/or periodic survey folder. PCS Axis assigns inspections to the appropriate survey folder based on the survey inspection date.

- *Receiving survey files from the Allegro*. Use the *Options* group box in the *Field Computer Receive Data* window to assign inspection readings to a survey folder. Choosing *Automatic Assignment* allows PCS Axis to assign inspections to the appropriate survey folder based on the survey inspection date.

- *Filter option in the Inspection data entry grid*. To view a set of inspection records for a particular survey in the *Inspection* data entry grid, select a survey folder option in the *Filters* group box of the *Customize Options* page.

- *Filter option in Reports*. To view a set of inspection records for a particular survey in a report, select a survey folder option in the *Filters* group box of the *Options* page.

Working with a Continuous Survey Folder

A continuous survey folder is a container for a group of survey readings associated with a continuous survey, such as survey readings in a close interval (CI) survey or other type of aboveground indirect survey. Continuous survey folders are used throughout PCS Axis when working with a data entry grid, report, or graph in the Indirect Survey Manager module. They allow PCS Axis to organize and track continuous survey readings.

Information in this section explains how to use the most common features of *Survey Folder Maintenance*. Topics include those in the following list. For information about other features, see *Working with Themes and Filter Groups* (page 143).

- *Adding a Continuous Survey Folder*

- *Deleting a Continuous Survey Folder* (page 140)

- *Using a Continuous Survey Folder* (page 142)

- *Working with Themes and Filter Groups* (page 143)

Adding a Continuous Survey Folder

A continuous survey folder must first be added in *Survey Folder Maintenance* before working with survey readings in an ISM data grid, report, or graph. Adding a continuous survey folder includes the following tasks:

- Choosing the type of continuous survey, such as CIS, AC CIS, DCVG, ACVG, ACCA, Soil Resistivity, or Pearson.

  For a description of the different types of continuous surveys supported in PCS Axis, see *Appendix B* (see page 635).

- Providing the survey start date and survey name. These property settings allow you to identify the correct survey folder when adding survey readings or working with reports and graphs in ISM.

- As an option, providing the name of the surveyor and/or the vendor performing the survey.

To add a continuous survey folder, follow these steps:

1   Click the **Select ROWs** button [🔍] to open the *Select ROWs* window (Figure 5-3). Select the pipeline segment(s) with the facilities you want to work with, then click [💾] **Save** to close the window.
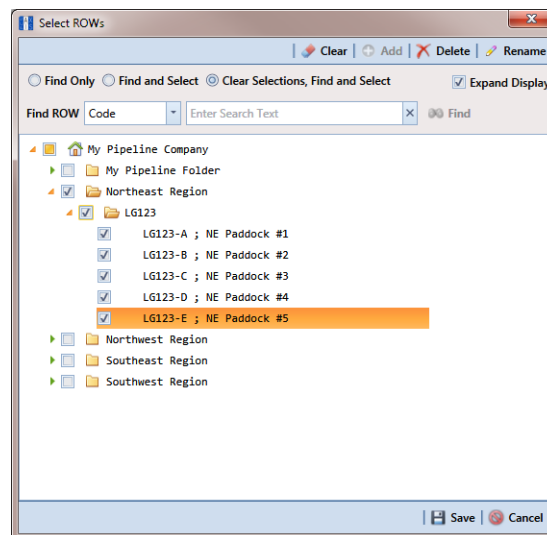
Figure 5-3. Select ROWs

2 Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3 Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window (Figure 5-4).

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.
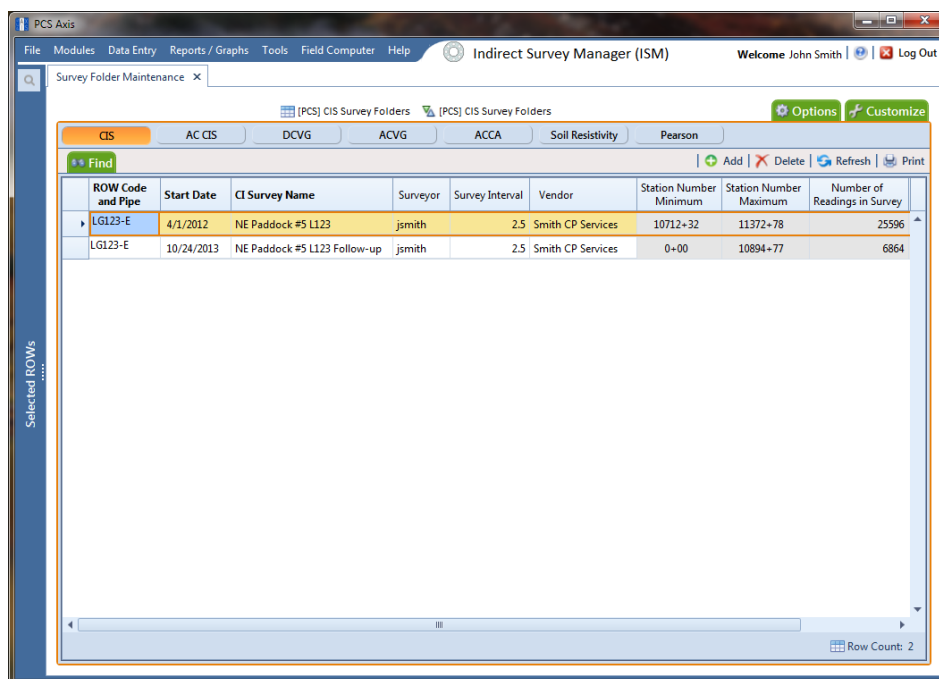
Figure 5-4. Survey Folder Maintenance

4 Click a button labeled with the type of continuous survey that you want to add a survey folder. For example, clicking the **CIS** button [CIS] adds a survey folder for close interval survey readings (Figure 5-4).

5 Click the ⊕ **Add** button to open the *Add Record* dialog box (Figure 5-5, page 139).

6 Select the pipeline segment that you want to add a continuous survey folder. In the following example, PCS Axis will add a continuous survey folder for pipeline segment *LG123-D*.
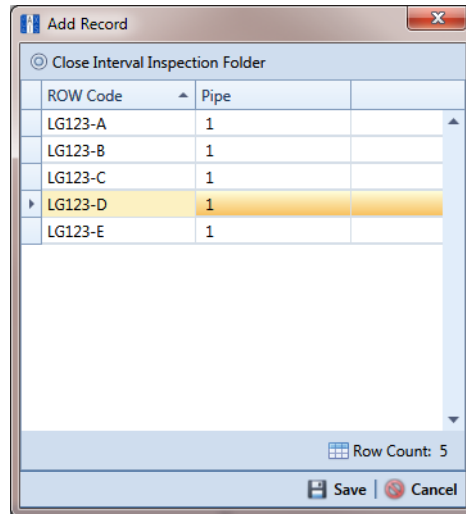
Figure 5-5. Add Record

7 Click ![save icon] **Save** to close the *Add Record* dialog box and return to the data grid.

PCS Axis adds a row of records in the grid for the new continuous survey folder. The new record includes an error icon ⊗ in the fields labeled *Start Date* and *Survey Name* to indicate a required data entry field as shown in the following example (Figure 5-6).
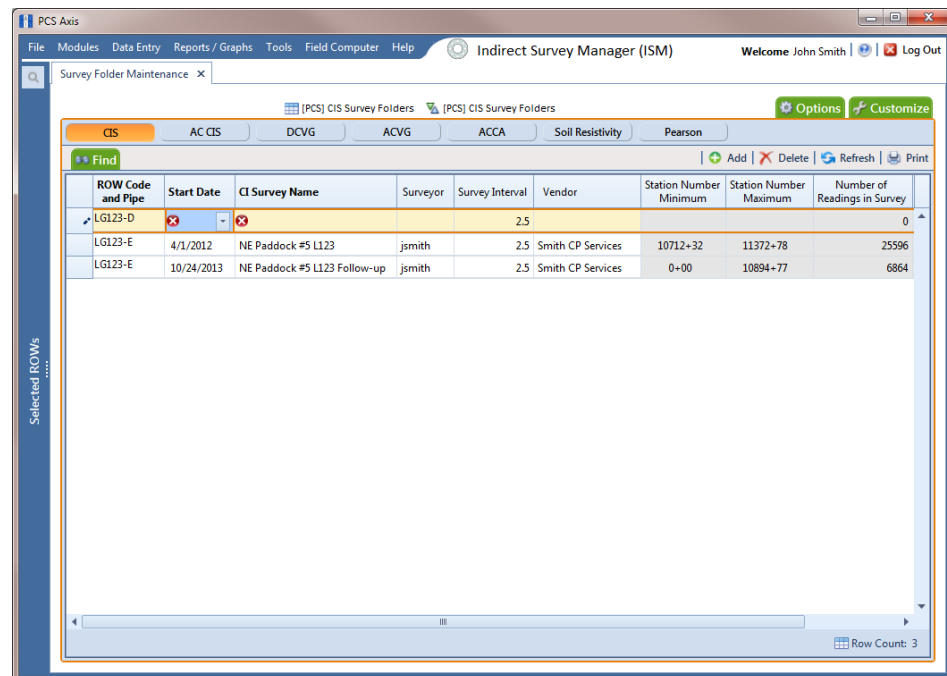
Figure 5-6. Survey Folder Maintenance

8 Set the survey start date. Click the down arrow in the **Start Date** field and select a date using a calendar. Or, type the survey start date using the format M/D/YYYY to indicate the month, day, and year.

9 Type a name for the survey folder in the **Survey Name** field.

10 Provide other survey information in remaining fields as needed. For example, type the surveyor's name in the **Surveyor** field or a value in the **Survey Interval** field that identifies the distance between survey readings.

11 Click **Refresh** to update the data grid.

The survey folder is now available for selection when working with survey readings in Edit ISM Data (*Data Entry > Edit ISM Data*), reports, and graphs.

Deleting a Continuous Survey Folder

Deleting a continuous survey folder in *Survey Folder Maintenance* also deletes survey readings associated with the survey folder.

To delete a continuous survey folder, follow these steps:

1 Click the **Select ROWs** button to open the *Select ROWs* window. Select the pipeline segment(s) associated with the continuous survey folder you want to delete. Then click **Save** to close the window (Figure 5-3, page 137).

2 Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3 Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

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4 Click a button labeled with the type of continuous survey folder you want to delete. For example, click the **CIS** button to delete the survey folder and associated survey readings for a close interval survey (Figure 5-6, page 139).

5 Select a pipeline segment in the grid that includes the continuous survey folder you want to delete. For example, the row of records for pipeline segment *LG123-D* are selected in the following figure (Figure 5-7, page 141).
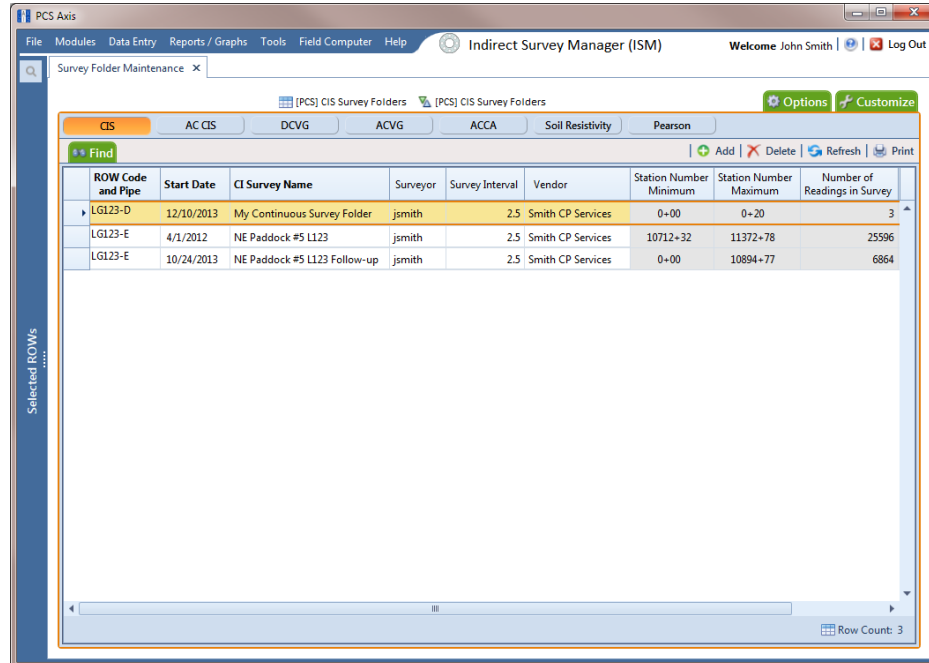
Figure 5-7. Survey Folder Maintenance

6 Click ✕ **Delete**. When the message *Delete Record* displays, click ✕ **Delete** again (Figure 5-8).
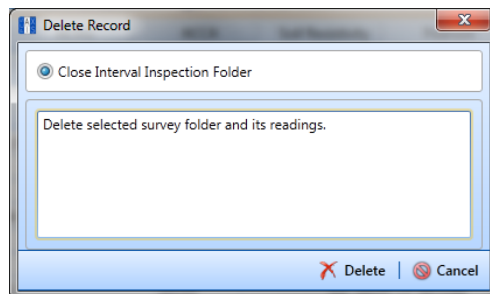
Figure 5-8. Delete Record

7 Click ✓ **Yes** when a warning displays asking if you want to continue deleting the survey folder and associated survey readings (Figure 5-9).

The survey folder and associated survey readings are now deleted from PCS Axis.
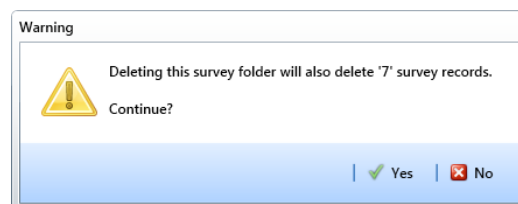
Figure 5-9. Warning

Using a Continuous Survey Folder

You can use a continuous survey folder in any of the following areas of the Indirect Survey Manager module:

- *Data entry grid*. Add survey readings in a continuous survey folder associated with a pipeline segment using Edit ISM Data (*Data Entry > Edit ISM Data*).

- *Filter option in Criteria Report.* View survey readings based on a survey folder selected in *Options* when working with a columnar *Criteria Report*.

- *Filter option in PCS Axis Inspections Graph.* View a graph of survey readings based on a survey folder selected in *Survey Selections* when working with a *PCS Axis Inspections Graph*.

- *Receiving survey files from the Allegro*. Use the *Options* group box in the *Field Computer Receive Data* window to assign survey readings to a continuous survey folder associated with a pipeline segment.

Working with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as grid layout or sorting themes. Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS Axis software installation. PCS Axis installed themes are public themes available to all PCS Axis users. These themes are identified with a globe icon and PCS in brackets [PCS], such as **[PCS] CIS Survey Folders**.

A filter group is a named set of one or more filters that affect the data output in the *Survey Folder Maintenance* grid. PCS Axis provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Survey Folder Maintenance* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. Adding an OR filter group produces a subset of records that meet any filter condition. When you apply a filter group to the grid, PCS Axis processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and an optional filter group in the *Survey Folder Maintenance* grid. Topics include those in the following list:

- *Adding a Layout Theme* (page 144)
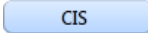
- *Adding a Sort Theme* (page 147)

- *Adding an AND Filter Group* (page 150)

- *Adding an OR Filter Group* (page 153)

- *Editing and Arranging Filters and Filter Groups* (page 156)
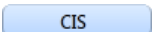
Adding a Layout Theme

A layout theme is a group of fields in a grid layout. Adding a new *Layouts* theme allows you to choose which fields you want to include in the grid layout and then save the layout as a theme for later use.

To add a layout theme in *Survey Folder Maintenance*, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ![Save icon] **Save** to close the window (Figure 5-3, page 137).

2   Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3   Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

4   Click a button labeled with the type of continuous survey that you want to add a layout theme. For example, click the **CIS** button ![CIS] to add a layout theme for a continuous survey associated with close interval survey readings (Figure 5-7, page 141).

5   Click the **Customize** tab ![Customize] then the ![Add icon] **Add** button to open the *New Layout Theme* dialog box (Figure 5-10).
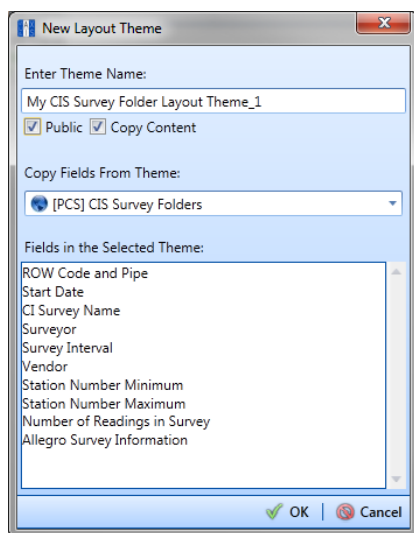
Figure 5-10. New Layout Theme

6 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

---

7 Select a layout theme with fields you want to copy to the new layout theme. Click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

8 Click ✔ **OK** to save changes and return to the *Layouts* page (Figure 5-11).
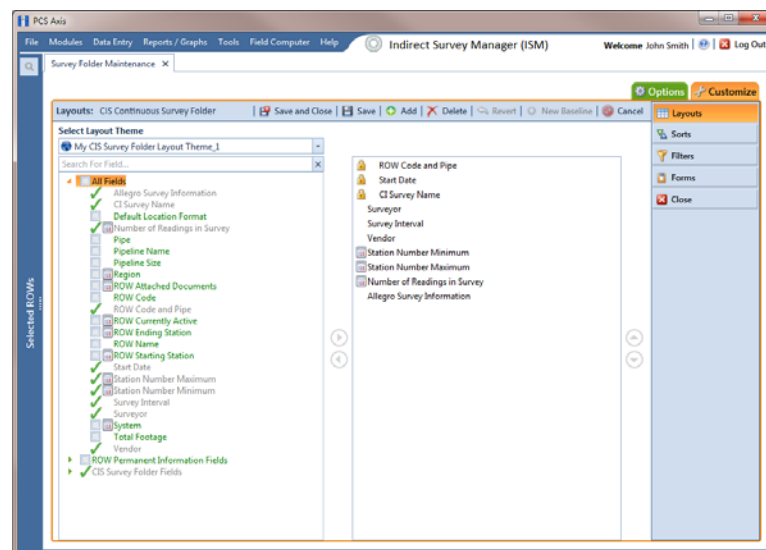
Figure 5-11. Layouts

9 Complete the following steps in the *Layouts* page to add and remove fields in the new layout theme as needed:

a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

b Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The layout theme includes all fields listed in the right pane of the *Layouts* page.

c To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

NOTE: Fields with a lock icon 🔒 are required and cannot be removed from the theme, such as 🔒 **ROW Code and Pipe** shown in the previous example (Figure 5-11, page 145).

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10 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⊙ or down ⊙ button.

11 Click 🖫 **Save** to save changes.

12 To apply the new layout theme to the data entry grid in *Survey Folder Maintenance*, follow these steps:

a Click the **Options** tab ⚙ Options to open the options page (Figure 5-12).

b Click the down arrow in the field **Select Layout Theme** and select the new layout theme in the selection list.

c Choose a method for sorting survey folders in the data entry grid based on the survey date in the *Start Date* field. Click **Oldest First** or **Newest First** in *Sort Dates* to sort survey folders with the oldest or newest survey *Start Date* first.

d Click 🖫 **Apply** to save and apply changes. If you want to cancel changes instead, click 🚫 **Cancel**. PCS Axis closes the options page and returns to the *Survey Folder Maintenance* window.
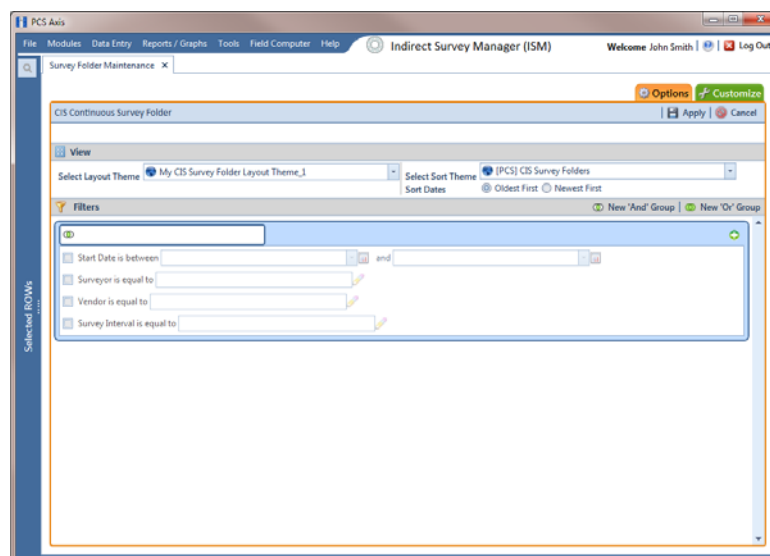
Figure 5-12. Options
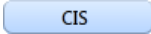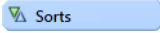
Adding a Sort Theme

A sort theme determines how PCS Axis sorts records in a data entry grid. Adding a sort theme allows you to choose which field(s) to sort records by and if records sort alphanumerically in ascending or descending order.

To add a sort theme for a continuous survey in *Survey Folder Maintenance*, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ⊞ **Save** to close the window (Figure 5-3, page 137).

2   Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3   Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

4   Click a button labeled with the type of continuous survey that you want to add a sorting theme. For example, click the **CIS** button ⌈ CIS ⌉ to add a sorting theme for a continuous survey associated with close interval survey readings (Figure 5-7, page 141).

5   Click the **Customize** tab ⌈ Customize ⌉ then the **Sorts** button ⌈ Sorts ⌉ to open the *Sorts* page (Figure 5-13).
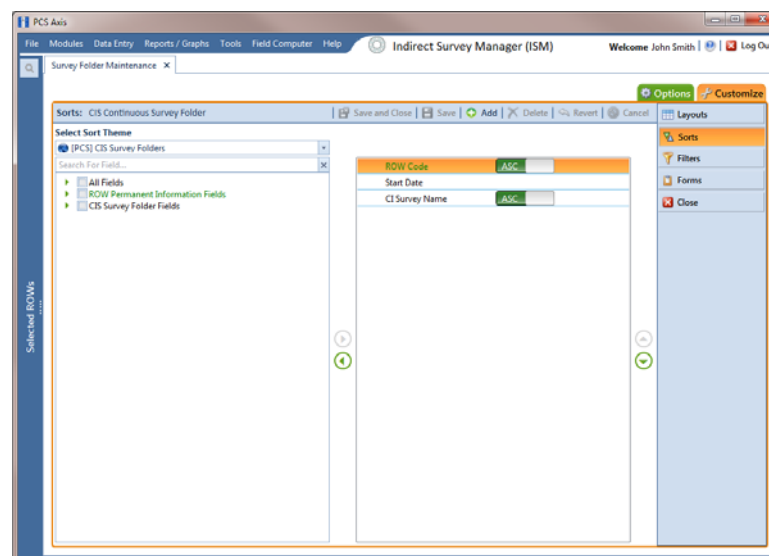
Figure 5-13. Sorts

6 Click the ⊕ **Add** button to open the *New Sort Theme* dialog box (Figure 5-14).
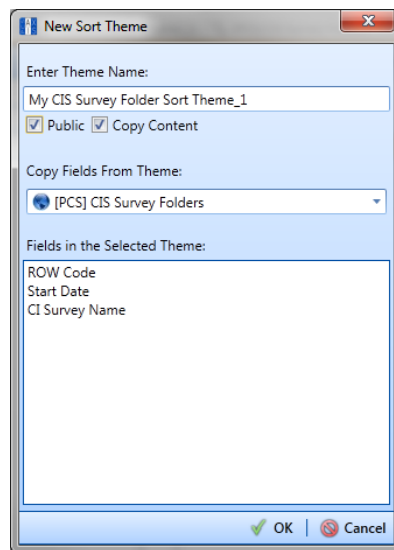
Figure 5-14. New Sort Theme

7 Type a name for the sort theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the sort theme saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

---

8 Select a sort theme with fields you want to copy to the new sort theme. Click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

9 Click ✔ **OK** to save changes and return to the *Sorts* page (Figure 5-15, page 149).

10 Complete the following steps in the *Sorts* page to add and remove fields in the new sorting theme as needed:

a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

b Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The sorting theme includes all fields listed in the right pane.

c If you want to remove a field in the sorting theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

11 Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC** `ASC`. To sort in descending order, click the toggle button to select **DESC** `DESC`.

12 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

Figure 5-15. Sort Theme

13 Click 💾 **Save** to save changes.

14 To apply the new sort theme in the data entry grid of *Survey Folder Maintenance*, follow these steps:

a Click the **Options** tab `Options` to open the options page (Figure 5-16, page 150).

b Click the down arrow in the field **Select Sort Theme** and select the new sorting theme in the selection list.

c Choose a method for sorting survey folders in the data entry grid based on the survey date in the *Start Date* field. Click **Oldest First** or **Newest First** in *Sort Dates* to sort survey folders with the oldest or newest survey *Start Date* first.

d Click 💾 **Apply** to save and apply changes. If you want to cancel changes instead, click 🚫 **Cancel**. PCS Axis closes the options page and returns to the *Survey Folder Maintenance* window.
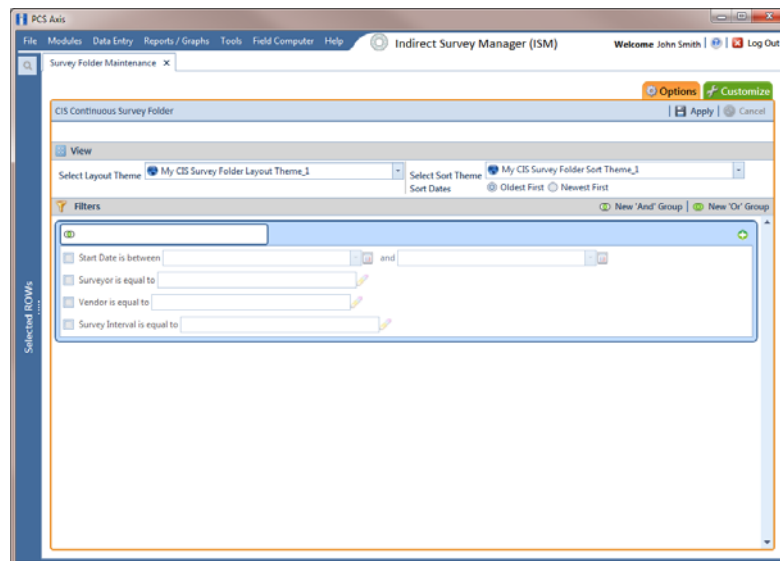
Figure 5-16. Options

Adding an AND Filter Group

An AND filter group is a named set of one or more filters that affect the data output in the *Survey Folder Maintenance* grid. Adding an AND filter group produces a subset of records that meet all filter conditions. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an AND filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ⊟ **Save** to close the window (Figure 5-3, page 137).

2 Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3 Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

4 Click a button labeled with the type of continuous survey that you want to add an AND filter group. For example, click the **CIS** button ⌈ CIS ⌋ to add a filter group for a continuous survey associated with close interval survey readings (Figure 5-7, page 141).

5 Select a survey in the *Survey Folder Maintenance* grid, then click the **Customize** tab ![Customize].

6 Click the **Filters** button ![Filters] to open the *Filters* page. Then click ![icon] **New 'And' Group** to open a filter properties group box (Figure 5-17).

7 Type a name for the filter group in the field **Filter Group Caption**.

8 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

9 If the AND filter group includes a date filter, such as *Start Date Is Between* shown in Figure 5-17, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the ![icon] calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

10 If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the *Options* page using the filter's check box.

11 Type a name for the filter in the field **Enter Custom Filter Caption**.

Figure 5-17. Filters

12 If you want to set up additional filter criteria for the filter group:

   a   Click ⊕ **Add** to open another filter properties group box.

   b   Repeat steps 8 through 11 to set up filter criteria.

13 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

   a   Point the mouse at the filter handle ⁝⁝ to change the cursor to a vertical resize cursor ↕.

   b   Drag and drop the filter or the filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

14 Click 💾 **Save**.

NOTE: Clicking the 🖉 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

15 To apply one or more custom filter groups to the *Survey Folder Maintenance* grid (Figure 5-18, page 153):

   a   Click the **Options** tab ⚙ Options to open the options page.

   b   Click the check box for each filter you want to apply to the grid.

16 Choose a method for sorting records in the grid. Click **Oldest First** or **Newest First** in *Sort Dates* to sort records with the oldest or newest inspection dates first.

17 Click 💾 **Apply** to save changes and return to the grid. If you want to cancel changes and return to the grid, click 🚫 **Cancel**.

Clicking the **Options** tab ⚙ Options also allows you to save changes and return to the grid.
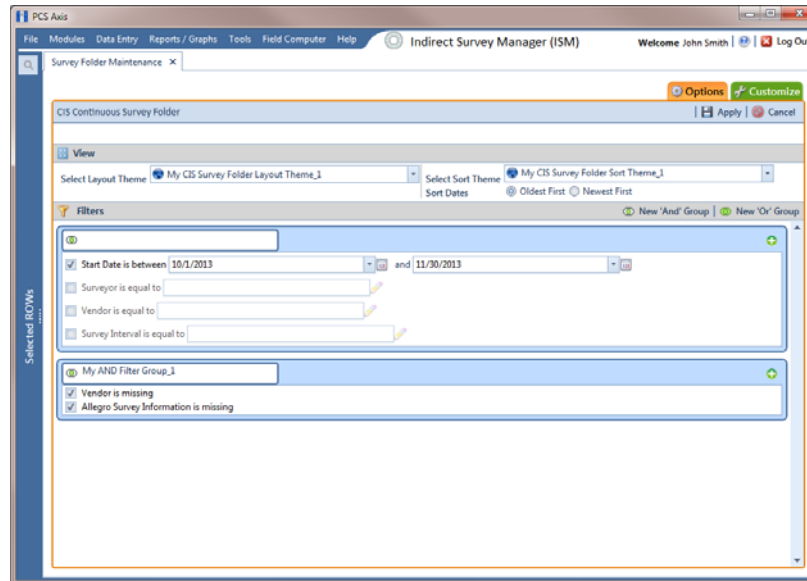
Figure 5-18. Options

Adding an OR Filter Group
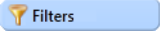
An OR filter group is a named set of one or more filters that affect the data output in the *Survey Folder Maintenance* grid. Adding an OR filter group produces a subset of records that meet any filter condition. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an OR filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ⊟ **Save** to close the window (Figure 5-3, page 137).

2 Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3 Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

---

4 Click a button labeled with the type of continuous survey that you want to add an AND filter group. For example, click the **CIS** button [CIS] to add a filter group for a continuous survey associated with close interval survey readings (Figure 5-7, page 141).

5 Select a survey in the *Survey Folder Maintenance* grid, then click the **Customize** tab .

6 Click the **Filters** button to open the *Filters* page. Then click **New 'Or' Group** to open a filter properties group box (Figure 5-19).

7 Type a name for the filter group in the field **Include records that match any of these conditions**.

8 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

9 If the OR filter group includes a date filter, such as *Start Date Is Between* shown in Figure 5-19, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

10 If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the *Options* page using the filter's check box.

11 Type a name for the filter in the field **Enter Custom Filter Caption**.

Figure 5-19. Filters

12 If you want to set up additional filter criteria for the filter group:

a Click ⊕ **Add** to open another filter properties group box.

b Repeat steps 8 through 11 to set up filter criteria.

13 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

a Point the mouse at the filter handle ⠿ to change the cursor to a vertical resize cursor ↕.

b Drag and drop the filter or the filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

14 Click 💾 **Save**.

NOTE: Clicking the 🖊 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

15 To apply one or more custom filter groups to the *Survey Folder Maintenance* grid (Figure 5-20, page 156):

    a Click the **Options** tab [Options] to open the options page.

    b Click the check box for each filter you want to apply to the grid.

16 Choose a method for sorting records in the grid. Click **Oldest First** or **Newest First** in *Sort Dates* to sort records with the oldest or newest inspection dates first.

17 Click [icon] **Apply** to save changes and return to the grid. If you want to cancel changes and return to the grid, click [icon] **Cancel**.

Clicking the **Options** tab [Options] also allows you to save changes and return to the grid.

Figure 5-20. Options

Editing and Arranging Filters and Filter Groups

PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click [icon] **Save** to close the window (Figure 5-3, page 137).

2 Click **Modules** > **Indirect Survey Manager (ISM)** to open the ISM module.

3   Click **Data Entry** > **Survey Folder Maintenance** to open the *Survey Folder Maintenance* window.

4   Click a button labeled with the type of continuous survey you want to work with, such as the **CIS** button [CIS].

5   Select a survey in the *Survey Folder Maintenance* grid.

6   Click the **Customize** tab [Customize], then the **Filters** button [Filters] to open the *Filters* page.

7   Click a filter's edit icon to display filter property settings (Figure 5-21).
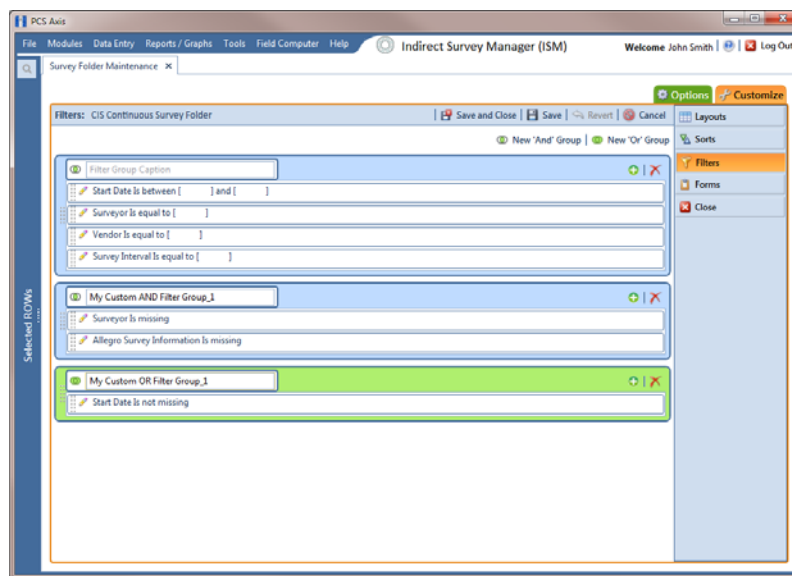
Figure 5-21.   Filters

8 To delete a filter in a filter group, click the filter's ✖ delete button (Figure 5-22). Then click ✔ **OK** when the *Delete* message displays.
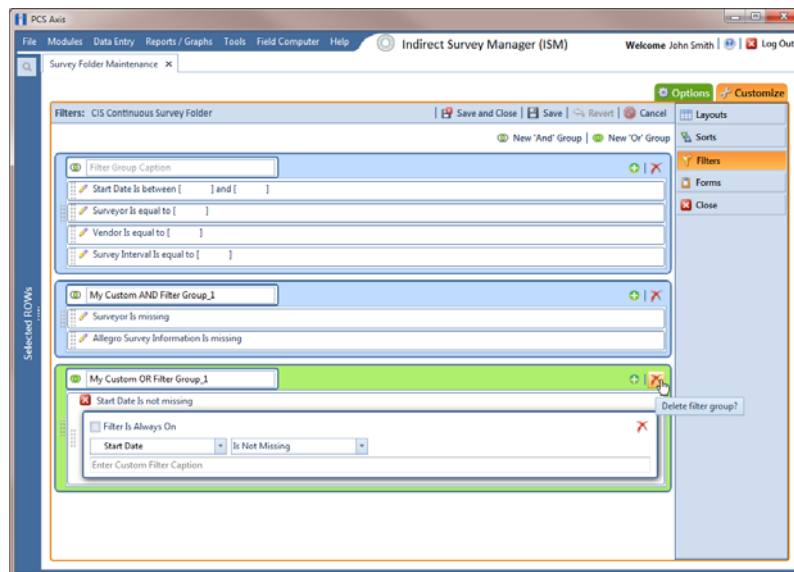
Figure 5-22. Filters

9 To rename a filter, type a description in the filter's name field.

10 To change filter criteria, use filter selection fields to select a PCS Axis field, operator, and one or more filter conditions.

11 To enable a filter for all sessions of the data entry grid, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

12 Click the ✖ close button to close the filter's property settings group box (Figure 5-22, page 158).

13 To move a filter to a different position in a filter group, or to move a filter group to a different position, follow these steps:

    a Point the mouse at the handle ⁝⁝ of a filter or filter group to display a vertical resize cursor ↕.

    b Drag and drop the filter or filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

14 Click 🖫 **Save and Close** to save changes and return to the grid.

Notes

6

Using Data Entry Grids

Information in this chapter explains how to use the data entry grids in *Edit <module> Data* to add and edit facility inspection records and continuous survey data. The information is intended for all users unless noted otherwise.

Topics in this chapter include those in the following list:

- *Data Entry Grid Overview*

- *Quick Start* (page 166)

- *Working with Continuous Survey Data* (page 209)

- *Working with Themes and Filter Groups* (page 232)

- *Working with Records* (page 248)

Data Entry Grid Overview

PCS Axis provides different types of data entry grids (also referred to as grids) and mini-grids for organizing and managing facility data. Information in this section provides a description of these grids. Topics include those in the following list:

- *Types of Data Entry Grids* (page 162)

- *Understanding Field Caption Colors* (page 163)

- *Rearranging and Resizing Grid Columns* (page 164)

- *Locking and Unlocking Grid Columns* (page 164)

- *Replacing All Values* (page 165)

- *Working with Derived Fields* (page 165)

Types of Data Entry Grids

PCS Axis provides the following data entry grids and mini-grids for organizing and managing facility data. These grids are similar to a spreadsheet in appearance with facility data presented in columns, rows, and individual fields. Several options are available for customizing the layout and sorting order of a grid, as well as applying data filters that allow you to work with a subset of facility records.

- *Information grid*: Use the *Information* grid to add and edit permanent facility information, such as the milepost number, location description, operating status, protection criteria, and permanent comments. The *Information* grid is also used for activating fields in the *Inspection* grid.

- *Inspection grid*: Use the *Inspection* grid to add and edit survey inspection data for facilities on a pipeline segment, such as facility inspection readings, GPS coordinates, survey folder assignment, survey remarks, technician name, and so on.

- *Maintenance grid*: Use the *Maintenance* grid to add and edit maintenance and repair records for facilities on a pipeline segment.

- *Facility Level Override mini-grid:* The *Information* grid for all modules includes the *Facility Level Override* mini-grid. Scheduling properties in *Edit Schedule Settings* (page 349) can be overridden at the facility level using this mini-grid.

- *Rectifier Information mini-grids*: The CPDM Rectifier Information grid includes the Rectifier Anode Information and Rectifier Negative Information mini-grids. Use these mini-grids to add and delete records for impressed anodes and negatives linked to a rectifier information record.

- *Rectifier Inspection mini-grids*: The CPDM Rectifier Inspection grid includes the Rectifier Anode Inspection and Rectifier Negative Inspection mini-grids. Use these mini-grids to enter inspection readings for rectifier anode(s) and negatives linked to one or more pipeline segments.

Understanding Field Caption Colors

PCS Axis uses a color code system in field captions throughout the system that allows you to easily identify one data type from another (Figure 6-1).

Field captions in column headings of a data entry grid are color-coded to help distinguish different data types, such as information, inspection, and maintenance fields. Likewise, field captions in selection lists are also color-coded when creating themes in the *Customize* tab. The following table identifies the different data types with corresponding colors.

Data Type	Color
Facility Field	Black
Facility Information Field	Blue
Inspection Field	Red
Maintenance Field	Red
ROW and Pipeline Field	Green
All Others	Black

Grid colummn headings with color-coded field captions.

Grid layout theme with color-coded field captions.
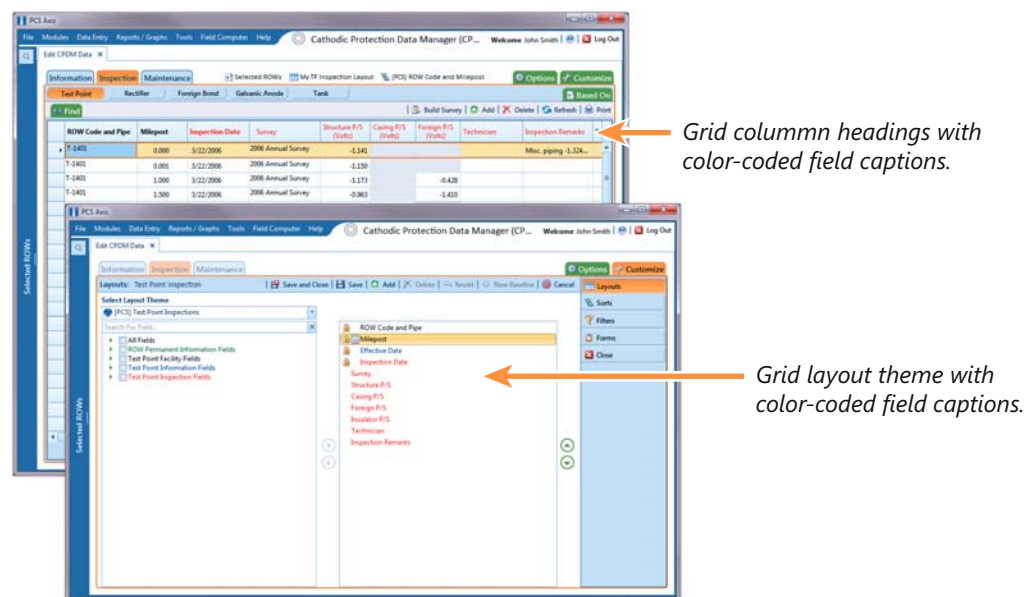
Figure 6-1. Colors in Field Captions

Rearranging and Resizing Grid Columns

Rearranging grid columns in a data entry grid is easily accomplished by dragging and dropping a grid column to a new position. Performing this function requires appropriate user permissions for modifying a data entry grid layout theme. If the data entry grid layout theme is *Public*, changes apply only to the current session of the data entry grid and are not saved in the layout theme. When the data entry grid layout theme is *Private*, the new column order is saved in the data entry grid layout theme.

To rearrange a grid column:

- Drag and drop a selected grid column to a new position in the data entry grid.

To resize a grid column:

- Place the mouse over a column boundary to change the cursor to a horizontal resize cursor. Then click and drag the column boundary to resize the grid column.

Locking and Unlocking Grid Columns

You can lock a group of grid columns on the left side of a data entry grid to prevent them from moving when scrolling the data entry grid. Grid columns to the right of locked columns remain scrollable.

To lock a grid column:

- Right-click a grid column and then select **Lock Column** in the shortcut menu that opens (Figure 6-2, page 165).

To unlock a locked grid column:

- Right-click the locked grid column and then select **Unlock Column** in the shortcut menu that opens.
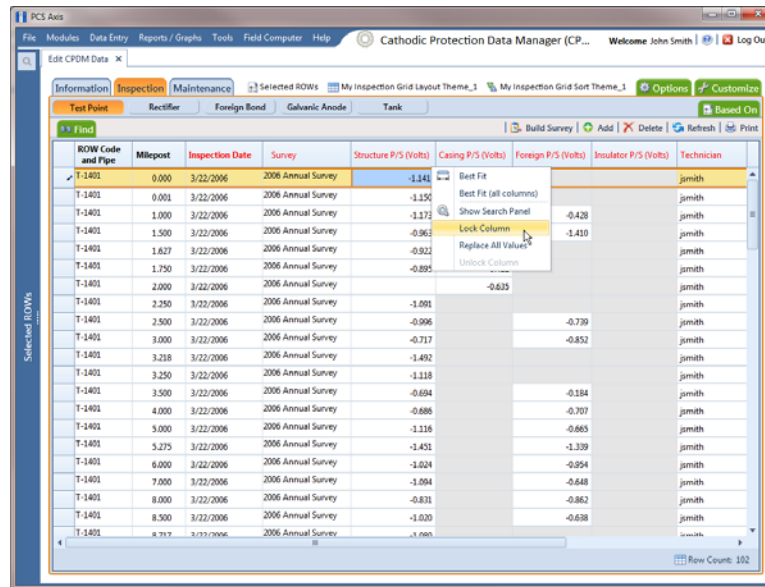
Figure 6-2. Lock Grid Column

Replacing All Values

When you want to replace a value in all fields of a selected grid column with the same value, right-click the grid column and select **Replace All Values** in the shortcut menu. When the *Replace All Values* dialog box opens, enter the information that will be used to replace values in all fields of the selected grid column and then click **OK**.

The *Replace All Values* command is not available for read-only grid columns, fields in a mini-grid, or picklist fields.

Working with Derived Fields

A derived field is a system calculated field with a value based on values in dependent fields. For example, PCS Axis calculates a value for the field *Effective IR Correction* based on values in the following dependent fields:

- User IR Correction

- Structure P/S

- Structure IRF

- Inspection Date

When a value for a dependent field has been updated in a data entry grid, a ⚠ notification icon displays in the derived field indicating the value has changed and the data entry grid should be refreshed. Clicking the 🔄 **Refresh** button updates all derived values and removes the notification icon (Figure 6-3, page 166).

Figure 6-3. Derived Field

Quick Start

Data entry grids in *Edit <module> Data* allow you to edit and manage multiple facility records linked to one or more pipeline segments. You can add and edit facility information, inspection, and maintenance records using the *Information Inspection*, and *Maintenance* data entry grids.

Although the CPDM module is used in the following examples, the information applies to all modules except Indirect Survey Manager (ISM). For information about the ISM module, begin with the section entitled *Working with Continuous Survey Data* (page 209).

Information in this section explains how to use the most common features of a data entry grid. For information about other features, see *Working with Themes and Filter Groups* (page 232) and *Working with Records* (page 248).

Topics in this section include those in the following list:

- *Adding Facility Records* (page 167)

- *Creating Facility History Records* (page 178)

- *Viewing Records in a Grid* (page 182)

- *Filtering Data in a Grid* (page 197)

- *Building a Survey in the Inspection Grid* (page 202)

- *Using Find to Search a Data Entry Grid* (page 206)

- *Printing, Exporting, or Emailing Grid Content* (page 207)

Adding Facility Records

Instructions in the following topics describe how to add facility information, inspection, and maintenance records in a data entry grid:

- *Adding a Facility Information Record*

- *Adding a Facility Inspection Record* (page 171)

- *Adding a Facility Maintenance Record* (page 174)

Adding a Facility Information Record

Use the *Information* grid to add information records for facilities on a pipeline; add history records to maintain permanent information about facilities; and activate certain fields for data entry in the *Inspection* grid, such as *Activate Structure P/S* and *Activate Casing P/S*.

The procedure in this section covers the following scenarios for adding a record in the *Information* grid:

- adding an information record for an existing facility in the grid (step 7, page 169)

- adding a new facility with an information record (step 8, page 170)

Complete the following steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-4, page 168).

2 Select one or more pipeline segments with facilities you want to work with by clicking the check box for each pipeline segment. Click 💾 **Save** to close the window.

NOTE: A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark. A shaded check box indicates selection of some, not all, child folders, ROWs, and pipelines.
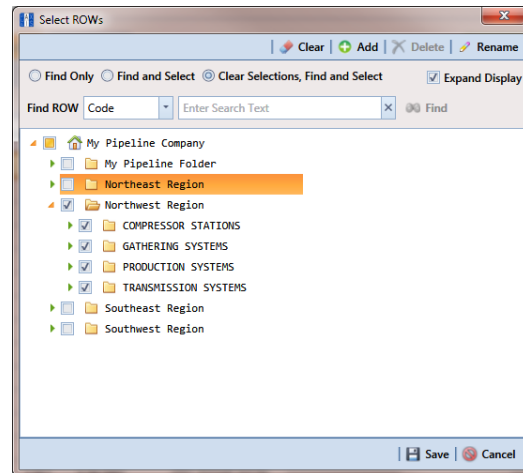
Figure 6-4. Select ROWs

NOTE: Although the CPDM module and test point facility type are both referenced in this procedure, instructions apply to any PCS Axis module and facility type.

---

3 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-5, page 169).

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Open the *Information* grid for a facility type. For example, click the **Information** tab [Information] and then a facility type button, such as **Test Point** [Test Point].

Figure 6-5. Information Grid

6 Click ⊕ **Add** to open the *Add Record* dialog box (Figure 6-6, page 170).

7 To add an information record for an existing facility in the grid:

a Click the option **Test Point Information Record**.

b Select a pipeline with the facility you want to add an information record. For example, pipeline *T-1401* and the facility at *Relative Milepost 0.000* are selected in the next figure (Figure 6-6, page 170).

c Click 🖫 **Save** to close the dialog box and return to the *Information* grid.

PCS Axis adds a new row of records in the grid for the selected facility with today's date showing in the *Effective Date* field.

d If you want to change the date in the *Effective Date* field, select the field and choose another date using a calender. Or, type a date in the field.

PCS Axis uses the *Effective Date* to maintain history records for a facility. For more information, see *Creating Facility History Records* (page 178).
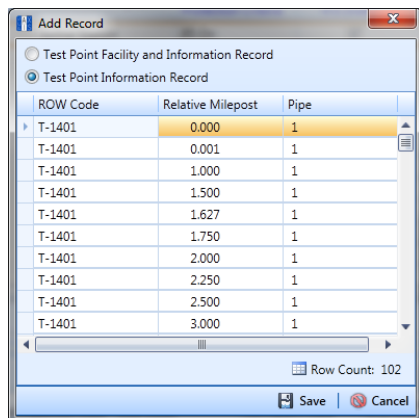
Figure 6-6. Add Record

8   To add a new facility in the grid with an information record:

a   Click the option **Test Point Facility and Information Record**.

b   Select the pipeline that you want to add a new facility and information record. For example, pipeline *T-1401* is selected in the next figure (Figure 6-7).
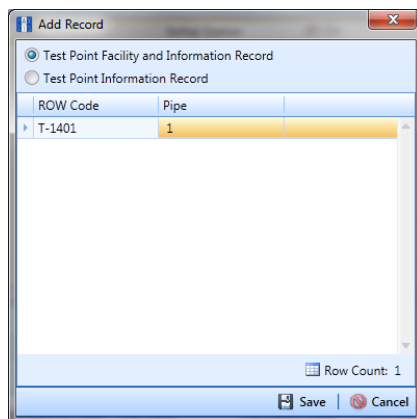
Figure 6-7. Add Record

c   Click **Save** to close the dialog box and return to the *Information* grid.

PCS Axis adds a row of records in the grid for the new facility. The new record includes an error icon ⊗ in the *Milepost* field to indicate a required data entry field as shown in the following example (Figure 6-8, page 171).

d   Type the facility milepost number in the **Milepost** field. Based on your system configuration, the *Milepost* field may have a different caption for *User Location Name*, such as *Station Number* or other type of identifier.

e   Activate one or more fields for data entry in the *Inspection* grid. Click the check box for an "activate" field to place a check mark inside the check box and activate the field in the *Inspection* grid.

f   Provide other facility information as needed. For example, type a description of the facility location in the **Location Description** field and comments about the facility in the **Permanent Comments** field.

g   Click **Refresh** to update the grid.
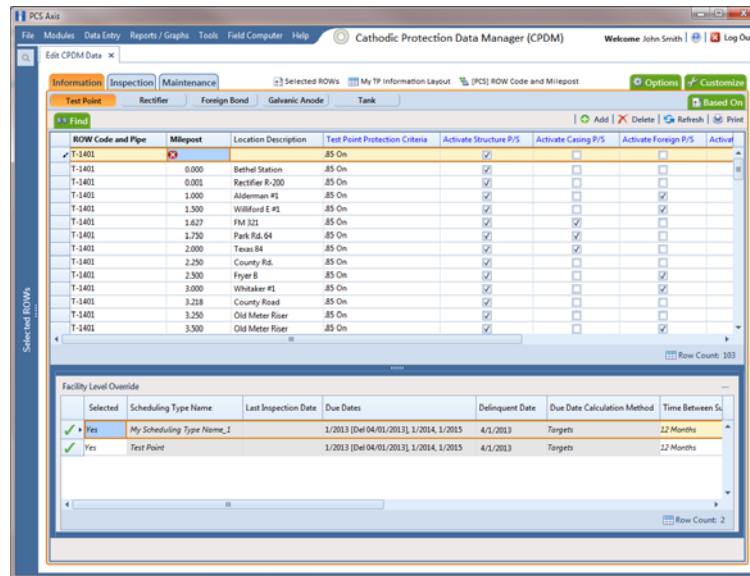
Figure 6-8. Information Grid

Adding a Facility Inspection Record

Information in this section covers the following scenarios for adding a record in the *Inspection* grid:

- adding an inspection record for an existing facility (step 6, page 172)

- adding a new facility with an inspection record (step 7, page 173)

Complete the following steps:

1   Click the **Select ROWs** button to open the *Select ROWs* window (Figure 6-4, page 168). Select one or more pipeline segments with facilities you want to work with, then click **Save** to close the window.

2   Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-9).

3 Open the *Inspection* grid for a facility type. For example, click the **Inspection** tab Inspection and then a facility type button, such as **Test Point** Test Point .

NOTE: Although the CPDM module and test point facility type are both referenced in this procedure, instructions apply to any PCS Axis module and facility type.

---

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-9. Inspection Grid

5 Click ⊕ **Add** to open the *Add Record* dialog box (Figure 6-10, page 173).

6 To add an inspection record for an existing facility in the grid:

a Click the option **Test Point Inspection Record**.

b Select a pipeline with the facility you want to add an inspection record. For example, pipeline *T-1401* and the facility at *Relative Milepost 0.000* are selected in the following example.
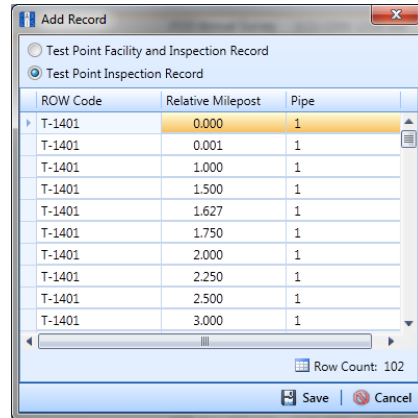
Figure 6-10. Add Record

c Click 💾 **Save** to close the dialog box and return to the *Inspection* grid. PCS Axis adds a new row of records in the grid for the selected facility.

d Enter survey data in the new inspection record as needed.

7 To add a new facility in the grid with an inspection record:

a Click the option **Test Point Facility and Inspection Record**.

b Select the pipeline that you want to add a new facility and inspection record. For example, pipeline *T-1401* is selected in the following example (Figure 6-11, page 173).
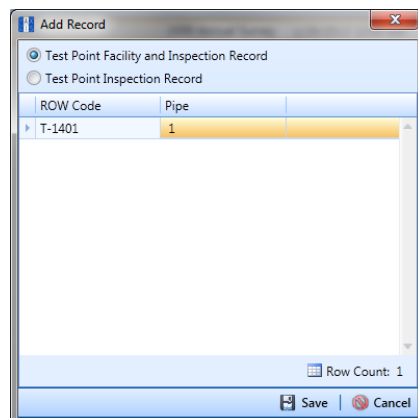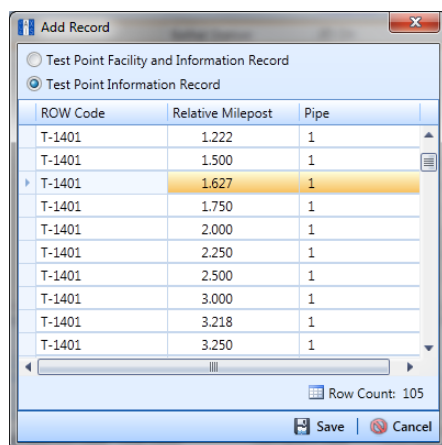

Figure 6-11. Add Record

c Click 💾 **Save** to close the dialog box and return to the *Inspection* grid.

PCS Axis adds a row of records in the grid for the new facility. The new record includes an error icon ❌ in the *Milepost* field to indicate a required data entry field as shown in the following example (Figure 6-12, page 174).

d Type the facility milepost number in the **Milepost** field. Based on your system configuration, the *Milepost* field may have a different caption for *User Location Name*, such as *Station Number* or other type of identifier.

e Enter survey data in the new facility inspection record as needed.

Figure 6-12. Inspection Grid

Adding a Facility Maintenance Record

Information in this section covers the following scenarios for adding a record in the *Maintenance* grid:

- adding a maintenance record for an existing facility (step 6, page 175)

- adding a new facility with a maintenance record (step 7, page 176)

Complete the following steps:

1 Click the **Select ROWs** button [icon] to open the *Select ROWs* window (Figure 6-4). Select one or more pipeline segments with facilities you want to work with, then click [icon] **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-13).

3 Open the *Maintenance* grid for a facility type. For example, click the **Maintenance** tab [Maintenance] and then a facility type button, such as **Test Point** [Test Point].

NOTE: Although the CPDM module and test point facility type are both referenced in this procedure, instructions apply to any PCS Axis module and facility type.

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-13. Maintenance Grid

5 Click ⊕ **Add** to open the *Add Record* dialog box (Figure 6-14).

6 To add a maintenance record for an existing facility in the grid:

a Click the option **Test Point Maintenance Record**. Then select a facility in the list of facilities. For example, *ROW Code T-1403* at *Relative Milepost 1.059* selected in the next figure (Figure 6-14).

Figure 6-14. Add Record

b Click **Save** to close the dialog box and return to the *Maintenance* grid.

PCS Axis adds a new row of records in the grid for the selected facility. The new record includes a red error icon in the field *Test Point Repair Code* to indicate a required data entry field as shown in the following example (Figure 6-15, page 176).

c Type a repair code in the field **Test Point Repair Code**. Enter other information in the facility maintenance record as needed.

Figure 6-15. Maintenance Grid

7 To add a new facility in the grid with a maintenance record:

a Click the option **Test Point Facility and Maintenance Record**.

b Select a pipeline in the *Add Record* dialog box that you want to add a new facility and maintenance record. For example, pipeline *SS-0866-16* is selected in the following example (Figure 6-16).
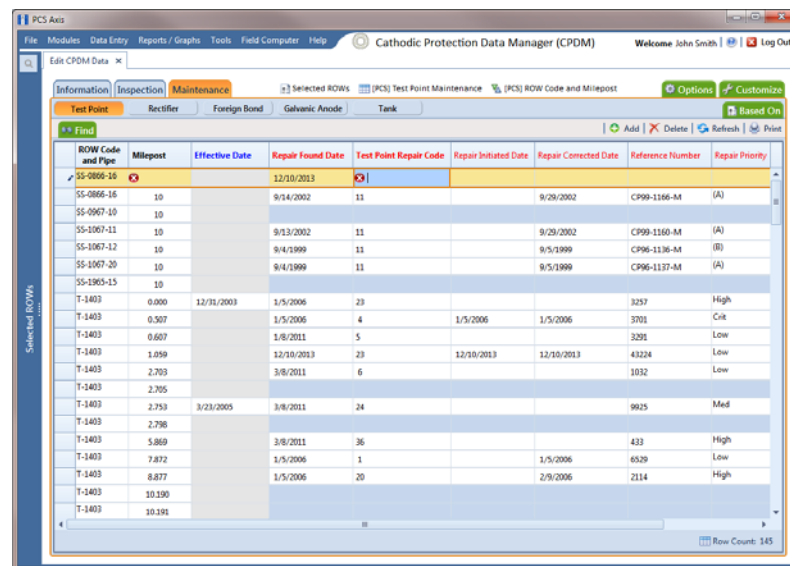
Figure 6-16. Add Record

c Click ![save icon] **Save** to close the dialog box and return to the *Maintenance* grid.

PCS Axis adds a row of records in the grid for the new facility. The new record includes today's date in the field *Repair Found Date* and a red error icon ![error icon] in the field *Test Point Repair Code* to indicate a required data entry field (Figure 6-17, page 177).

d Type the facility milepost number in the **Milepost** field and a repair code in the **Test Point Repair Code** field. Based on your system configuration, the *Milepost* field may have a different caption for *User Location Name*, such as *Station Number* or other type of identifier.

e Enter other maintenance information in the new record as needed.

Figure 6-17. Maintenance Grid

Creating Facility History Records

A history record is a record that identifies changes in facility information, such as the operating status changing from active to inactive. Instead of deleting a facility record, create a history record.

History records help ensure compliance reports are accurate and other reports include correct facility data. For example, information for inactive facilities does not appear in a compliance or scheduling report. Other reports provide an optional filter for excluding inactive facilities. Because information for the time period prior to deactivating a facility is still valuable and is often needed for compliance reports, creating a history record helps ensure facility reporting is accurate.

Other scenarios describing when to create a history record include those in the following list:

- A facility is deactivated for a period of time and you want to ensure records exist showing when the facility was first activated, then deactivated, and finally reactivated again. By creating history records for each of these events, a complete history is available showing (1) when the facility was first active; (2) when the facility was deactivated; and (3) when the facility was reactivated.

- When a change is made to the protection criteria value, such as changing the value from *.85 On* to *100 mV*, creating a history record with an *Effective Date* identifying when the change occurred allows you to maintain a history for all readings with *.85 On* prior to the *Effective Date*, as well as all readings with *100 mV* after the *Effective Date*. Creating a history record in this case is important because the facility may meet the *100mV* criterion but fail the *.85 On* criterion. If history records do not exist, changing the criteria may show readings that were previously within criteria, are now out of criteria.

- You remove a casing and want to document that you are no longer recording *Casing P/S* inspection readings. Instead of disabling the *Activate Casing P/S* field in the *Information* grid, create a history record instead. History records provide useful data for an audit or compliance review.
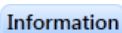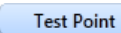
The following list identifies other considerations when creating a history record:
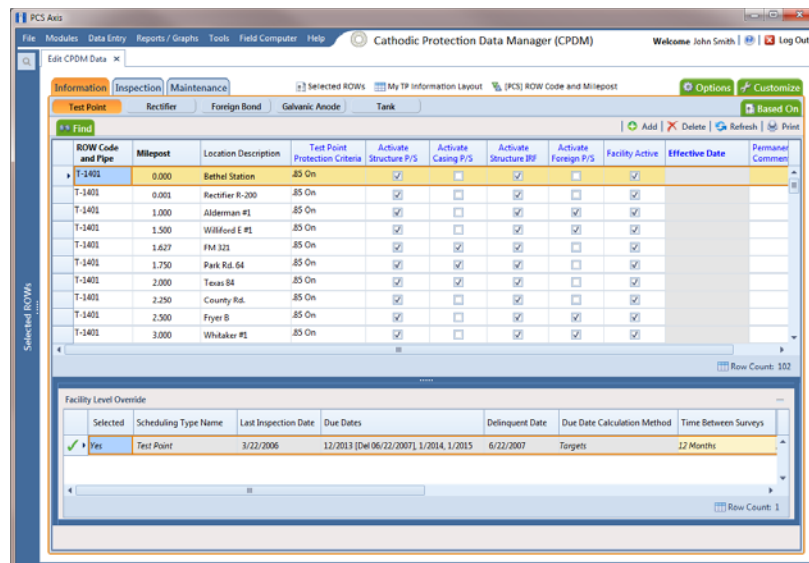
- When you create a history record, all fields in the original record copy to the new record. Both records are initially the same except for the *Effective Date*. This allows you to change only the field(s) that are different in the new record and also create a history trail that includes the previous record.

- When the operating status of a facility changes from active to inactive or vice versa, do not use the original information record to change the operating status. Doing so causes information for the original record to be excluded in reports, such as compliance and delinquency reports. Create a history record to document this type of change instead.

- Do not enter the date a facility was put into service as the *Effective Date*. Use the *Effective Date* field to enter a date when a facility is taken out of service; when a change is made to the protection criteria; or when a facility is made inactive. *Effective Date* is used only with history records; it is empty in the original facility record. When a facility is put into service, add the date in the field labeled *Installation Date*.

- To help with using history records consistently, enable the field labeled *Warm Before Permanent History Record Changed Option* in Options (Tools > Options). When enabled, PCS Axis displays a warning message stating a history record should first be created before making changes.

To create a history record
Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities you want to work with, then click 💾 **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-18).

3 Open the *Information* grid for a facility type. For example, click the **Information** tab Information and then a facility type button, such as **Test Point** Test Point .

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-18. Test Point Information Grid

5 Click ⊕ **Add** to open the *Add Record* dialog box. (Figure 6-19, page 180).

6 Click the option **Test Point Information Record**.

7 Select a facility record in the *Add Record* dialog box that you want to create a history record. For example, the facility record with *Relative Milepost 1.627* is selected in the following figure (Figure 6-19, page 180).

Figure 6-19. Add Record

8 Click 💾 **Save** to close the dialog box and return to the *Information* grid.

PCS Axis adds a new record in the *Information* grid for the selected facility with today's date showing in the *Effective Date* field. The *Facility Active* check box is also enabled by default in order for the facility to be included in facility survey schedules. The original record becomes the history record (Figure 6-20, page 181).

9 Change information in the new record as needed. For example, to document when the facility was taken out of service:

• Enter the out-of-service date in the *Effective Date* field (Figure 6-20, page 181).

• Click the *Facility Active* check box to remove the check mark and subsequently deactivate the facility.

• As a recommendation, enter a comment in the *Permanent Comments* field about the record change.

Figure 6-20. Test Point Information Grid

Viewing Records in a Grid

By default PCS Axis displays records in a data entry grid based on the selected ROW(s) and in alphanumeric order by *ROW Code and Pipe* and then *Milepost*. As an option you can choose to display records based on a route or schedule instead (Figure 6-21).

Topics in this section include those in the following list. Examples are based on the CPDM module, however the information applies to all PCS Axis modules.

- *Viewing Records Based on Selected ROWs* (page 183)

- *Viewing Records Based on a Route* (page 186)

- *Viewing Records Based on a Schedule* (page 189)

A status line near the top of the data entry grid identifies the mode for displaying records (by route, schedule, or selected ROWs); the currently selected layout and sort theme; and a filter icon indicating grid data is filtered. Hovering the mouse over the filter icon displays a tool tip with a description for currently selected filters. For example, the filter *Active Facilities Only* is applied in the data grid shown in the following example (Figure 6-21).

Status Line

Figure 6-21. Status Line

Viewing Records Based on Selected ROWs

To display records in a data entry grid based on pipeline segments selected in the *Select ROWs* window, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities you want to work with, then click ![save] **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3 Select a data entry grid. For example, click the **Inspection** tab ![Inspection] and then the **Test Point** button ![Test Point] to display the *Test Point Inspection* data entry grid (Figure 6-22).

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-22. Test Point Inspection Grid

5 Complete either step "a" or "b" to display records in the grid based on selected ROWs:

a Click the **Based On** tab ![Based On] to open the based on panel and then complete the following steps (Figure 6-23, page 184):

- Click the option **Selected ROWs**, then click ![apply] **Apply**.

- Click ![close] **Close** to close the based on panel.
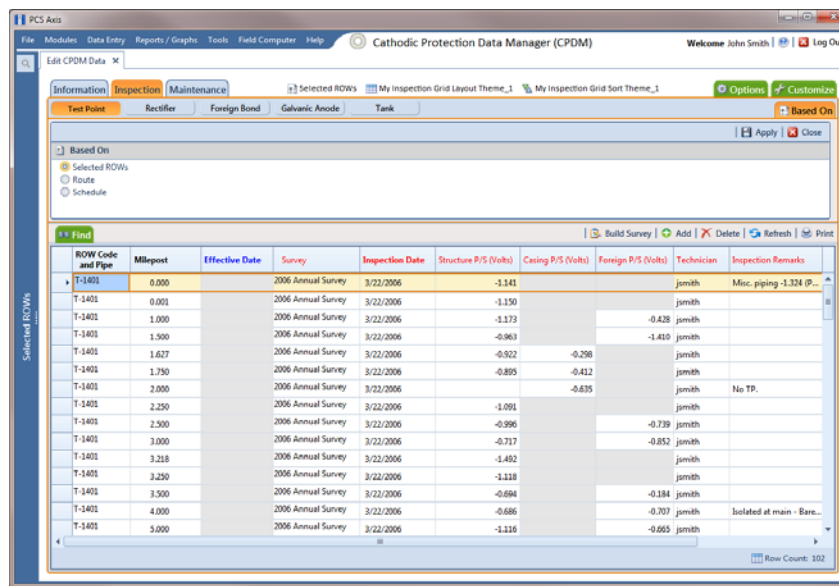
Figure 6-23. Based On Selected ROWs

b Click the **Options** tab [Options] to open the options page. Then click the option **Selected ROWs** in the *Based On* group box (Figure 6-24).
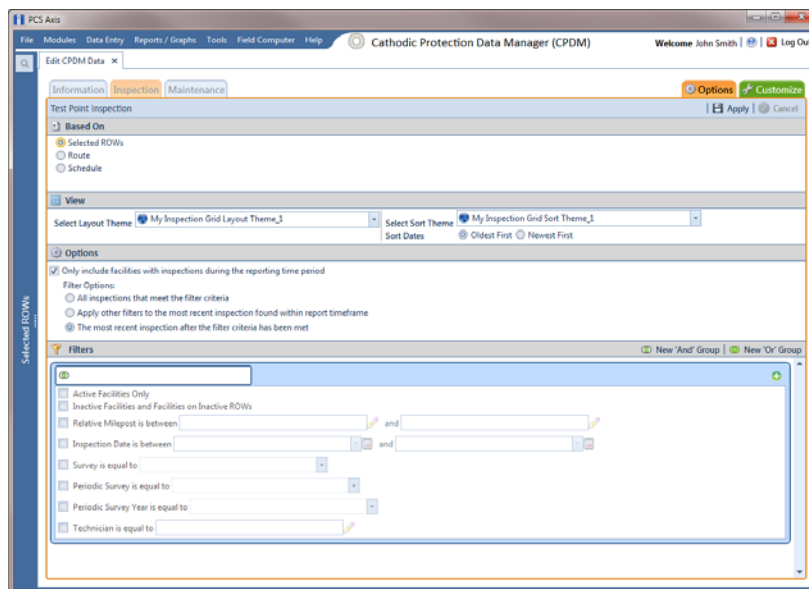
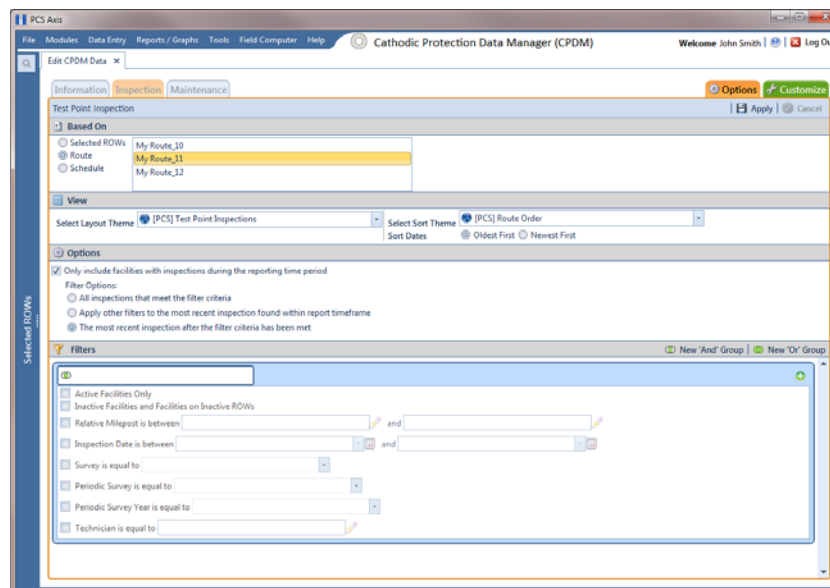**Figure 6-24. Options**

6 If you want to change the grid layout, sorting theme, or apply one or filters to the grid, complete the following steps:

a To change the grid layout theme, click the down arrow in the field **Select Layout Theme** and select a theme in the selection list.

b To change the grid sorting method, click the down arrow in the field **Select Sort Theme** and select a theme in the selection list.

c To apply a filter to the grid, click the check box for a filter listed in the *Filters* group box (Figure 6-24, page 184).

For example, to only include active facilities in the grid, click the *Active Facilities Only* check box. A check mark inside the check box indicates a selection. To remove a filter from the grid, clear the check mark by clicking the check box.

NOTE: To add a new *AND* or *OR* filter group, refer to *Adding an AND Filter Group* (page 239).

---

d When applying a date filter to the grid, such as *Inspection Date is between*, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

e Click 💾 **Apply** to save and apply changes.

Records display in the grid based on selected options.

Viewing Records Based on a Route

Information in this section explains how to display records in a data entry grid based on a route. A route is a user-created list of facilities for inspection arranged in a particular order. For example, if a route has previously been set up with facilities arranged in survey order, you can work with records in a data entry grid using the same route to display the grid in survey order.

NOTE: To perform the following procedure, one or more routes must first be set up. For information about how to set up a route, see *Using a Route*, page 283.

To view records in a grid based on a route, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities in a route, then click ![save] **Save** to close the window.

2   Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-25).

3   Select a data entry grid. For example, click the **Inspection** tab [Inspection] and then the **Test Point** button [Test Point] to display the *Test Point Inspection* data entry grid.

4   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-25. Test Point Inspection Grid

5 Complete either step "a" or "b" to display records in the grid based on a route:

a Click the **Based On** tab [Based On] to open the based on panel and then complete the following steps (Figure 6-26):

• Click the **Route** option. Then select a route in the adjacent group box.

• Click [icon] **Apply** and then click [X] **Close** to close the based on panel.
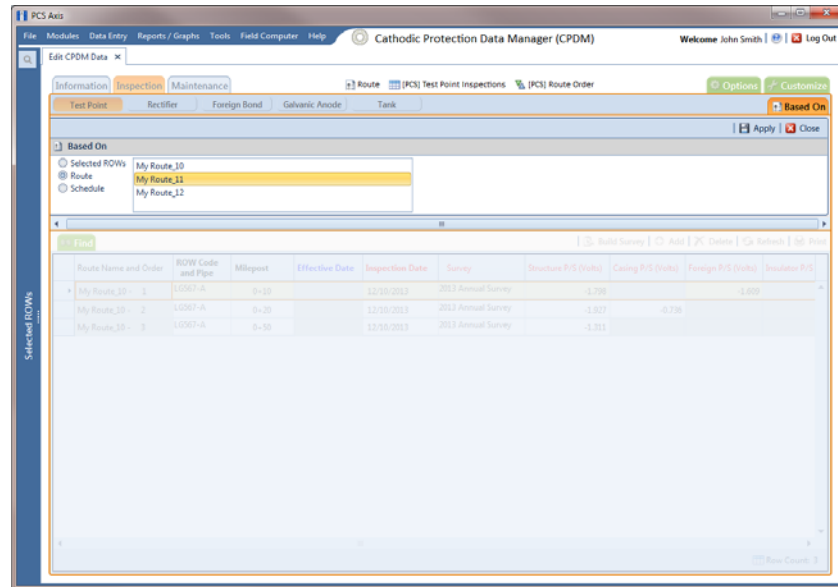
Figure 6-26. Based On Route

b Click the **Options** tab [Options] to open the options page and then complete the following steps (Figure 6-27, page 188):

• Click the **Route** option. Then select a route in the adjacent group box.

• Click [icon] **Apply** to save and apply changes.

Figure 6-27. Based on Route

6 If you want to change the grid layout theme, sort theme, or apply one or more filters to the grid, complete the following steps:

a To change the grid layout theme, click the down arrow in the field **Select Layout Theme** and select a theme in the selection list (Figure 6-27).

b To change the grid sort theme, click the down arrow in the field **Select Sort Theme** and select a theme in the selection list.

c Choose a method for sorting records in the data entry grid. Click **Oldest First** or **Newest First** in *Sort Dates* to sort records with the oldest or newest inspection dates first.

d To apply a filter to the grid, click the check box for a filter listed in the *Filters* group box.

For example, to only include active facilities in the grid, click the *Active Facilities Only* check box. A check mark inside the check box indicates a selection. To remove a filter from the grid, clear the check mark by clicking the check box.

NOTE: To add a new *AND* or *OR* filter group, refer to *Adding an AND Filter Group* (page 239).

e When applying a date filter to the grid, such as *Inspection Date is between*, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

f Click 💾 **Apply** to save and apply changes.

Records display in the grid based on selected options.

Viewing Records Based on a Schedule

Information in this section explains how to display records in a data entry grid based on a schedule. Examples are based on the CPDM module, however the information applies to all modules. Topics in this section include those in the following list:

- *Using the Based On Tab to View Records Based on a Schedule*

- *Using the Options Page to View Records Based on a Schedule* (page 193)

NOTE: Scheduling criteria must first be set up as well as a schedule definition to perform the procedure in this section. For more information see *Using a Schedule*, page 349.

Using the Based On Tab to View Records Based on a Schedule

Complete the following steps using the *Based On* tab to view records in a grid based on a schedule:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities included in a schedule, then click 💾 **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-28, page 190).

Figure 6-28. Test Point Inspection Grid

3 Select a data entry grid. For example, click the **Inspection** tab `Inspection` and then the **Test Point** button `Test Point` to display the *Test Point Inspection* data entry grid.

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Click the **Based On** tab `Based On` and then select **Schedule** (Figure 6-29, page 191).

6 Choose a schedule definition. Click the down arrow in the field **Select Schedule Definition** and select an item in the list.
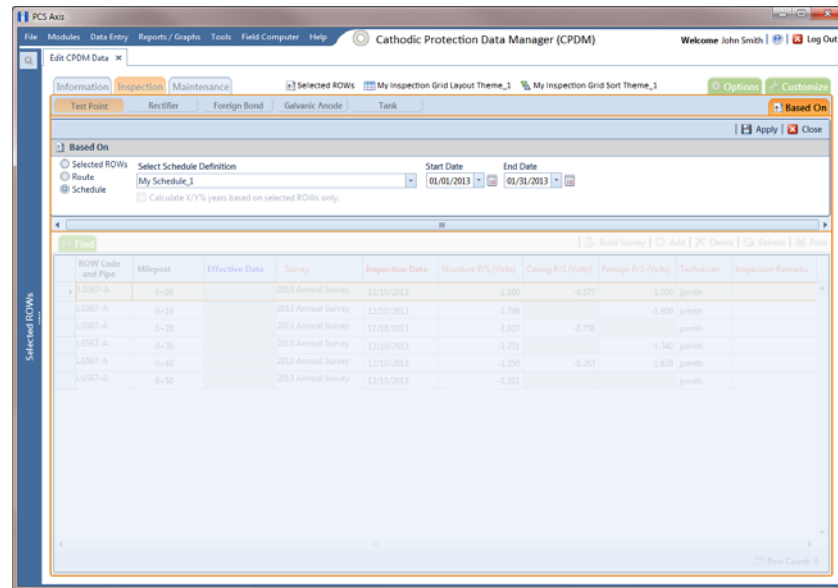
Figure 6-29. Based On Schedule
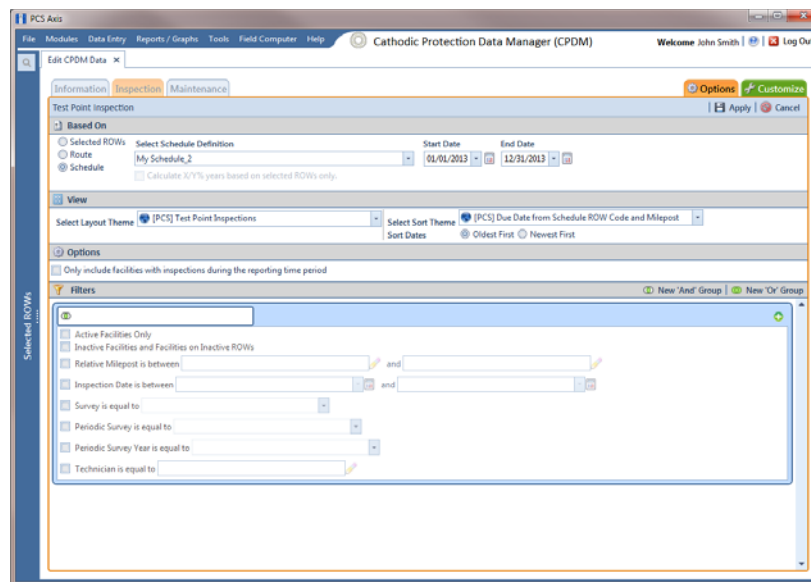
Complete step 7 to set up a schedule date range using a calendar or step 8 (page 192) to set up a schedule date range using dynamic dates.

7   To set up a schedule date range using a calendar:

a   Set a schedule start date. Type a date in the **Start Date** field or click the down arrow and select a date using a calendar.

b   Set a schedule end date. Type a date in the **End Date** field or click the down arrow and select a date using a calendar.

NOTE: When typing a date, use the format MM/DD/YYYY to indicate the month, day, and year.

---

c   Click 🖫 **Apply** and then click ❌ **Close** to close the based on panel. Records display in the data entry grid based on the selected schedule definition and date range.

8   To set a schedule date range using dynamic start and end dates, follow these steps (Figure 6-30):

a   Click the **Start Date** ▦ calculator to open dynamic start date fields. Set properties in these fields in the following manner:

1)   Click the down arrow in the **Start Date** field and select one of the following options: *Today*, *End Of Month*, *Beginning Of Year*, or *End Of Year*.

2)   In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the ✎ pencil button to close dynamic start date fields.

b   Click the **End Date** ▦ calculator to open dynamic end date fields. Set properties in these fields in the following manner:

1)   Click the down arrow in the **End Date** field and select one of the following options: *Today*, *End Of Month*, *Beginning Of Year*, or *End Of Year*.

2)   In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the ✎ pencil button to close dynamic end date fields.

c   Click 💾 **Apply** and then click ❌ **Close** to close the based on panel. Records display in the data entry grid based on the selected schedule definition and dynamic date range.
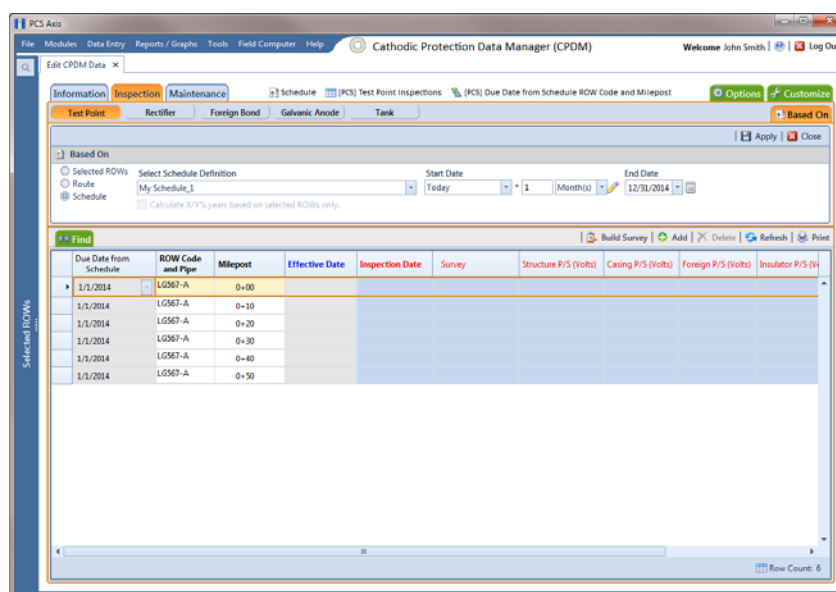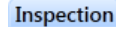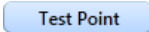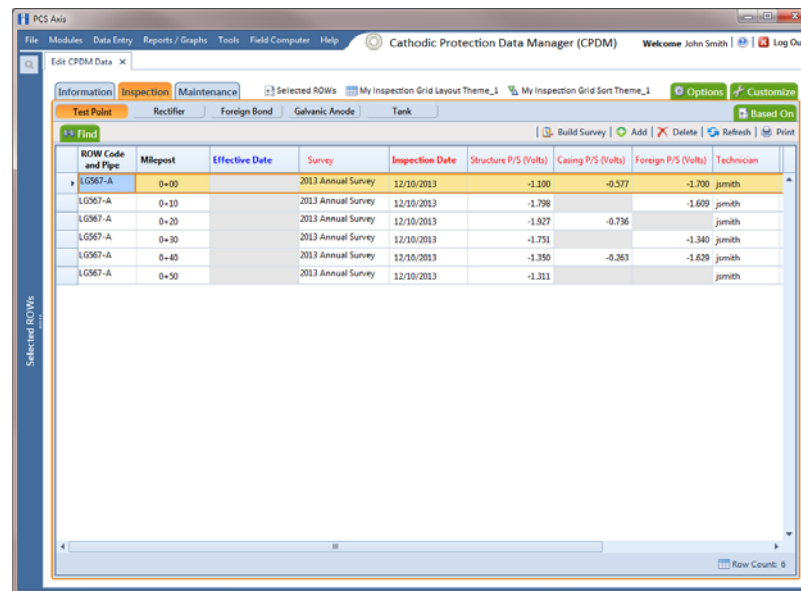
Figure 6-30. Based On Schedule

Using the Options Page to View Records Based on a Schedule

Complete the following steps using the *Options* page to view records in a grid based on a schedule:

1. Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities included in a schedule, then click 💾 **Save** to close the window.

2. Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-31).

3. Select a data entry grid. For example, click the **Inspection** tab Inspection and then the **Test Point** button Test Point to display the *Test Point Inspection* data entry grid.

4. If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-31. Test Point Inspection Grid

5 Click the **Options** tab ⚙ Options to open the options page (Figure 6-32).

6 Click the **Schedule** option and then choose a schedule definition. Click the down arrow in the field **Select Schedule Definition** and select an item in the list.

Figure 6-32. Options

Complete step 7 to set up a schedule date range using a calendar or step 8 to set up a schedule date range using dynamic dates (page 195).

7 To set up a schedule date range using a calendar:

a Set a schedule start date. Click the down arrow in the **Start Date** field and select a date in the calendar.

b Set a schedule end date. Click the down arrow in the **End Date** field and select a date in the calendar.

c If you want to set additional property settings in the options page, continue with step 9 (page 196). Otherwise, click 💾 **Apply** to apply changes and return to the data entry grid.

8 To set a schedule date range using dynamic start and end dates, follow these steps (Figure 6-33):

a Click the **Start Date** 📅 calculator to open dynamic start date fields. Set properties in these fields in the following manner:

1) Click the down arrow in the **Start Date** field and select one of the following options: *Today*, *End Of Month*, *Beginning Of Year*, or *End Of Year*.

2) In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the 🖊 pencil button to close dynamic start date fields.

b Click the **End Date** 📅 calculator to open dynamic end date fields. Set properties in these fields in the following manner:

1) Click the down arrow in the **End Date** field and select one of the following options: *Today*, *End Of Month*, *Beginning Of Year*, or *End Of Year*.

2) In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the 🖊 pencil button to close dynamic end date fields.

c If you want to set additional property settings in the options page, continue with step 9 (page 196). Otherwise, click 💾 **Apply** to apply changes and return to the data entry grid.
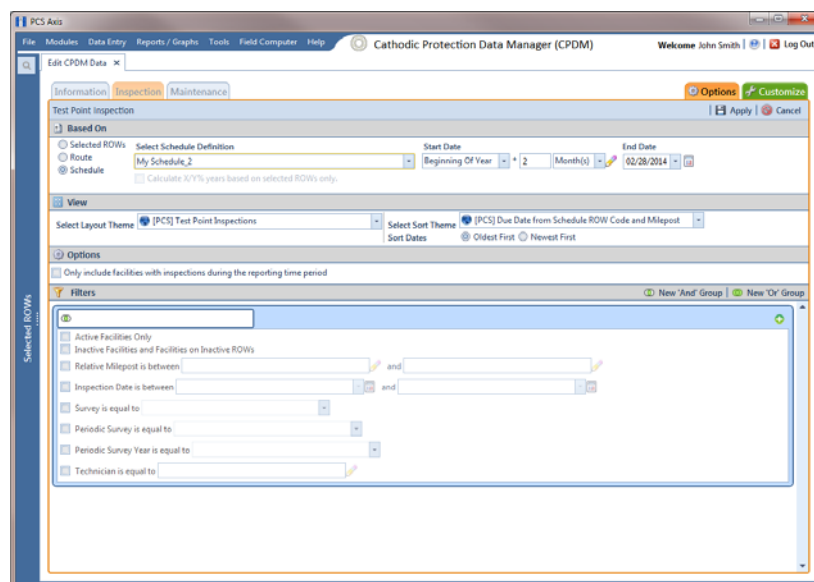
Figure 6-33. Based On Schedule

9 To change the grid layout, sorting method, or apply one or more filters to the grid, follow these steps:

a To change the grid layout theme, click the down arrow in the field **Select Layout Theme** and select a layout theme in the selection list.

b To change the grid sorting method, click the down arrow in the field **Select Sort Theme** and select a sorting theme in the selection list.

c To apply a filter to the grid, click the check box for a filter listed in the *Filters* group box.

For example, to only include active facilities in the grid, click the *Active Facilities Only* check box. A check mark inside the check box indicates a selection. To remove a filter from the grid, clear the check mark by clicking the check box.

NOTE: For more information related to filters (*New 'And' Group* or *New 'Or' Group*), refer to *Adding an AND Filter Group* (page 239).

d When applying a date filter to the grid, such as *Inspection Date is between*, set a date range using a calendar or dynamic dates in the following manner:

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

• To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

e Click **Apply** to apply changes and return to the data entry grid

Records display in the grid based on selected options.

Filtering Data in a Grid

Information in this section explains how to filter the data output in any data entry grid in *Edit <module> Data*, *such as Edit CPDM Data*. It includes a description of the options and filters available in the *Options* page when working with the *Information*, *Inspection*, and *Maintenance* grids. Filtering data allows you to work with only those records you are interested seeing in the grid.

Topics in this section include those in the following list:

- *Filtering Data in the Information Grid*

- *Filtering Data in the Inspection Grid* (page 198)

- *Filtering Data in the Maintenance Grid* (page 200)

Filtering Data in the Information Grid

To filter the data output in the *Information* grid of *Edit <module> Data*, complete the following steps. The placeholder *<module>* refers to any module, such as *Edit CPDM Data*.

1   Click **Data Entry** > **Edit <module> Data**.

2   Open the *Information* grid for a facility type. For example, click the **Information** tab [Information] and then a facility type button, such as **Test Point** [Test Point].

3   Click the **Options** tab [Options] to open the *Options* page (Figure 6-34).
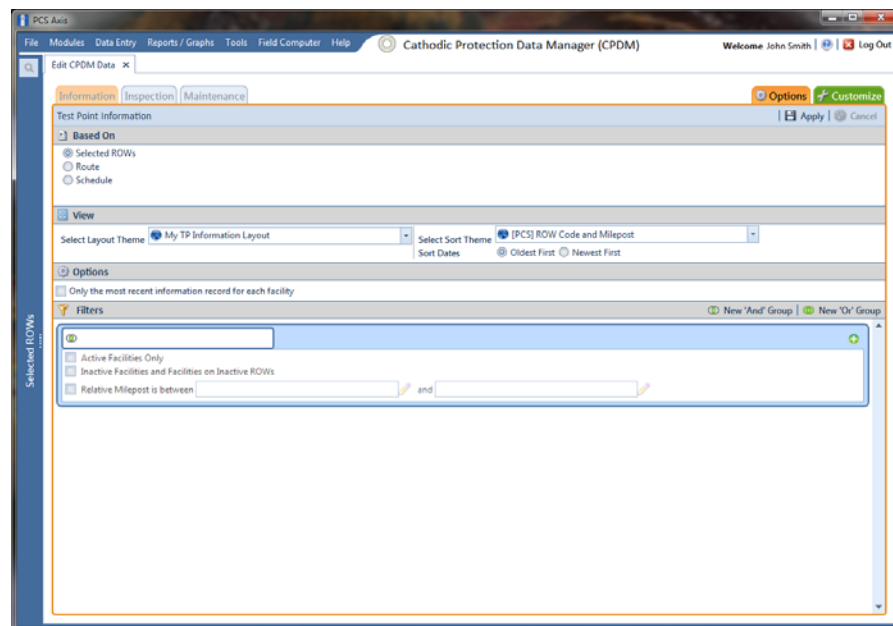
Figure 6-34. Options/Information Grid
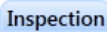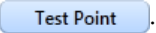
4 To include only the most recent information record, select the check box **Only the most recent information record for each facility**. This option uses the *Effective Date* to filter the data output.

NOTE: When using the *Filters* group box to apply additional filters to the data output, the most recent information record is found first, and then all other filters are applied to the data output. For more information about filters, see *Adding an AND Filter Group* (page 239) and *Adding an OR Filter Group* (page 242).

5 Click ⊞ **Apply** to save and apply changes and then return to the *Information* grid. To cancel changes, click the **Options** tab [⚙ Options] to return to the grid.

Filtering Data in the Inspection Grid

To filter the data output in the *Inspection* grid of *Edit <module> Data*, complete the following steps. The placeholder *<module>* refers to any module, such as *Edit CPDM Data*.

1 Click **Data Entry** > **Edit <module> Data**.

2 Open the *Inspection* grid for a facility type. For example, click the **Inspection** tab [Inspection] and then a facility type button, such as **Test Point** [Test Point].

3 Click the **Options** tab [⚙ Options] to open the *Options* page (Figure 6-35).
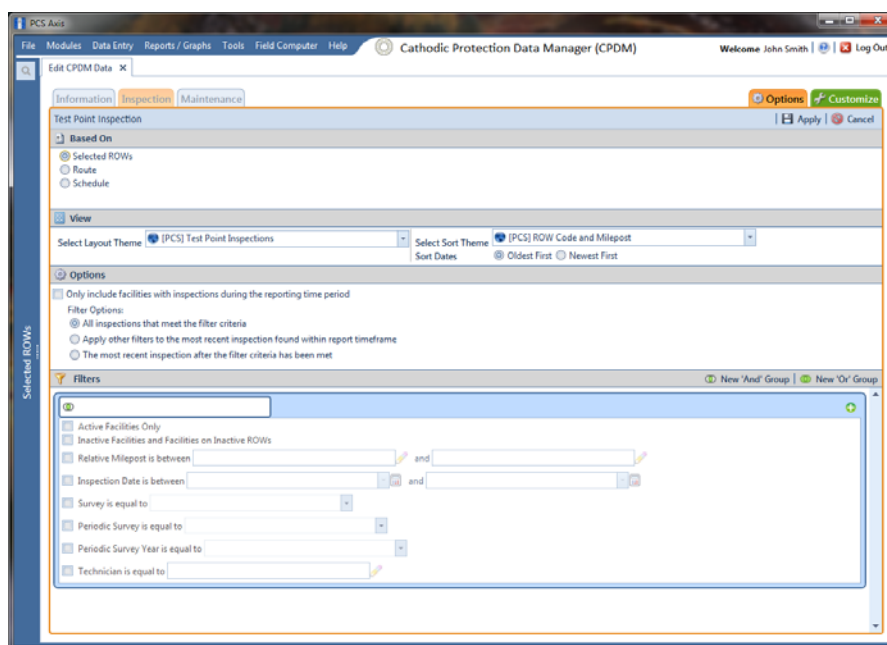
Figure 6-35. Options/Inspection Grid

4 Review the following descriptions and then select one or more filter options as required:

- *Only include facilities with inspections during the reporting time period*: The data output for this option only includes those inspection records that meet the filter criteria defined for a particular date or date range. Filter criteria is defined by filter settings in the *Filters* group box for any of the following time period fields: *Inspection Date is between*, *Survey is equal to*, *Periodic Survey is equal to*, and *Periodic Survey Year is equal to*.

- *All inspections that meet the filter criteria*: This option includes all inspection records in the data output that meet filter criteria based on filter settings in the *Filters* group box.
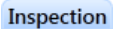
- *Apply other filters to the most recent inspection found within the report timeframe*: This option finds the most recent inspection record within the reporting time frame first, and then applies other filter settings to the data output. Filter criteria for both of these are defined in the *Filters* group box. Use any of the following fields when defining filter criteria for the reporting time frame: *Inspection Date*, *Survey*, *Periodic Survey*, and *Periodic Survey Year*.

- *The most recent inspection after the filter criteria has been met*: The data output for this option includes the most recent inspection record only for those facilities that meet all other filter criteria first. Filter criteria for both of these are defined in the *Filters* group box. Use any of the following fields when defining a time period for the most recent maintenance record: *Inspection Date*, *Survey*, *Periodic Survey*, and *Periodic Survey Year*.

5 When applying a time period filter to the grid, such as *Inspection Date is between*, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

6 Click 💾 **Apply** to save and apply changes and then return to the *Inspection* grid. To cancel changes, click 🚫 **Cancel** or the **Options** tab ⚙ **Options** to return to the grid.
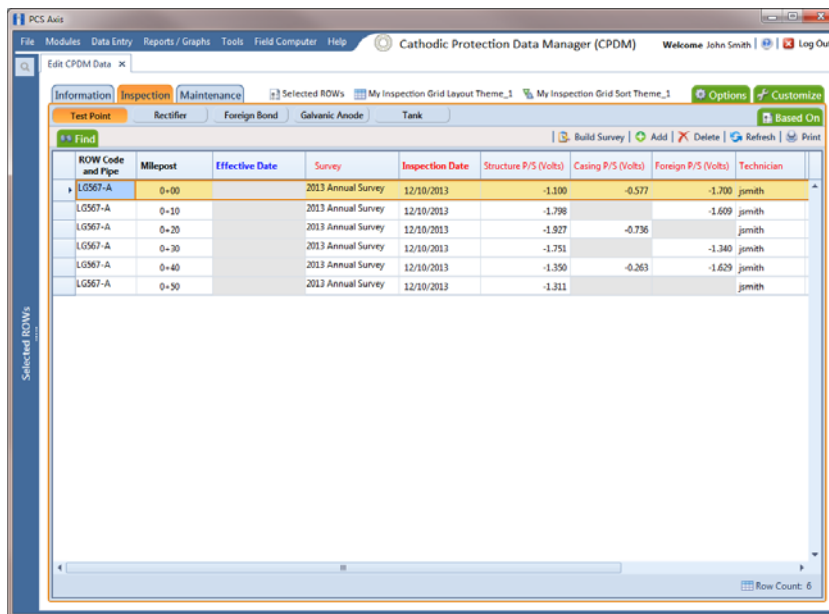

NOTE: For more information about filters, see *Working with Themes and Filter Groups* (page 232).

Filtering Data in the Maintenance Grid

To filter the data output in the *Maintenance* grid of *Edit <module> Data*, complete the following steps. The placeholder *<module>* refers to any module, such as *Edit CPDM Data*.

1 Click **Data Entry** > **Edit <module> Data**.

2 Open the *Maintenance* grid for a facility type. For example, click the **Maintenance** tab Maintenance and then a facility type button, such as **Test Point** Test Point .

3 Click the **Options** tab Options to open the *Options* page (Figure 6-36).
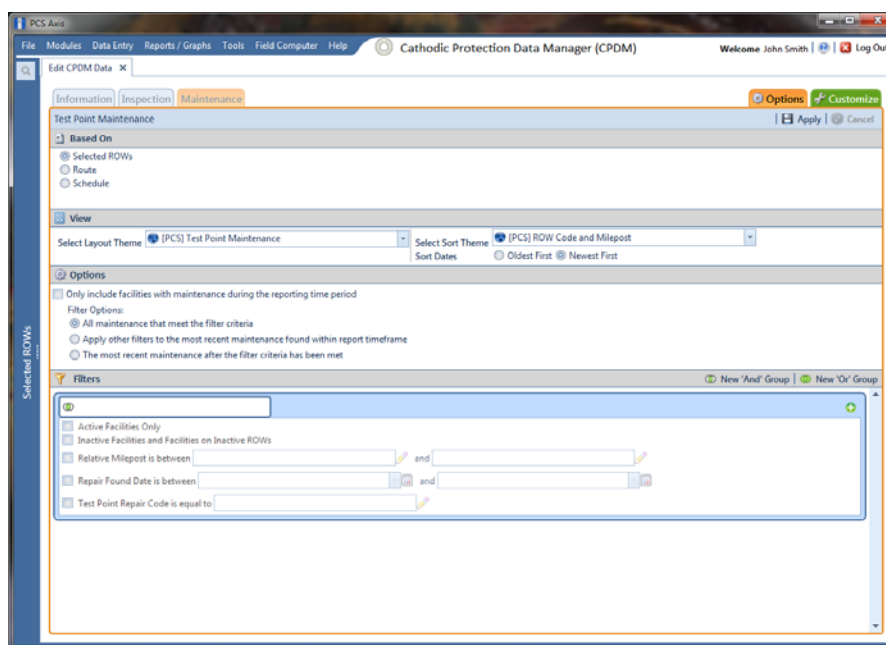
Figure 6-36. Options/Maintenance Grid

4 Review the following descriptions and then select one or more filter options as required:

- *Only include facilities with maintenance during the reporting time period*: The data output for this option only includes those maintenance records that meet the filter criteria defined for a particular date or date range. Filter criteria is defined by filter settings in the *Filters* group box for any of the following time period fields: *Effective Date*, *Repair Found Date*, *Repair Initiated Date*, and *Repair Corrected Date*.

- *All maintenance that meet the filter criteria*: This option includes all maintenance records in the data output that meet filter criteria based on filter settings in the *Filters* group box.

- *Apply other filters to the most recent maintenance found within the report timeframe*: This option finds the most recent maintenance record within the reporting time frame first, and then applies other filter settings to the data output. Filter criteria for both of these are defined in the *Filters* group box. Use any of the following fields when defining filter criteria for the reporting time frame: *Effective Date*, *Repair Found*, *Repair Initiated*, and *Repair Complete*.

- *The most recent maintenance after the filter criteria has been met*: The data output for this option includes the most recent maintenance record only for those pipeline records that meet all other filter criteria first. Filter criteria for both of these are defined in the *Filters* group box. Use any of the following fields when defining a time period for the most recent maintenance record: *Effective Date*, *Repair Found*, *Repair Initiated*, and *Repair Complete*.

5 Click ![save icon] **Apply** to save and apply changes and then return to the *Maintenance* grid. To cancel changes, click ![cancel icon] **Cancel** or the **Options** tab ![Options button] to return to the grid.

NOTE: For more information about filters, see *Working with Themes and Filter Groups* (page 232).

Building a Survey in the Inspection Grid

Building a survey in the inspection grid based on a schedule allows PCS Axis to automatically add empty inspection records in the grid ready for data entry. This feature saves time by eliminating the need to manually add empty inspection records in the grid, one-by-one.

To build a survey in the *Inspection* grid based on a schedule, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities you want to work with, then click **Save** to close the window.

2   Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-37).

3   Select the *Inspection* data entry grid for a facility type. For example, click the **Inspection** tab `Inspection` and then the **Test Point** button `Test Point` to display the *Test Point Inspection* data entry grid.

4   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-37. Test Point Inspection Grid

5 Click the **Based On** tab ⊞ Based On to open the based on panel. Then select the **Schedule** option (Figure 6-38).

6 Choose a schedule definition. Click the down arrow in the field **Select Schedule Definition** and select an item in the list.
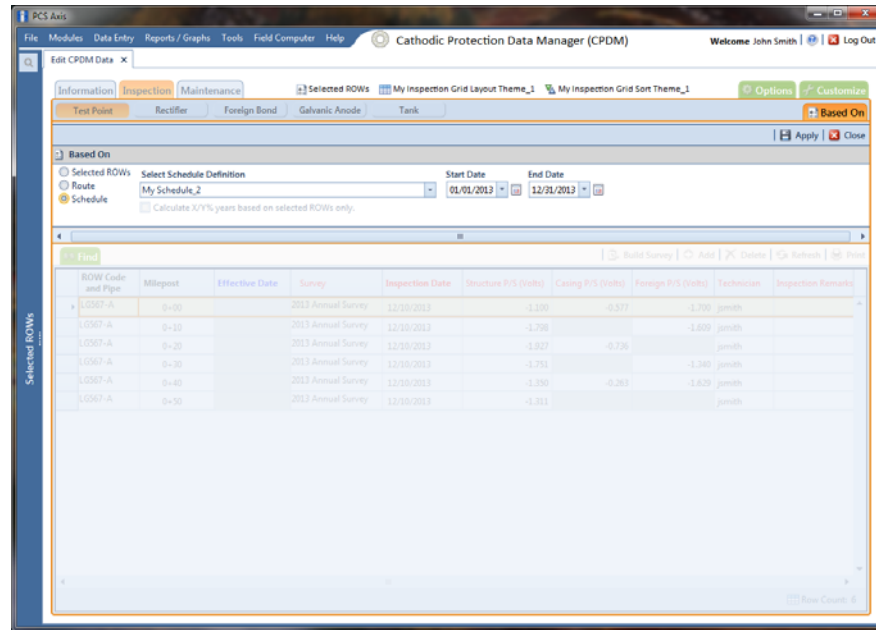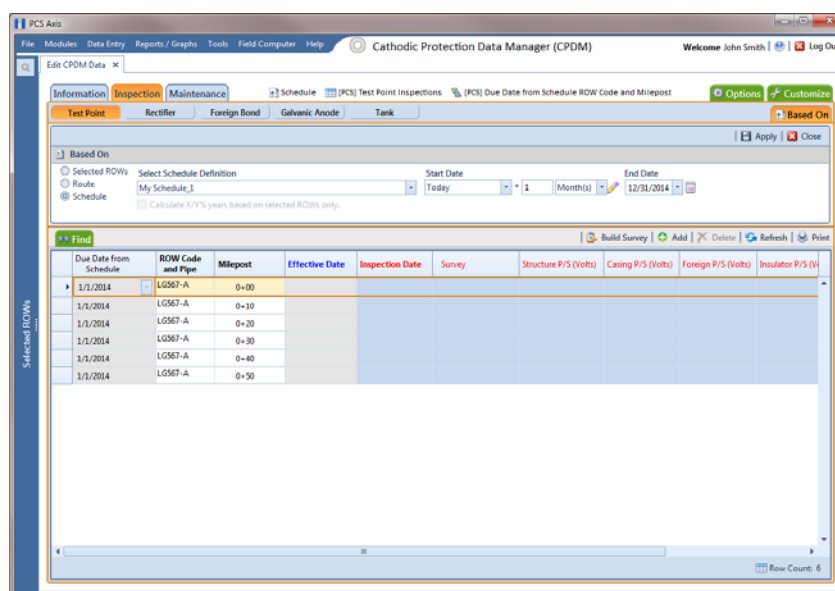
Figure 6-38. Based On Schedule

Complete step 7 to set up a schedule date range using a calendar or step 8 (page 204) to set up a schedule date range using dynamic dates.

7 To set up a schedule date range using a calendar:

    a Set a schedule start date. Click the down arrow in the **Start Date** field and select a date in the calendar.

    b Set a schedule end date. Click the down arrow in the **End Date** field and select a date in the calendar.

    c Click ⊞ **Apply** to apply changes and display the data entry grid. To hide the based on panel, click ✖ **Close** or click the **Based On** ⊞ Based On tab. Continue with step 9 (page 205).

8 To set a schedule date range using dynamic start and end dates, follow these steps (Figure 6-39):

    a Click the **Start Date** ⊞ calculator to open dynamic start date fields. Set properties in these fields in the following manner:

        1) Click the down arrow in the **Start Date** field and select one of the following options: *Today*, *End Of Month*, *Beginning Of Year*, or *End Of Year*.

        2) In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the 🖊 pencil button to close dynamic start date fields.

    b Click the **End Date** ⊞ calculator to open dynamic end date fields. Set properties in these fields in the following manner:

        1) Click the down arrow in the **End Date** field and select one of the following options: *Today*, *End Of Month*, *Beginning Of Year*, or *End Of Year*.

        2) In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the 🖊 pencil button to close dynamic end date fields.

    c Click 💾 **Apply** to apply changes and display the data entry grid. To hide the based on panel, click ❌ **Close** or click the **Based On** [Based On] tab. Continue with step 9 (page 205).

Figure 6-39. Based On Schedule

9 Click **Build Survey** to open the *Build Survey* dialog box (Figure 6-40).
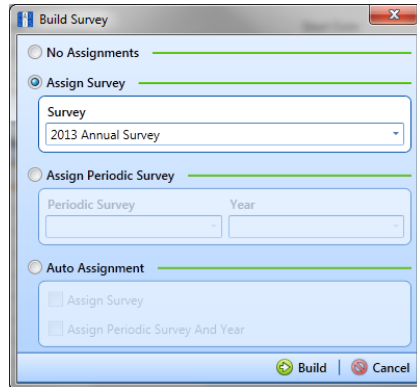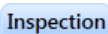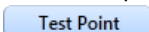
Figure 6-40. Build Survey

10 Select one of the following options in the *Build Survey* dialog box to assign inspection records to a survey folder:

- *No Assignments*: Select this option if you do not want to assign inspection records to a survey folder.

- *Assign Survey*: Select this option to assign inspection records to an annual or multi-year survey folder. Then click the down arrow in the **Survey** field and select a survey folder in the selection list.

- *Assign Periodic Survey*: Select this option to assign inspection records to a periodic survey. Click the down arrow in the **Periodic Survey** field and select a survey folder in the selection list. Then click the down arrow in the **Year** field and select the survey year.

- *Auto Assignment*: Select this option and then click either **Assign Survey** or **Assign Periodic Survey and Year** to have PCS Axis automatically assign inspection readings to a survey folder based on the schedule date range.

11 Click **Build**. Then click **OK** when the *Build Survey* message displays "*Build Survey Completed*".

The data entry grid now includes blank inspection records ready for data entry.

Using Find to Search a Data Entry Grid

To search the content of a data entry grid, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities you want to work with, then click 🖫 **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3 Select a data entry grid. For example, click the **Inspection** tab | Inspection | and then the **Test Point** button | Test Point | to display the *Test Point Inspection* data entry grid.

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Click the **Find** tab | Find | to open the search properties panel (Figure 6-41, page 206).
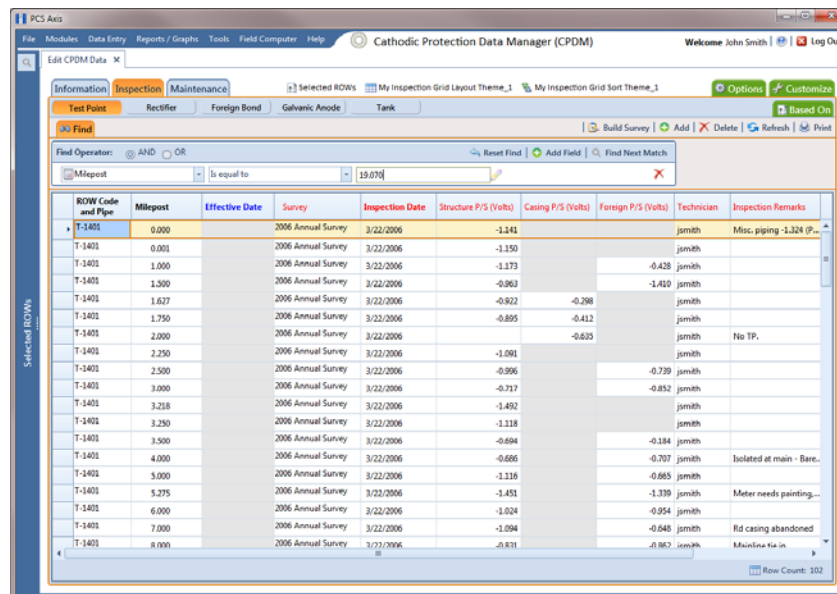
Figure 6-41. Find
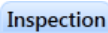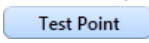
6 Select a *Find Operator* option. If you want search results to meet *all* search criteria, select the **AND** operator. If you want search results to meet *any* search criteria, select the **OR** operator.

7 Set up search criteria. Select a PCS Axis field, operator, and value using the selection fields. To add another row of selection fields, click ⊕ **Add Field** and then select a PCS Axis field, operator and a value using the added row of selection fields.
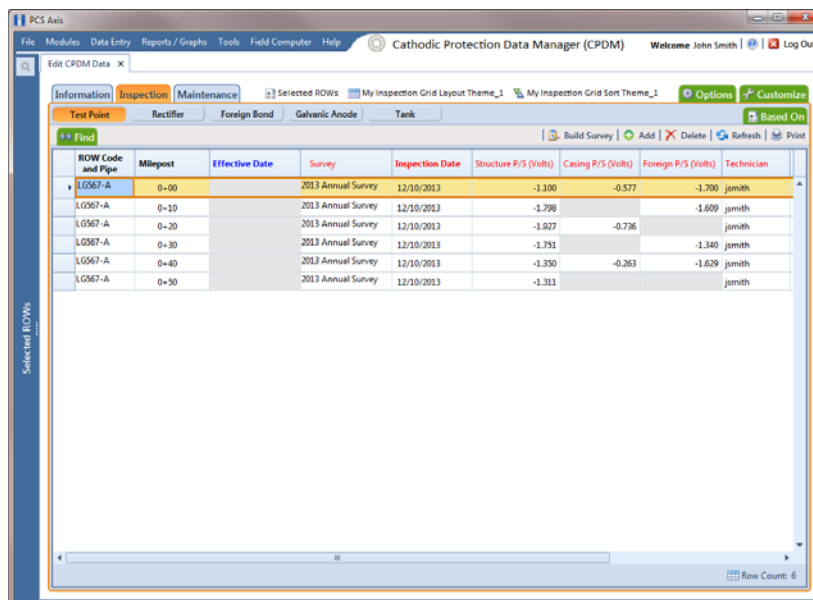
8 Click ⌕ **Find Next Match** to search the grid. Click the button again to find the next match.

9 Click ↩ **Reset Find** to clear and reset search selection fields. If you want to search for another item in the data entry grid, repeat steps 6 through 8.

10 Click the **Find** tab ◎◎ Find to close the search properties panel.

Printing, Exporting, or Emailing Grid Content

The following information explains how to print and export a report with content in a data entry grid. Supported file formats for exporting a report include PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, and Image (BMP, EMF, WMF, GIF, JPEG, PNG, and TIFF).

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities you want to work with, then click 💾 **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window (Figure 6-42).

3 Select a data entry grid. For example, click the **Inspection** tab Inspection and then the **Test Point** button Test Point to display the *Test Point Inspection* data entry grid.

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-42. Test Point Inspection Grid

5 Click **Print** to open a print preview window (Figure 6-43, page 209).

6 To print the report using the default Windows printer, click the **Quick Print** button.

7 To open a print dialog box and select a printer to print the report, click the **Print** button.

8 To select a file format and export the report, follow these steps:

    a Click the down arrow in **Export Document** and select a file format in the selection list.

    b When the *Options* dialog box opens, set up optional property settings and then click **OK** to close the dialog box.

    c When the *Save As* dialog box opens, type a name for the report in the **File name** field and then navigate to a location on your computer to save the report.

    d Click **Save**. When the message *Do you want to open this file* displays, click **Yes** or **No**.

9 To select a file format and send the report as an attachment in an email, follow these steps:

    a Click the down arrow in **Send via E-mail** and select a file format in the selection list.

    b When the *Options* dialog box opens, set up optional property settings and then click **OK** to close the dialog box.

    c When the *Save As* dialog box opens, type a name for the report in the **File name** field and then navigate to location on your computer to save the report.

    d When an email message opens with the report as an attachment, select an email recipient and then click **Send**.

10 Click the **Exit** button to close the print preview window and return to the data entry grid.

Figure 6-43. Print Preview

Working with Continuous Survey Data

Information in this section explains how to manage survey readings and other data associated with a continuous survey using the Indirect Survey Manager (ISM) module.

Data entry grids in ISM are organized based on the following continuous survey methods: CIS (Close Interval Survey), AC CIS (AC Close Interval Survey), DCVG (DC Voltage Gradient), ACVG (AC Voltage Gradient), ACCA (AC Current Attenuation), Soil Resistivity, and Pearson. For a description of these survey methods, see *Appendix B* (page 635).

Topics in this section include those in the following list:

- *Adding or Deleting a Record in a Continuous Survey* (page 210)

- *Working with Survey Maintenance* (page 212)

- *Printing, Exporting, or Emailing a Continuous Survey* (page 230)

IMPORTANT: Survey readings must be assigned to a survey folder in *Survey Folder Maintenance* before working with data in ISM. If needed, refer to *Adding a Continuous Survey Folder* (page 137) for more information.

Adding or Deleting a Record in a Continuous Survey

To add or delete a record in a continuous survey, follow these steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.
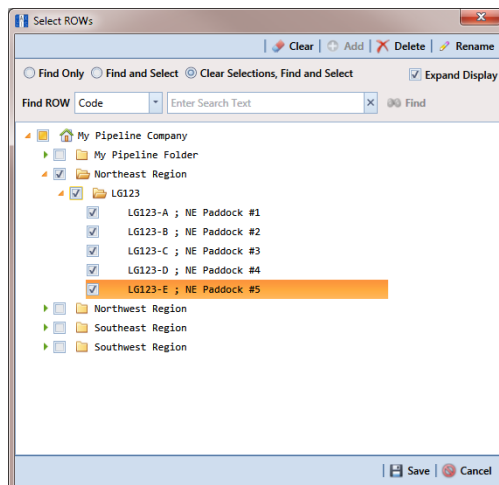

Figure 6-44. Select ROWs

2 If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3 Open the ISM data entry grid. Click **Data Entry** > **Edit ISM Data** (Figure 6-45).
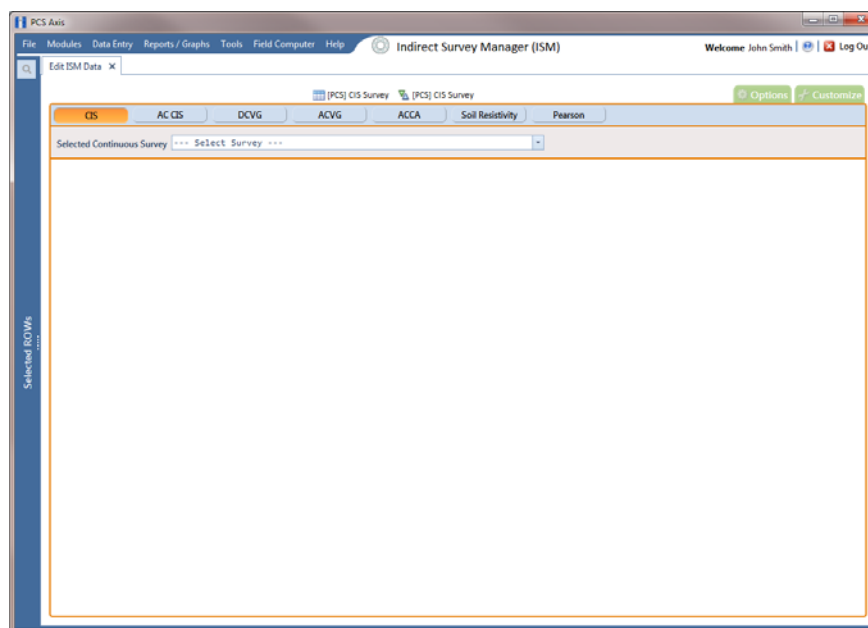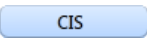
Figure 6-45. Edit ISM Data

4 Click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button [CIS] (Figure 6-46).

5 Select a survey folder with survey readings you want to modify. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

6 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.
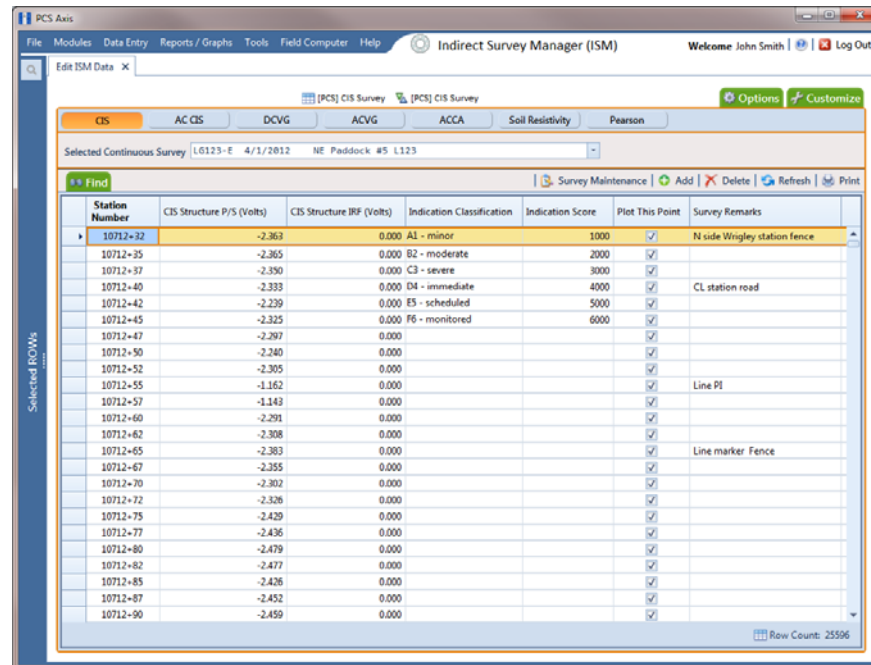

Figure 6-46. Edit ISM Data

7 To add a record in a survey, follow these steps:

a Click ⊕ **Add** to add a new record in the data entry grid.

b Type a station number in the **Station Number** field. Enter other survey data in remaining fields as needed. When you finish, click 🔄 **Refresh** to update the data entry grid.

When PCS Axis adds a new row of records in the grid, the new record includes a ❌ red error icon in the *Station Number* field to indicate a required data entry field.

8   To delete a record in a survey, follow these steps:

a   Click a station number to select a row of records in the data entry grid.

b   Click ✕ **Delete**. When the *Delete Record* message displays, click ✕ **Delete** to delete the selected record or 🚫 **Cancel** to cancel the operation. When you finish, click 🔄 **Refresh** to update the data entry grid.

Working with Survey Maintenance

Survey Maintenance provides several functions that simultaneously change a group of records. For example, instead of editing one record at a time to reverse the order of survey readings, use *Reverse* to change a range of survey records all at the same time.
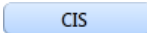
Topics in this section explain how to perform the following tasks:

- *Reversing Survey Readings*

- *Shifting Station Numbers* (page 215)

- *Copying Station Numbers to a New Survey* (page 217)

- *Appending a Survey* (page 219)

- *Deleting a Range of Station Numbers* (page 221)

- *Using Spike Filtering* (page 223)

- *Using Rubber Band* (page 225)

- *Resetting Station Numbers* (page 228)

Reversing Survey Readings

Use *Reverse* to reverse the order of survey readings so that the first reading becomes the last and the last reading becomes the first. Station numbers for all other survey readings are changed so that the survey is reversed or "flipped". This function is typically used when survey readings were taken in an upstream direction instead of downstream, or vice versa.

To reverse the order of survey readings, follow these steps:

1   Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.

2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3   Open the ISM data entry grid. Click **Data Entry** > **Edit ISM Data**. Then click a button labeled with the type of continuous survey you want to work with, such as the **CIS** button ⬚ CIS ⬚ (Figure 6-47).

4   Select a survey folder with survey readings you want to reverse. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.
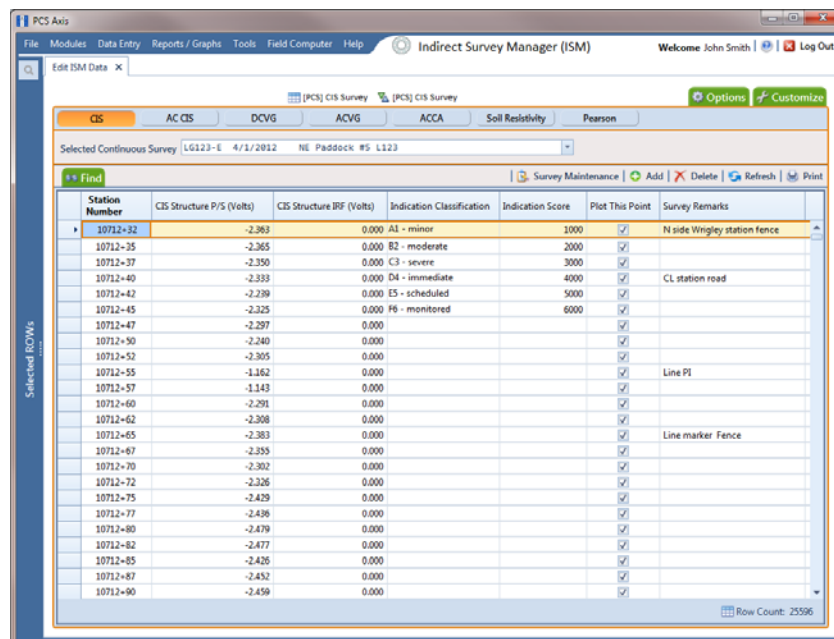

Figure 6-47. Edit ISM Data

5 Click ![icon] **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click ![icon] **Reverse** if the tab is not selected (Figure 6-48).

6 Type a starting station number in the field **Starting Station Number** and an ending station number in the field **Ending Station Number**.

NOTE: Clicking the Windows close button ![x button] cancels the operation and closes the dialog box.

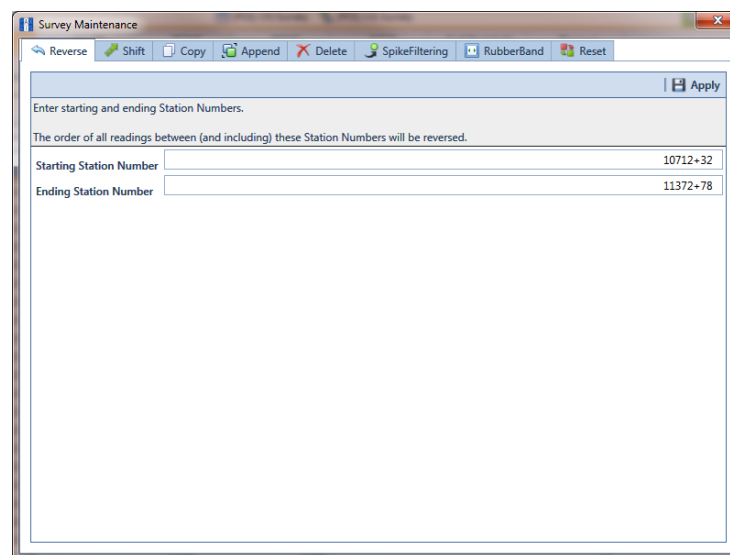**7** Click ![icon] **Apply** to reverse survey readings and update the data entry grid.
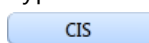

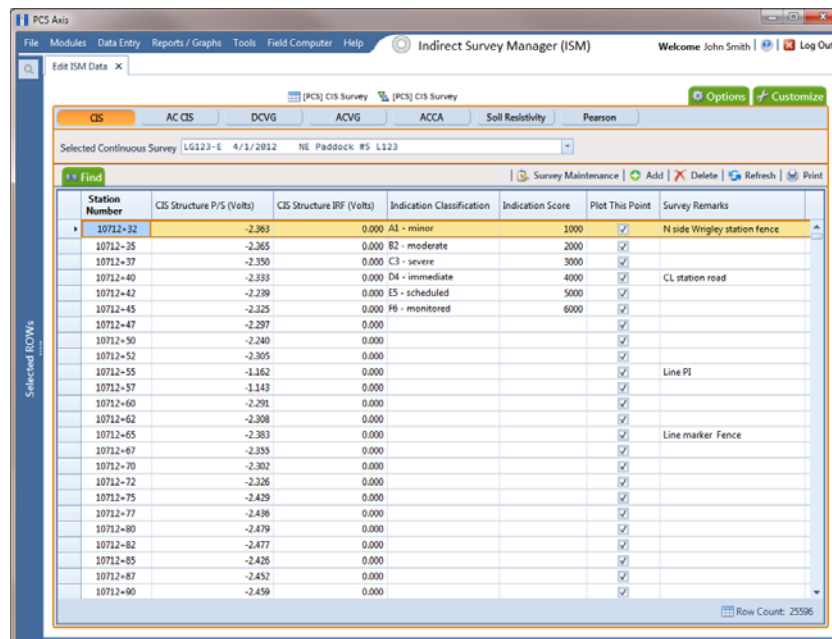**Figure 6-48. Reverse Survey Readings**

Shifting Station Numbers

Use *Shift* to shift a range of station numbers by a specified number of feet. You can add or subtract a fixed footage to station numbers for a range of readings in a survey. This function is typically used if station numbers are not known when performing the survey and they need to be shifted to correct station numbers.

To shift station numbers, follow these steps:

1   Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.

2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3   Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button ⟨ CIS ⟩ (Figure 6-49).

4   Select a survey folder with survey readings you want to shift. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-49. Edit ISM Data

5   Click **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click **Shift** (Figure 6-50).

6   Type a starting station number in the field **Starting Station Number** and an ending station number in the field **Ending Station Number**.

7   Type or select the number of feet in the **Distance** field. Clicking the up arrow increases the value; clicking the down arrow decreases it.

NOTE: Clicking the Windows close button cancels the operation and closes the dialog box.

---

8   Click **Apply** to shift station numbers and update the data entry grid.
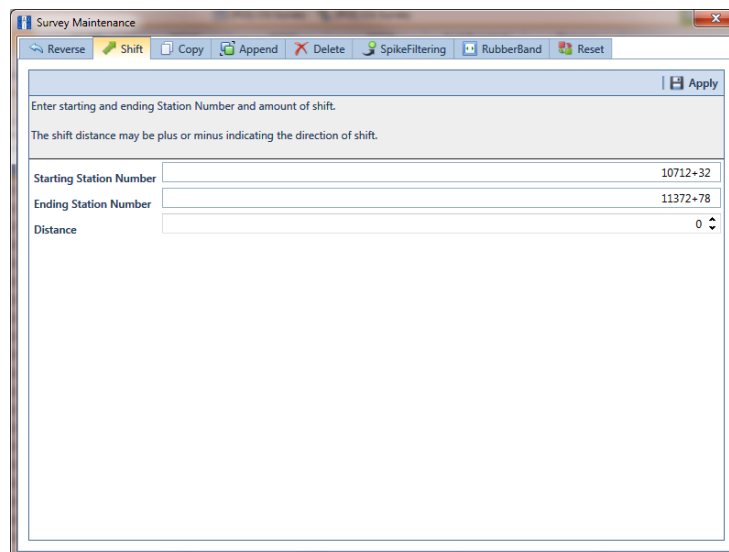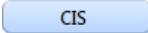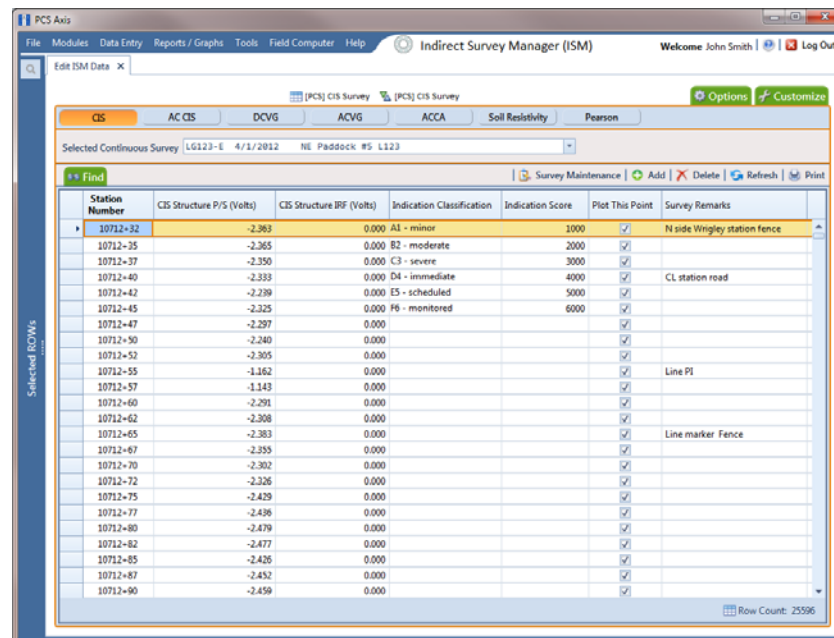
Figure 6-50. Shift Station Numbers

Copying Station Numbers to a New Survey

To copy a range of station numbers with survey readings to a new survey, complete the following steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.

2 If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3 Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button [CIS] (Figure 6-51).

4 Select a survey folder with survey readings you want to copy. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-51. Edit ISM Data

5 Click ![icon] **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click ![icon] **Copy** (Figure 6-52).

6 Type a starting station number in the field **Starting Station Number** and an ending station number in the field **Ending Station Number**.

7 Type a name for the new survey in the field **New Survey Name**.

8 Click the down arrow in the field **New Survey Date** and select a survey date using a calendar.

NOTE: Clicking the Windows close button ![x] cancels the operation and closes the dialog box.

9 Click ![icon] **Apply** to copy the range of station numbers with survey readings to a new survey. The new survey is available for selection in the *Selected Continuous Survey* field.
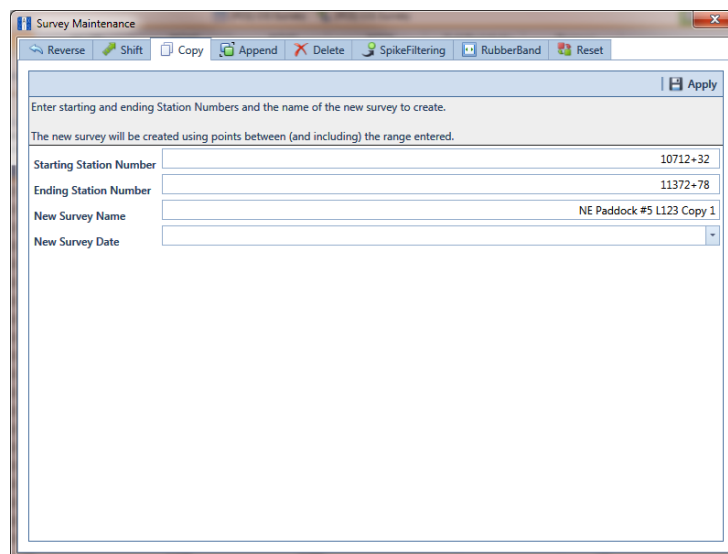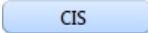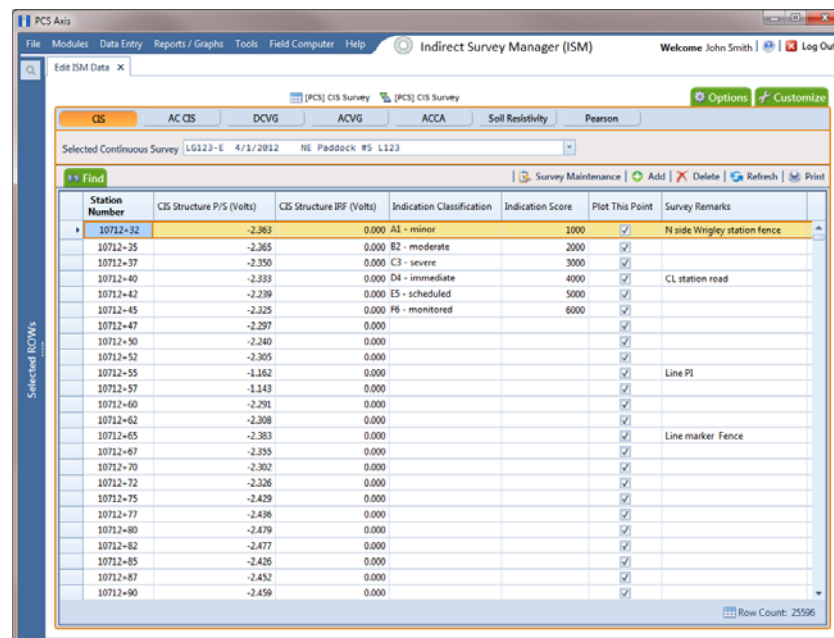
Figure 6-52. Copy to New Survey

Appending a Survey

To append a survey with a range of station numbers from another survey (including associated survey readings), complete the following steps:

1   Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.

2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3   Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button ⟨ CIS ⟩ (Figure 6-53).

4   Select the survey folder you want to append with survey readings from another survey. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-53. Edit ISM Data

5   Click ![icon] **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click ![icon] **Append** (Figure 6-54).

6   Choose a survey with station numbers you want to add (append) to the survey currently displayed in the ISM data entry grid. Click the down arrow in field **Survey To Append From** and select a survey in the selection list.

7   Select a range of station numbers you want to append to the survey currently displayed in the ISM data entry grid. Type a starting station number in the field **Starting Station Number** and an ending station number in the field **Ending Station Number**.

NOTE: Clicking the Windows close button ![x button] cancels the operation and closes the dialog box.

---

8   Click ![icon] **Apply**. PCS Axis adds the range of appended station numbers with survey readings to the survey currently displayed in the ISM data entry grid.
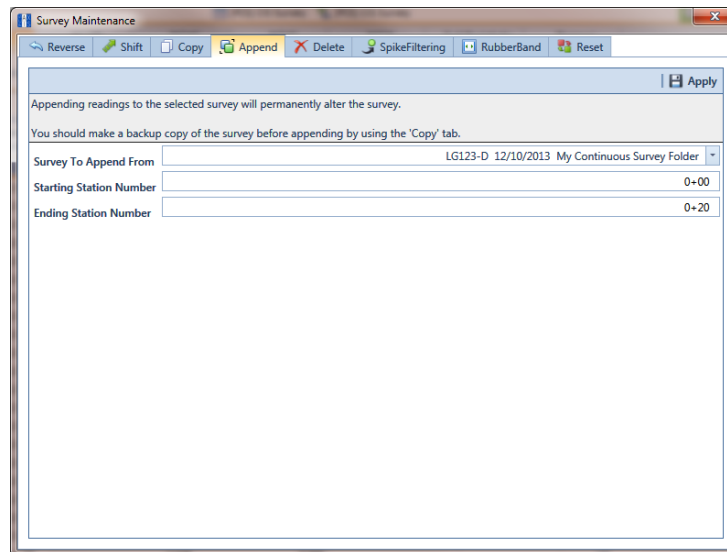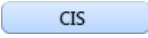
Figure 6-54. Append Survey
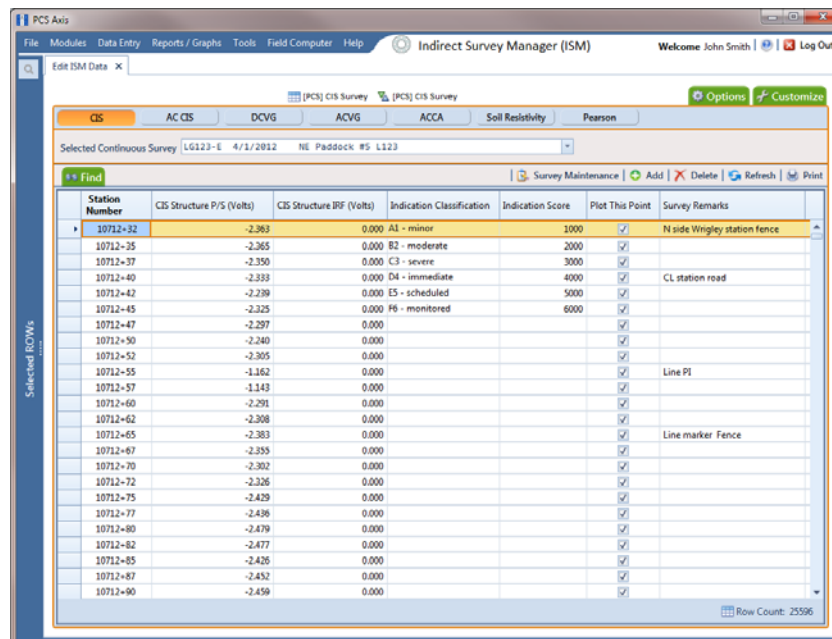
Deleting a Range of Station Numbers

Information in this section explains how to delete a range of station numbers in a survey. Survey readings associated with the range of station numbers are also deleted. Deleting all station numbers in a survey also deletes the survey.

To delete a range of station numbers in a survey, follow these steps:

1   Click the **Select ROWs** button ![magnifier icon] to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click ![save icon] **Save** to close the window.

2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3   Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button ![CIS button] (Figure 6-55).

4   Select a survey folder with station numbers you want to delete. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-55. Edit ISM Data

5   Click ![icon] **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click ![icon] **Delete** (Figure 6-56).

6   Identify the range of station numbers you want to delete (includes associated survey readings). Type a starting station number in the field **Starting Station Number** and an ending station number in the field **Ending Station Number**.

NOTE: Clicking the Windows close button ![close button] cancels the operation and closes the dialog box.

---

7   Click ![icon] **Apply**.
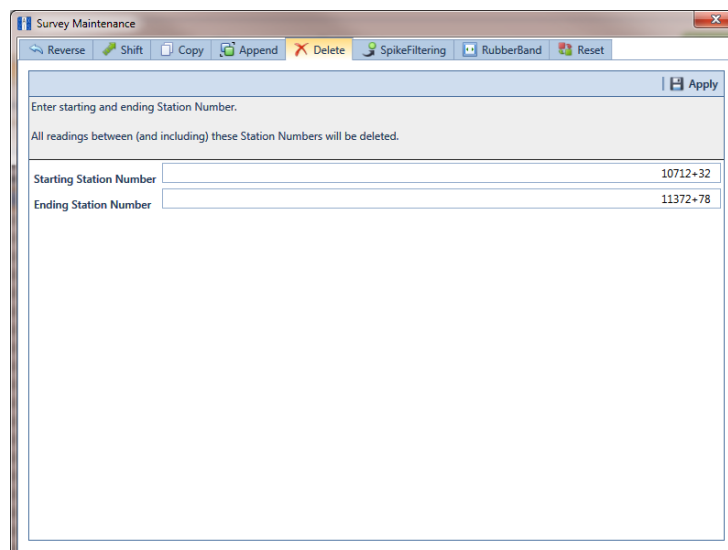
Figure 6-56. Delete Range of Station Numbers

8   When the message *Delete Survey Readings* displays, click ![icon] **OK** to delete station numbers and associated survey readings. Clicking ![icon] **Cancel** cancels the operation (Figure 6-57).
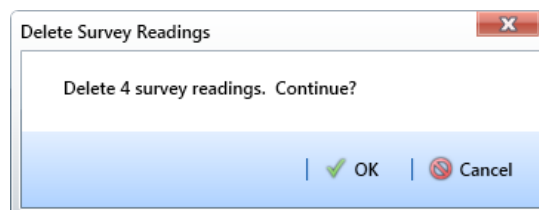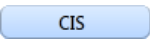
Figure 6-57. Delete Survey Readings

Using Spike Filtering

Spike filtering is available only when working with a close interval survey (CIS). Use spike filtering to exclude inaccurate survey readings in graphs and reports that are typically due to poor contact between the soil and reference electrode. Using this feature allows you to consider only those survey readings that are accurate when analyzing survey data.

Inaccurate readings are excluded based on a percentage value you specify for the filter. PCS Axis compares the on/off values of the current reading with the on/off values of the previous and next reading. If the current survey reading differs from the previous and next survey reading by more than the percentage allowed, PCS Axis disables the option *Plot This Point* for the current survey reading and also excludes it in the *CIS Survey Graph* report.

To apply spike filtering to a range of station numbers, follow these steps:

1   Click the **Select ROWs** button ![magnifier icon] to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click ![save icon] **Save** to close the window.

2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3   Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click the **CIS** button ![CIS button] to work with a close interval survey (Figure 6-58, page 224).

4   Select a survey folder with station numbers you want to apply *Spike Filtering*. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-58. Edit ISM Data

5   Click [icon] **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click [icon] **SpikeFiltering** (Figure 6-59, page 225).

6   Type a starting station number in the field **Starting Station Number** and an ending station number in the field **Ending Station Number**.

7   Type a value in the **Spike Percentage** field. Valid entries are in a range of 1-99.

NOTE: Clicking the Windows close button [x] cancels the operation and closes the dialog box.

---

8   Click [icon] **Apply** and then click [icon] **OK** when a status message displays.

The option *Plot This Point* is disabled in the data entry grid only for station numbers that meet *Spike Filtering* criteria.
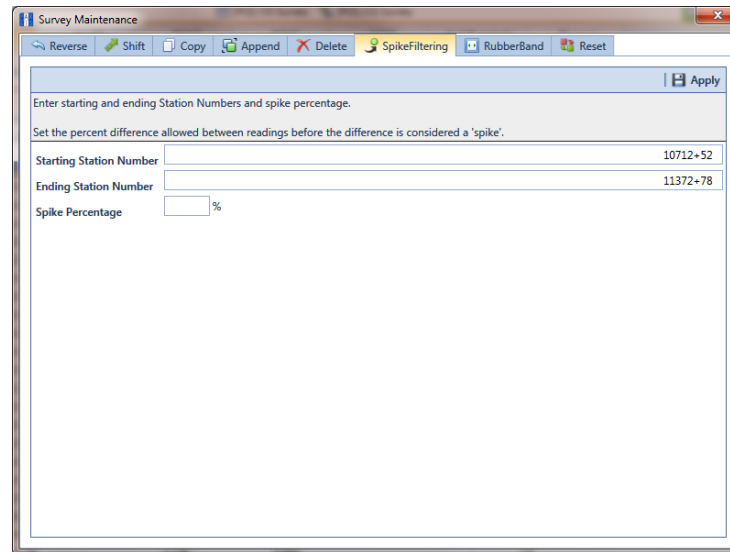
Figure 6-59. Spike Filtering

Using Rubber Band
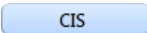
Use *Rubber Band* to adjust a range of station numbers by stretching or shrinking sections of a survey so that station numbers line up with known points along the survey.

Using *Rubber Band* allows you to re-align station numbers for a selected survey. After entering known station numbers for the first, last, and any other station numbers in between, *Rubber Band* adjusts remaining station numbers in a linear manner between known station numbers. Station numbers are then listed in ascending order (lowest to highest).
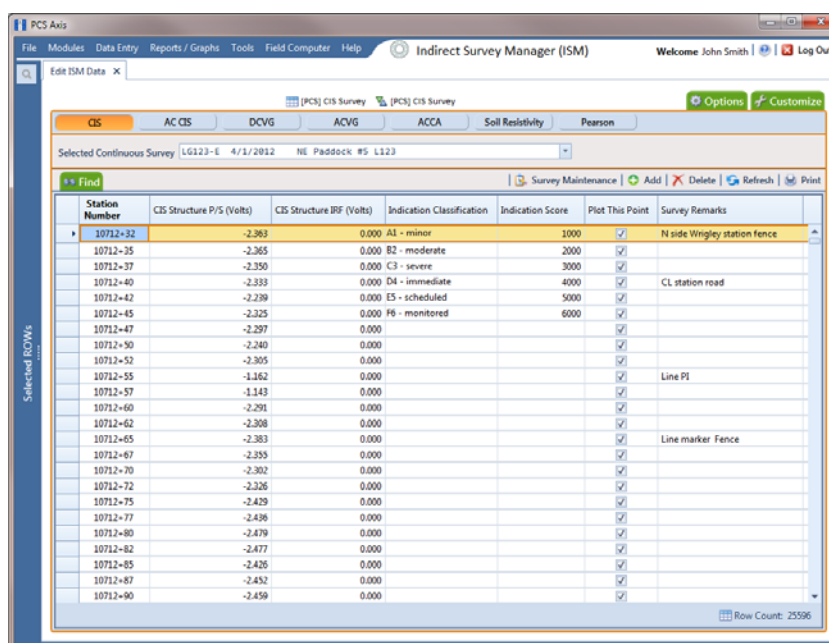
When you first use *Rubber Band*, the fields labeled *Original* and *Target* include two match point records by default. These match point records are the first and last station numbers in the selected survey. Station numbers in the *Original* field are the original station numbers initially stored in PCS Axis as a result of importing survey data, entering survey data manually, or receiving survey data from the Allegro Field PC. Station numbers in the *Target* field are the corrected or adjusted station numbers that you enter or are entered as a result of the *Rubber Band* feature.

To adjust a range of station stations using the *Rubber Band* function, follow these steps:

1   Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.

2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3 Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button [CIS] (Figure 6-60).

4 Select a survey folder with station numbers you want to apply the *Rubber Band* function. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

Figure 6-60. Edit ISM Data

5 Click ![icon] **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click ![icon] **RubberBand** (Figure 6-61).

6 To re-align station numbers in the survey, follow these steps:

a If you want to re-align the first station number in the survey, type a new station number in the **Target** field located next to the first station number showing in the *Original* field.

b If you want to re-align the last number in the survey, type a new station number in the **Target** field located next to the last station number showing in the *Original* field.

c If you want to add new match points for known station numbers, click ![icon] **New** to add empty *Original* and *Target* match point fields. Then type the station number you want to re-align in the **Original** field and the adjusted (or corrected) station number in the **Target** field.

d If you want to delete a row of match points, select the row and then click ![icon] **Delete**.

NOTE: Clicking ![icon] **Reset** before clicking *Apply* resets station numbers to their original values.

---

e Click ![icon] **Apply**. When the *Apply* message displays, click ![icon] **OK** to continue or ![icon] **Cancel** to cancel the operation.

7 Click ![icon] **Refresh** to update data in the ISM data entry grid.
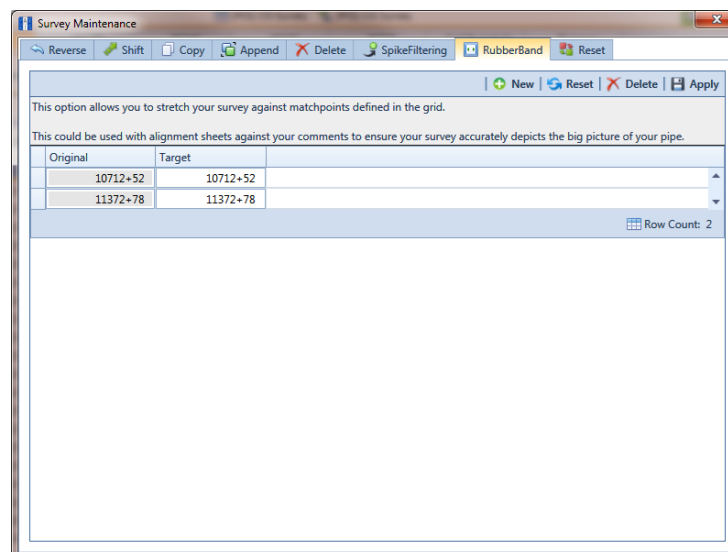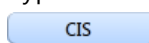
Figure 6-61. Rubber Banding
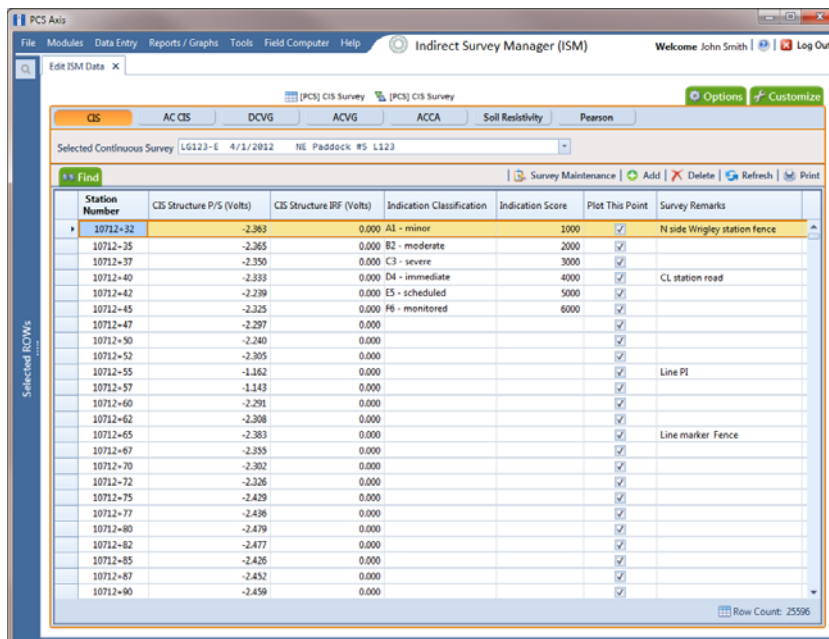
Resetting Station Numbers

Use *Reset* to return all station numbers in the selected survey to original station numbers that were collected when the survey was first entered in the ISM data entry grid.

To reset station numbers, follow these steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click 💾 **Save** to close the window.

2 If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3 Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button (CIS) (Figure 6-62).

4 Select a survey folder with survey readings you want to shift. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

NOTE: If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.
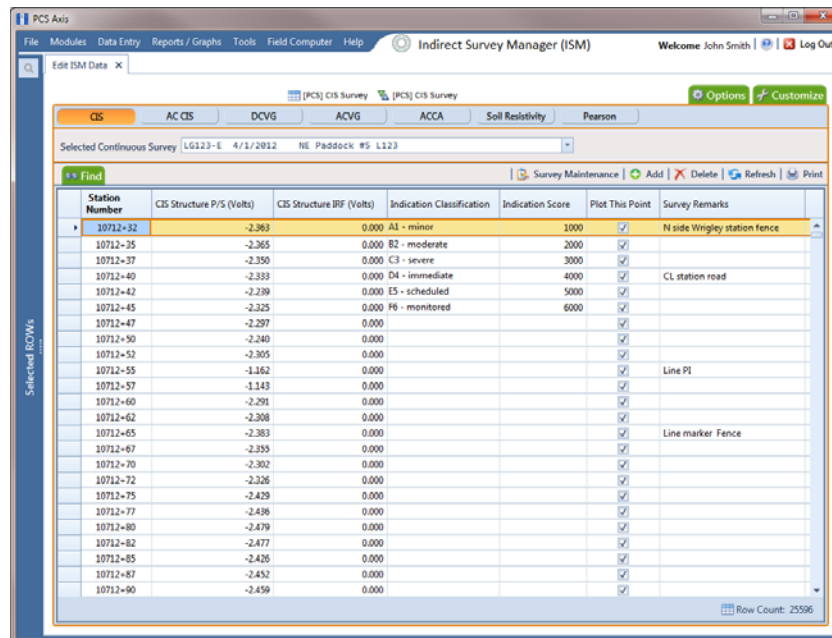

Figure 6-62. Edit ISM Data

5 Click **Survey Maintenance** to open the *Survey Maintenance* dialog box. Then click **Reset** (Figure 6-63).
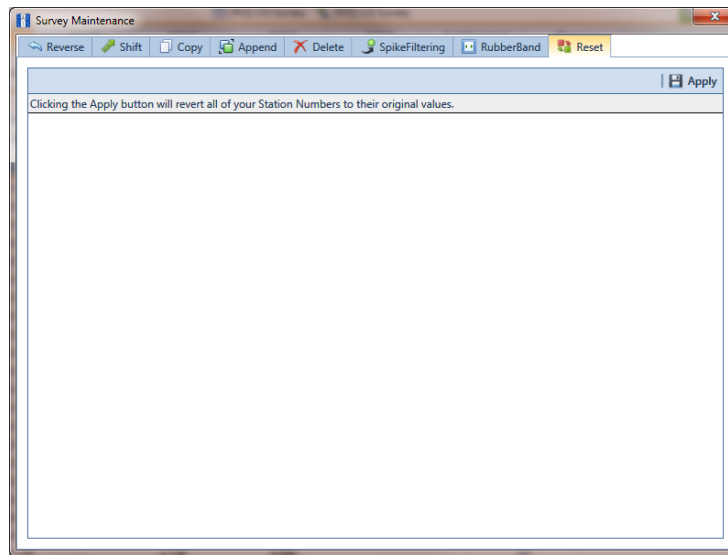
Figure 6-63. Reset

6 Click **Apply**. When the *Reset Station Numbers* message displays, click **OK** to reset all station numbers or **Cancel** to cancel the operation (Figure 6-64).

The data entry grid now displays original station numbers.
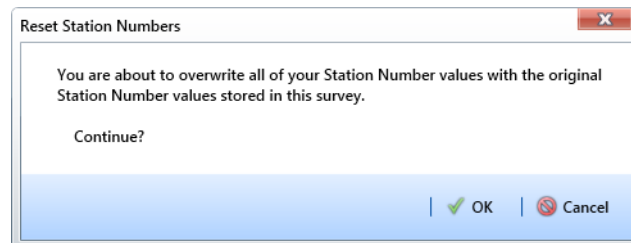
Figure 6-64. Reset Station Numbers
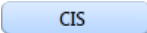
Printing, Exporting, or Emailing a Continuous Survey
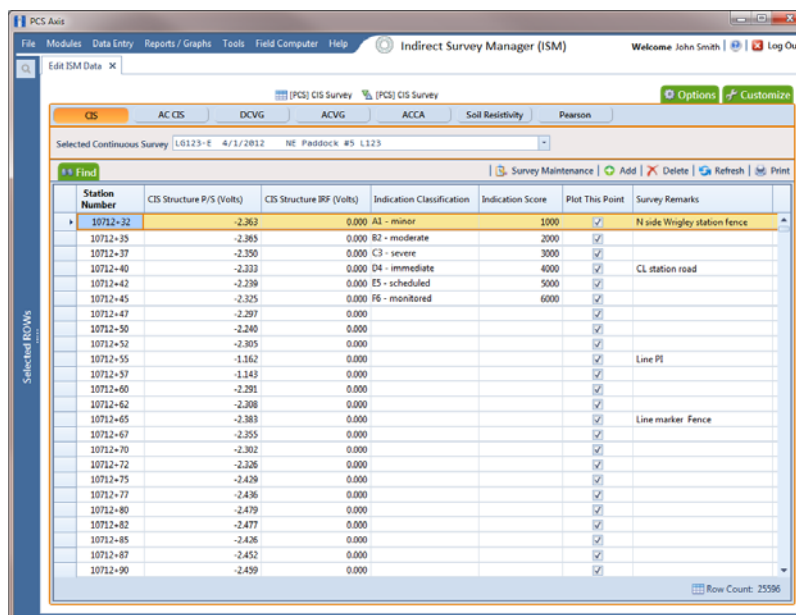
The following information explains how to print, export, or email a report for a continuous survey displaying in the *Edit ISM Data* grid. Supported file formats for exporting a report include PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, and Image (BMP, EMF, WMF, GIF, JPEG, PNG, and TIFF).

Complete the following steps:

1   Click the **Select ROWs** button [🔍] to open the *Select ROWs* window (Figure 6-44, page 210). Select the pipeline segment(s) with the facilities you want to work with, then click [💾] **Save** to close the window.

> **NOTE:** If you want to collapse the *Selected ROWs* panel, click the **Selected ROWs** bar. Clicking the bar again expands the panel.
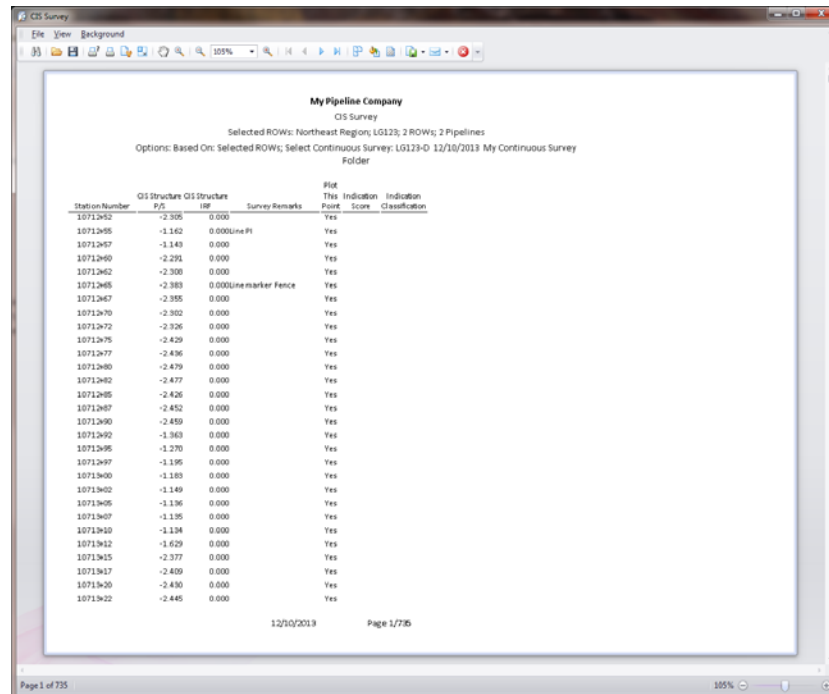
2   If the ISM module is not open, click **Modules** > **Indirect Survey Manager (ISM)**.

3   Click **Data Entry** > **Edit ISM Data** to open the ISM data entry grid. Then click a button labeled with the type of continuous survey data you want to work with, such as the **CIS** button [CIS] (Figure 6-65).

4   Select a survey folder with survey readings you want to print or export. Click the down arrow in **Selected Continuous Survey** and select a survey folder in the selection list.

Figure 6-65. Edit ISM Data

5 Click 🖨 **Print** to open a print preview window (Figure 6-66).

6 To print the report using the default Windows printer, click 🖨 **Quick Print**.

7 To open a print dialog box and select a printer to print the report, click 🖨 **Print**.

Figure 6-66. Print Preview

8 To select a file format and export the report, follow these steps:

a Click the down arrow in 🖫 ▾ **Export Document** and select a file format in the selection list.

b When the *Options* dialog box opens, set up optional property settings and then click **OK** to close the dialog box.

c When the *Save As* dialog box opens, type a name for the report in the **File name** field and then navigate to a location on your computer to save the report.

d Click **Save**. When the message *Do you want to open this file* displays, click **Yes** or **No**.

9 To send the report as an attachment in an email, follow these steps:

a Click the down arrow in ✉ ▾ **Send via E-mail** and select a file format in the selection list.

b When the *Options* dialog box opens, set up optional property settings and then click **OK** to close the dialog box.

c When the *Save As* dialog box opens, type a name for the report in the **File name** field and then navigate to location on your computer to save the report. Click **Save**.

d When an email message opens with the report as an attachment, select an email recipient and then click **Send**.

10 Click ❌ **Exit** to close the print preview window and return to the data entry grid.

Working with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS Axis software installation. PCS Axis installed themes are public themes available to all PCS Axis users. These themes are identified with a globe icon and PCS in brackets [PCS], such as 🌐 [**PCS] Test Point Inspections**.

A filter group is a named set of one or more filters that affect the data output in the *Define Routes* grid and subsequently the route itself. PCS Axis provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Define Routes* grid and the route. Adding an AND filter group produces a subset of records that meet *all* filter conditions. Adding an OR filter group produces a subset of records that meet *any* filter condition. When you apply a filter group, PCS Axis processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and one or more optional filter groups. Topics include those in the following list:

- *Adding a Layout Theme*

- *Adding a Sort Theme* (page 236)

- *Adding an AND Filter Group* (page 239)

- *Adding an OR Filter Group* (page 242)

- *Editing and Arranging Filters and Filter Groups* (page 246)

Adding a Layout Theme

A layout theme is a group of fields in a grid layout. Adding a new Layouts theme allows you to choose which fields you want to include in the grid layout and then save the layout as a theme for later use. The following procedure applies to the grid layout for any of the data entry grid in PCS Axis.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window (Figure 6-4, page 168).

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3 Open the data entry grid that you want to add a new grid layout theme. For example, click the **Inspection** tab Inspection and then the **Test Point** button Test Point to display the *Test Point Inspection* grid.

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Click the **Customize** tab 🔧 Customize then the ➕ **Add** button to open the *New Layout Theme* dialog box (Figure 6-67).

Figure 6-67. New Layout Theme

6 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

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7 If you want to copy fields from an existing layout theme, click the **Copy Content** check box to place a check mark inside the check box. Then click the down arrow in the field **Copy Fields From Theme** and select a theme in the selection list.

If you do not want to copy fields from an existing layout theme, remove the check mark inside the *Copy Content* check box by clicking the check box.

8 Click ✔ **OK** to save changes and return to the *Layouts* page (Figure 6-68, page 235).

9 Complete the following steps to add and remove fields in the new layout theme as needed:

    a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

    b Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* page.

    c To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

10 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

11 Click 💾 **Save** to save changes.
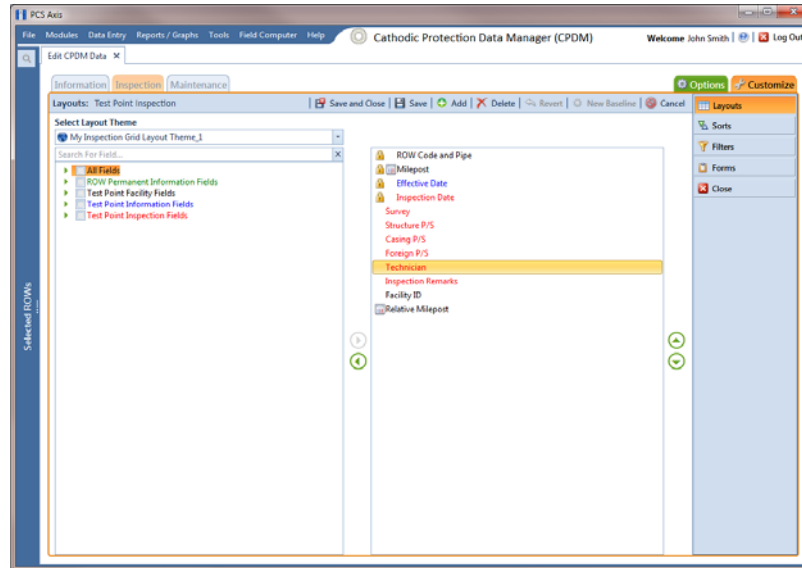
Figure 6-68. Layouts

12 To apply the new layout theme to the data entry grid, follow these steps:

a Click the **Options** tab ![Options] to open the options page (Figure 6-69).

b Click the down arrow in the field **Select Layout Theme** and select the new layout theme in the selection list.

13 Click ![save icon] **Apply** to apply changes and return to the data entry grid.
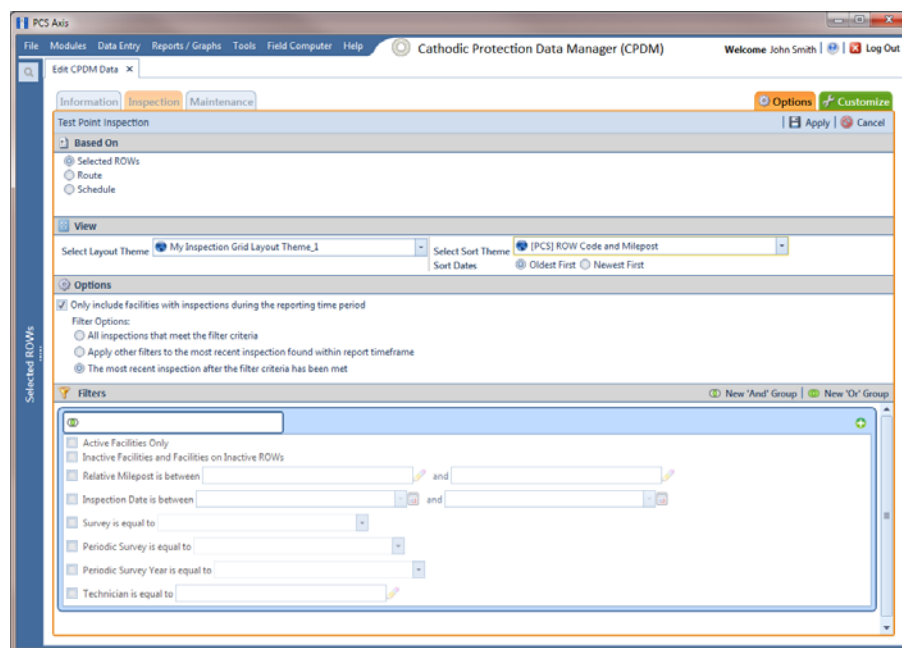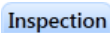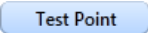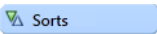
Figure 6-69. Options

Adding a Sort Theme

A sort theme determines how PCS Axis sorts records in the data entry grid. Adding a sort theme allows you to choose which field(s) to sort records by and if records sort alphanumerically in ascending or descending order.

To add a sort theme, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ⊞ **Save** to close the window (Figure 6-4, page 168).

2   Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3   Open the data entry grid that you want to add a new grid sorting theme. For example, click the **Inspection** tab `Inspection` and then the **Test Point** button `Test Point` to display the *Test Point Inspection* grid.

4   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5   Click the **Customize** tab `Customize` then the **Sorts** button `Sorts` to open the *Sorts* page (Figure 6-70).
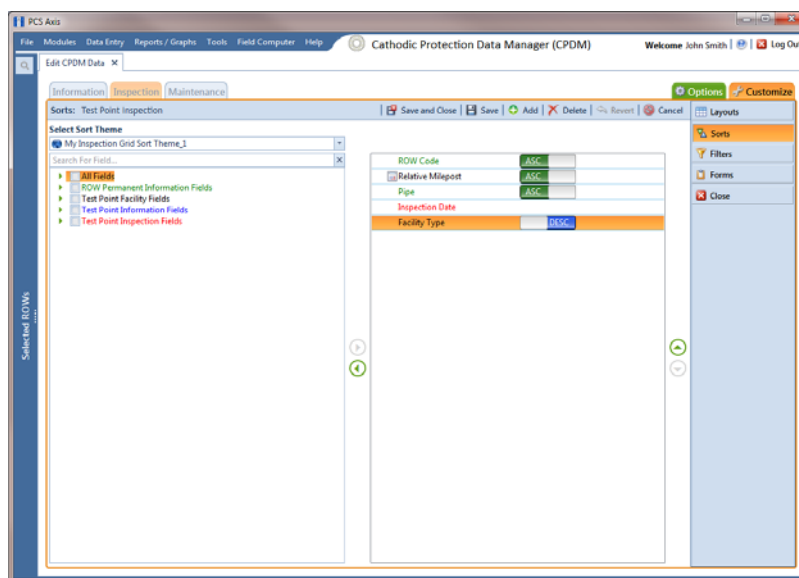
Figure 6-70. Sorts

6 Click the ⊕ **Add** button to open the *New Sort Theme* dialog box (Figure 6-71).

7 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

---

8 If you want to copy fields from an existing layout theme, click the **Copy Content** check box to place a check mark inside the check box. Then click the down arrow in the field **Copy Fields From Theme** and select a theme in the selection list.

If you do not want to copy fields from an existing layout theme, remove the check mark inside the *Copy Content* check box by clicking the check box.

9 Click ✔ **OK** to save changes and return to the *Sorts* page.
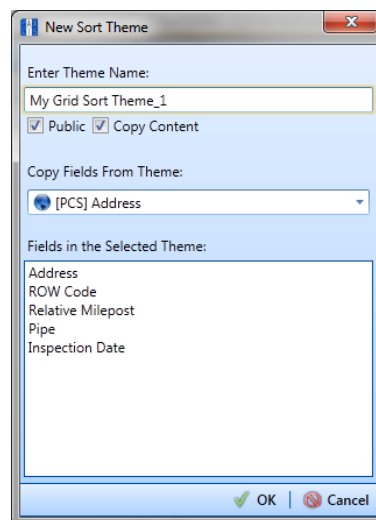
Figure 6-71. New Sort Theme

10 Complete the following steps to add and remove fields in the new sorting theme as needed (Figure 6-72):

a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

b Double-click a field listed in the left pane to move it to the right pane. (Clicking the top arrow button ➡ also moves the selected field.) Repeat this step as needed. The sorting theme includes all fields listed in the right pane.

c If you want to remove a field in the sorting theme, double-click a field listed in the right pane to move it to the left pane. (Clicking the bottom arrow button ⬅ also moves the selected field.) Repeat this step as needed.

11 Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC** ASC . To sort in descending order, click the toggle button to select **DESC** DESC .

12 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

13 Click 💾 **Save** to save changes.

Figure 6-72. Sorts

14 To apply the new sorting theme to the data entry grid, follow these steps:

a Click the **Options** tab ⚙ Options to open the options page (Figure 6-73, page 239).

b Click the down arrow in the field **Select Sort Theme** and select the new sorting theme in the selection list.

15 Click 🖫 **Apply** to apply changes and return to the data entry grid.

Figure 6-73. Options

Adding an AND Filter Group

An AND filter group is a named set of one or more filters that affect the data output in a data entry grid in *Data Entry*. Adding an AND filter group produces a subset of records that meet *all* filter conditions. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an AND filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 🖫 **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** > to open the *Edit CPDM Data* window.

3 Select the data grid you want to filter data. For example, click the Inspection **Inspections** tab.

4 Click the **Customize** tab 🔧 Customize , then the **Filters** button 🔽 Filters to open the *Filters* page.

5 Click ⬤ **New 'And' Group** to open a filter properties group box (Figure 6-74, page 241).

6 Type a name for the filter group in the field **Filter Group Caption**.

7 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

8 If the AND filter group includes a date filter, such as *Facility Delinquent Date Is Between* shown in Figure 6-74, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the ⊞ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

9 If you want the filter to remain on for all sessions when working with the data entry grid, click the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

10 Type a name for the filter in the field **Enter Custom Filter Caption**.

11 If you want to set up additional filter criteria for the filter group:

a Click ⊕ **Add** to open another filter properties group box.

b Type a name for the filter in the field **Enter Custom Filter Caption**. Repeat steps 7 through 10 to set up filter criteria. Then click the close button ✖ to close the filter group.
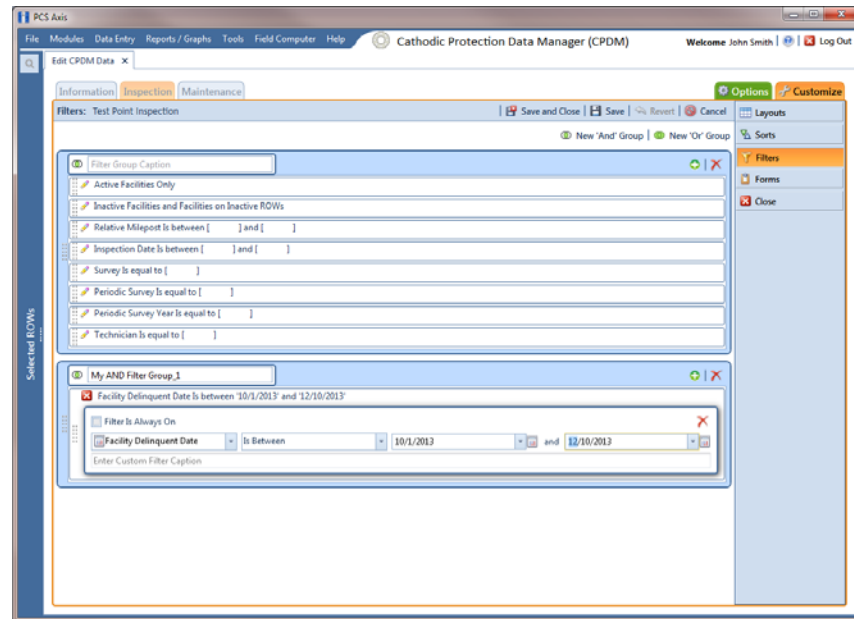
Figure 6-74. Filters

12 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

    a Point the mouse at the filter handle ⣿ to change the cursor to a vertical resize cursor ⇕.

    b Drag and drop the filter or the filter group to a new location.

13 Click 💾 **Save**.

NOTE: Clicking the 🖉 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

14 To apply one or more filters to the data entry grid (Figure 6-75, page 242):

    a Click the **Options** tab to open the options page.

    b Click the check box for each filter you want to apply. Then click 💾 **Apply** to save changes and return to the data entry grid.
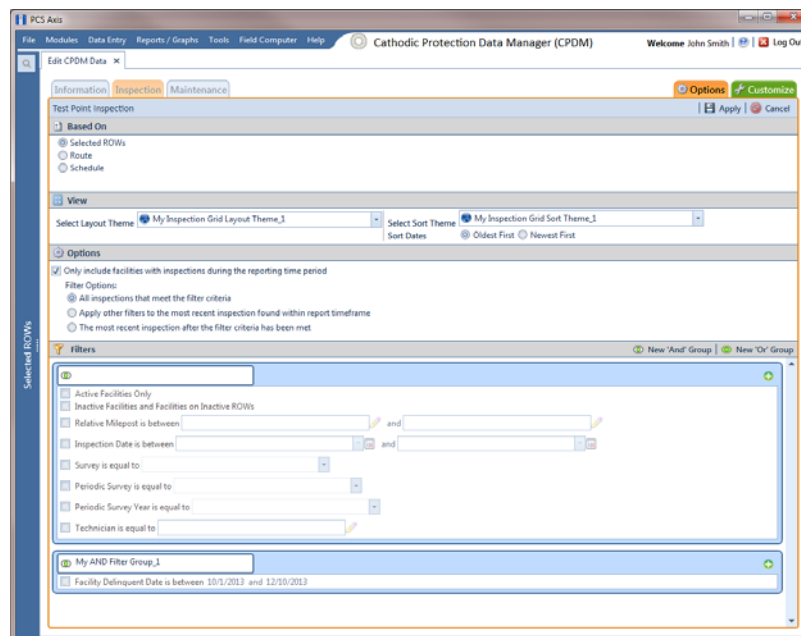
Figure 6-75. Options

Adding an OR Filter Group

An OR filter group is a named set of one or more filters that affect the data output in a data entry grid in *Data Entry*. Adding an OR filter group produces a subset of records that meet *any* filter condition. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an OR filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3 Select the data grid you want to filter data. For example, click the [Inspection] **Inspections** tab.

4 Click the **Customize** tab [Customize], then the **Filters** button [Filters] to open the *Filters* page.

5 Click ⚪ **New 'Or' Group** to open a filter properties group box (Figure 6-76, page 243).

6 Type a name for the filter group in the field **Include records that match any of these conditions**.

7 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

8 If the OR filter group includes a date filter, such as *Facility Delinquent Date Is Between* shown in Figure 6-76 (page 243), set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the 🖩 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

9 If you want the filter to remain on for all sessions when working with the selected route, click the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

10 Type a name for the filter in the field **Enter Custom Filter Caption**.

Figure 6-76. Filters

11 If you want to set up additional filter criteria for the filter group:

    a Click ⊕ **Add** to open another filter properties group box.

    b Repeat steps 6 through 10 to set up the filter group. Then click the close button ⊠ to close the filter group.

12 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

    a Point the mouse at the filter handle ⣿ to change the cursor to a vertical resize cursor ↕.

    b Drag and drop the filter or the filter group to a new location.

    NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

13 Click 💾 **Save**.

NOTE: Clicking the 🖉 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

14 To apply one or more filters to the data entry grid (Figure 6-77):

    a Click the **Options** tab ⚙ Options to open the options page.

    b Click the check box for each filter you want to apply. Then click 💾 **Apply** to save changes and return to the data entry grid.
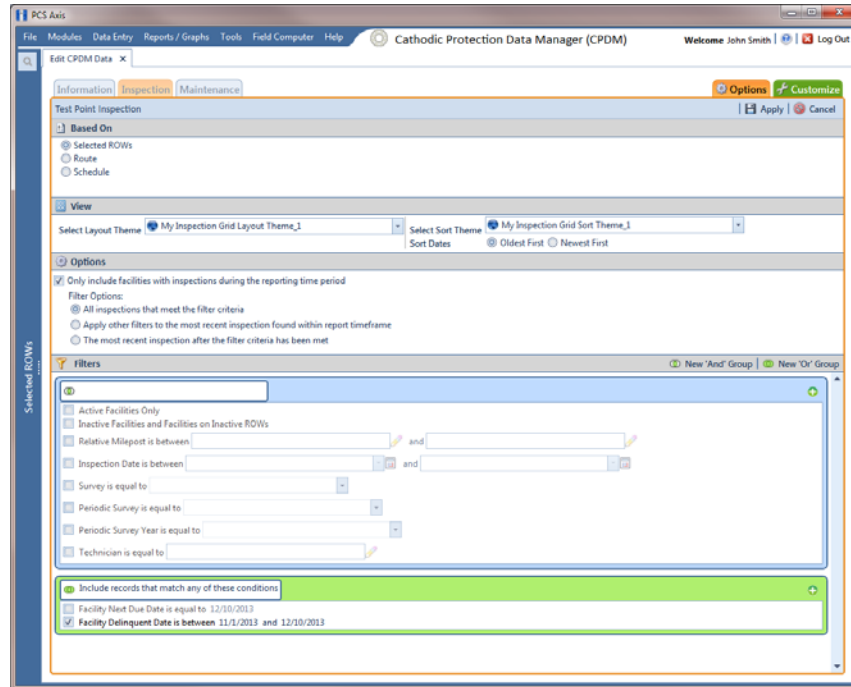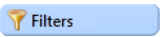
Figure 6-77. Options

Editing and Arranging Filters and Filter Groups

PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ![save icon] **Save** to close the window.

2   Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3   Select the data grid you want to filter data. For example, click the Inspection **Inspections** tab.

4   Click the **Customize** tab ![Customize button], then the **Filters** button ![Filters button] to open the *Filters* page (Figure 6-78).

5   Click the edit icon ![edit icon] to display a filter's property settings.
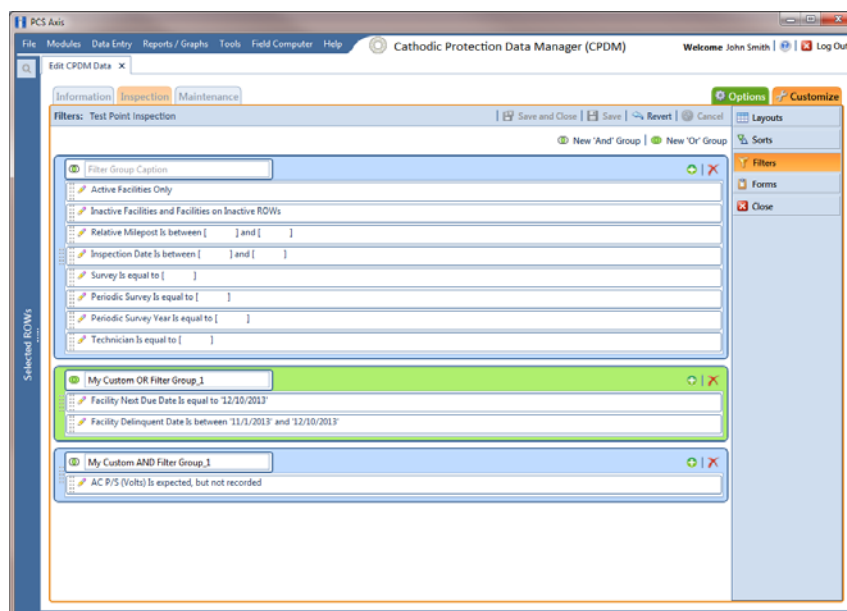
Figure 6-78. Filters

6   To delete a filter in a filter group, click the filter's ![delete icon] delete button. Then click ![ok icon] **OK** when the *Delete* message displays.

7   To rename a filter, type a description in the filter's name field.

8   To change filter criteria, use filter selection fields to select a PCS Axis field, operator, and one or more filter conditions.

9 To enable a filter for all sessions of the data entry grid, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

10 Click the ⊠ close button to close the filter's property settings group box.

11 To move a filter to a different position in a filter group, or to move a filter group to a different position, follow these steps:

a Point the mouse at the handle ⠿ of a filter or filter group to display a vertical resize cursor ↕.

b Drag and drop the filter or filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

12 Click 💾 **Save**.

13 To apply filter changes to the data entry grid:

a Click the **Options** tab ⚙ Options to open the options page.

b Click 💾 **Apply** to apply filter changes and return to the data entry grid.

Working with Records
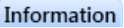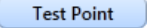
The information in this section explains how to work with various types of records in a data entry grid. Topics include those in the following list:

- *Activating Facility Inspection Fields for Data Entry*

- *Attaching a Document to a Grid Record* (page 250)

- *Working with the Target Structure P/S Field* (page 262)

- *Recording Facility Current Values* (page 265)

- *Linking Rectifiers to ROWs* (page 271)

- *Working with Rectifier Anodes* (page 273)

- *Working with Rectifier Negatives* (page 276)

Activating Facility Inspection Fields for Data Entry

Inspection fields with *Activate* in the field description must first be added and enabled in the facility *Information* grid to allow data entry of inspection readings in the facility *Inspection* grid.

To activate facility inspection fields for data entry, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 6-4, page 168). Choose pipeline segments with facilities you want to work with, then click **Save** to close the window.

2 Open the *Edit <module> Data* window. For example, click **Data Entry** > **Edit CPDM Data** to open the *Edit CPDM Data* window.

3 Open the *Information* grid for a facility type. For example, click the **Information** tab Information and then a facility type button, such as **Test Point** Test Point (Figure 6-79, page 249).

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Click the check box of an *Activate* inspection field for a facility in the grid to place a check mark in the check box. For example, click the check box **Activate Structure P/S (Volts)** for a facility in the grid.

6 Click **Yes** to apply the change when a warning message displays to notify you of a change to the facility's permanent history record.

The inspection field is now available for data entry in the *Inspection* grid for the selected facility. If the inspection field is not present in the Inspection grid, refer to *Adding a Layout Theme* (page 233) for information about adding fields in a grid.

NOTE: You can also activate an inspection field in the *Inspection* grid by right-clicking the field and selecting *Activate Item* in the shortcut menu that opens.
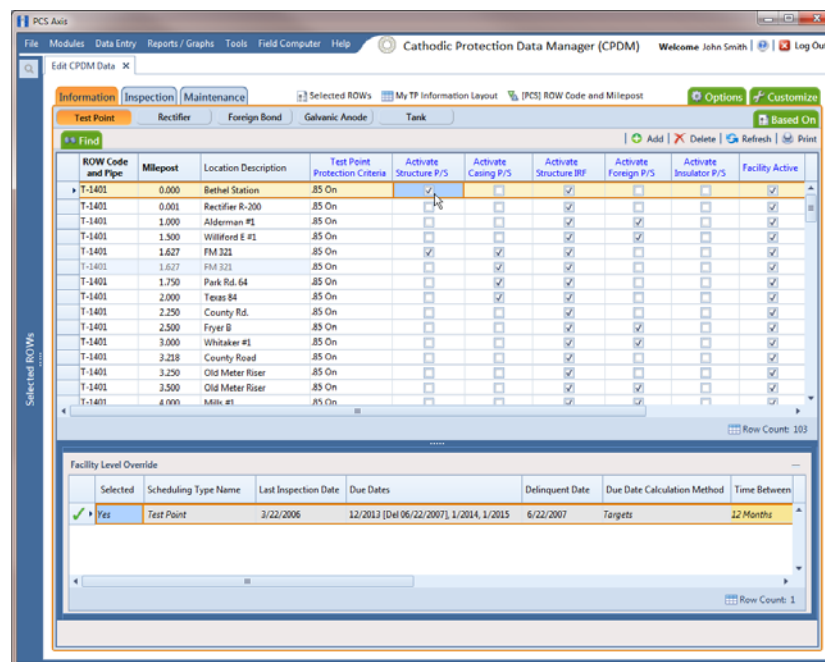
Figure 6-79. Information

Attaching a Document to a Grid Record

When you want to attach a document to a record in the grid, use the *Attached Document* field to link or embed a file or webpage address to a ROW, facility, inspection, or maintenance record. Supported file types include image, video, HTML, XML, music, and text files (such as Microsoft Word, WordPad, Notepad, or PowerPoint files).

As an example, you can attach an image of a survey site or damaged facility; a document describing your company's safety procedures; or a document identifying a manufacturer's specification for a piece of equipment.

Linking a document identifies the file location on a local computer, company network, FTP site, or webpage on the Internet. Linking documents stored on a local computer are accessible only from that computer. Embedding a document stores a copy of the file in the PCS Axis database.

NOTE: Storing copies of documents in the PCS Axis database increases the size of the database.

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, clicking *Open* opens the attached document for editing or viewing purposes.

Editing an embedded document applies changes only to the copy stored in the PCS Axis database; changes do not apply to the source file stored outside of PCS Axis. Likewise, editing a source file applies changes only to the source file, not the copy stored in PCS Axis.

For more information, continue with one of the following topics:

- *Adding an Attached Document Field in the Grid* (page 251)

- *Attaching a Document to a ROW, Facility, Inspection, or Maintenance Record* (page 255)

- *Viewing an Attached Document* (page 260)
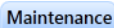
NOTE: For information about how to attach a document to a pipeline record, see *Working with Pipeline Records* (page 87).

Adding an Attached Document Field in the Grid

Each of the following fields allow you to attach a document to a record in the grid. If any of these fields are not present in the grid, use the procedure in this section to add one or more fields as needed.

- *ROW Attached Documents*: add this field in the *Information*, *Inspection*, or *Maintenance* grid if you plan to attach a document to a ROW record.

- *Facility Attached Documents*: add this field in the *Information*, *Inspection*, or *Maintenance* grid if you plan to attach a document to a facility record.

- *Inspection Record Attached Documents*: add this field in the *Inspection* grid if you plan to attach a document to an inspection record.

- *Maintenance Record Attached Documents*: add this field in the Maintenance grid if you plan to attach a document to a maintenance record.

Complete the following steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click 🖫 **Save** to close the window (Figure 6-4, page 168).

2   Click **Data Entry** > **Edit** <module> **Data**, such as *Edit CPDM Data*. If present, click a facility type button, such as *Test Point* in CPDM or *Coupons* in ICM.

3   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

4   Based on the attached document field you want to add, complete one of the following steps to open the grid:

   a   To add the attached document fields *Facility Attached Documents* and/or *ROW Attached Documents* in the Information, Inspection, or Maintenance grid, click the **Information**, **Inspection**, or **Maintenance** tab to open the grid.

   b   To add the field *Inspection Record Attached Documents* in the Inspection grid, click the **Inspection** tab Inspection to open the grid.

   c   To add the field *Maintenance Record Attached Documents* in the Maintenance grid, click the **Maintenance** tab Maintenance to open the grid.

5   Click the **Customize** tab Customize to view the *Layouts* page.

6 Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.

7 Type **attached** in the search field of the left pane to display a list of attached document fields available for selection.

8 To add the fields *Facility Attached Documents* and/or *ROW Attached Documents* in the Information, Inspection, or Maintenance grid, follow these steps:

a Click the check box for the fields **Facility Attached Documents** and/or **ROW Attached Documents** in the left pane of the window (Figure 6-80, page 252).

b Click the top arrow button ⏵ to move selected fields to the right pane. The grid includes all fields listed in the right pane. Click 💾 **Save**.

NOTE: Double-clicking a field in the left pane also moves it to the right pane. If you want to remove a field in the right pane, double-click the field to move it back to the left pane. Fields with a lock icon 🔒 are required and cannot be removed.
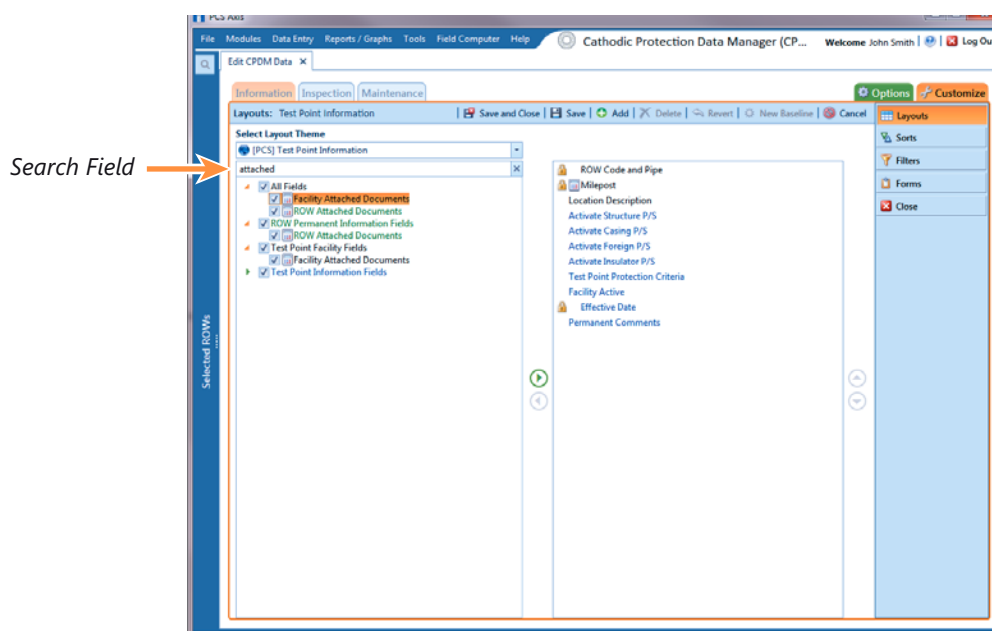
Figure 6-80. Layouts

9 To add the field *Inspection Record Attached Documents* in the Inspection grid, complete the following steps:

a Click the check box for the field **Inspection Record Attached Document** in the left pane of the window (Figure 6-81, page 253).

b Click the top arrow button ⊙ to move the field to the right pane. The grid includes all fields listed in the right pane. Click 🖫 **Save**.

NOTE: Double-clicking a field in the left pane also moves it to the right pane. If you want to remove a field in the right pane, double-click the field to move it back to the left pane. Fields with a lock icon 🔒 are required and cannot be removed.

Search Field ⟶
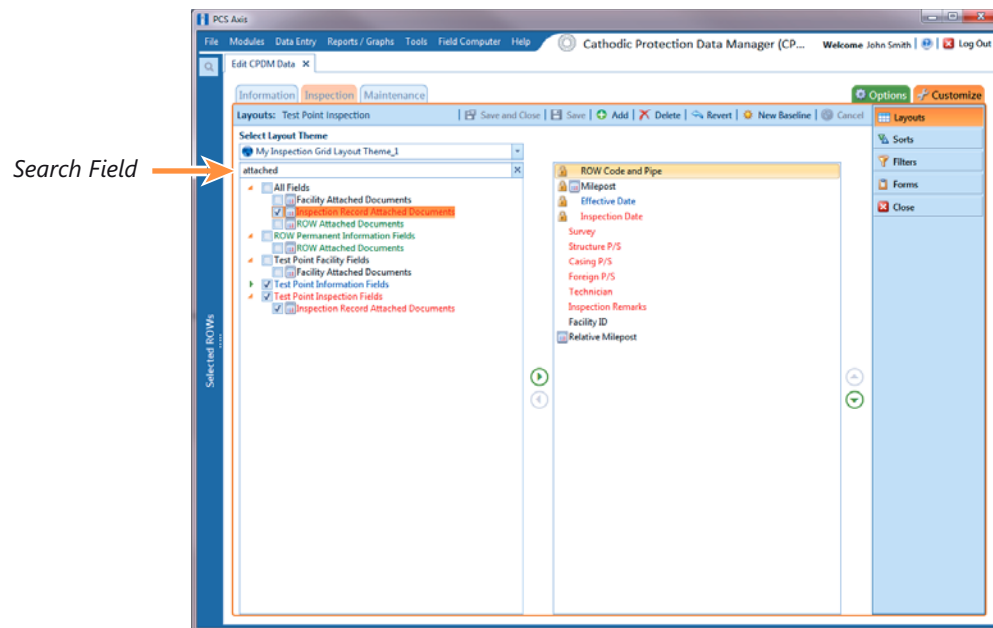
Figure 6-81. Layouts

10 To add the field *Maintenance Record Attached Documents* in the Maintenance grid, complete the following steps:

a Click the check box for the field **Maintenance Record Attached Document** in the left pane of the window (Figure 6-82, page 254).

b Click the top arrow button ![arrow] to move the field to the right pane. The grid includes all fields listed in the right pane. Click ![save] **Save**.

NOTE: Double-clicking a field in the left pane also moves it to the right pane. If you want to remove a field in the right pane, double-click the field to move it back to the left pane. Fields with a lock icon ![lock] are required and cannot be removed.
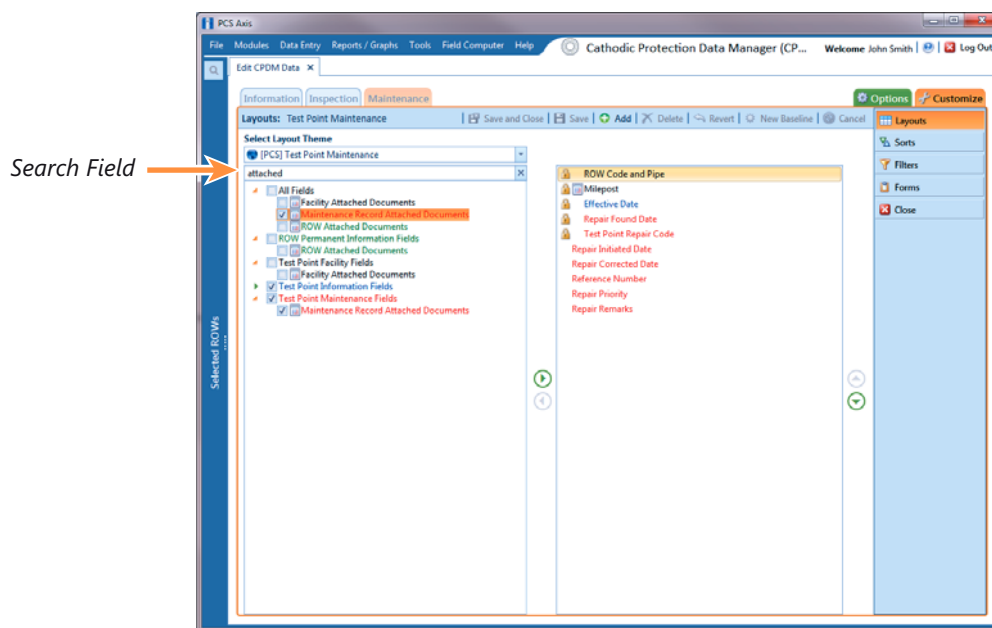
Figure 6-82.   Layouts
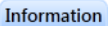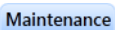
11 To apply the layout theme in the grid, follow these steps:

a Click the **Options** tab ![Options] to open the options page.

b Click the down arrow in **Select Layout Theme** and select the layout theme that includes attached document fields.

c Click ![save] **Apply** to apply changes and return to the grid.

Attaching a Document to a ROW, Facility, Inspection, or Maintenance Record

Information in this section explains how to attach a document to a record in the grid using the options *Link Document* and *Embedded Document*.

NOTE: If the option *Disable Link Attachments* has been enabled in system Options by your company's system administrator, the option *Link Document* is unavailable for selection. Use the option *Embedded Document* instead when attaching a document to a record. This places a copy of the document in the PCS Axis database. See Table 2-3 (page 35) for more information.

Complete the following steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ![save icon] **Save** to close the window (Figure 6-4, page 168).

2   Click **Data Entry** > **Edit** <module> **Data**, such as *Edit CPDM Data*. If present, click a facility type button, such as *Test Point* in CPDM or *Coupons* in ICM.

3   Based on the type of record you want to attach a document, complete one of the following steps:

a   To attach a document to a ROW or facility record, click the **Information** tab `Information` to open the *Information* grid.

b   To attach a document to an inspection record, click the **Inspection** tab `Inspection` to open the *Inspection* grid.

c   To attach a document to a maintenance record, click the **Maintenance** tab `Maintenance` to open the *Maintenance* grid.

4   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Click the edit icon 🖉 in the **Attached Documents** field for the grid record you plan to attach a document (Figure 6-83).
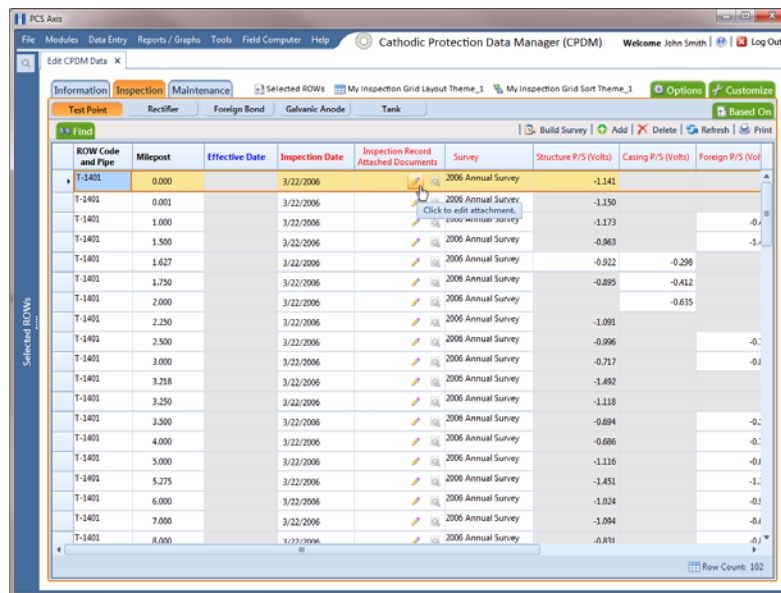
Figure 6-83. Attached Document Field

6 When the *Maintain Attached Documents* dialog box opens, click ➕ **Attach** and then select the option **Link Document** or **Embedded Document**.

Select *Link Document* if you plan to link to a document on a local computer or company network, or want to add a link to a webpage on the Internet.

Select *Embedded Document* if you want to store a copy of an attached document in the PCS Axis database.

NOTE: Storing copies of attached documents in the database increases the size of the database.

7 If you selected *Link Document* in step 6 and want to link to a file on a local computer or company network, follow these steps (Figure 6-84):

a Click the ellipsis button **...** in the **Document** field to open the *Link File* dialog box.

b Navigate to the file and select it. Click **Open** to link to the file and close the dialog box.

c   Type a description for the linked file in the **Description** field. When a description is not provided, PCS Axis uses the filename of the linked document as the description.
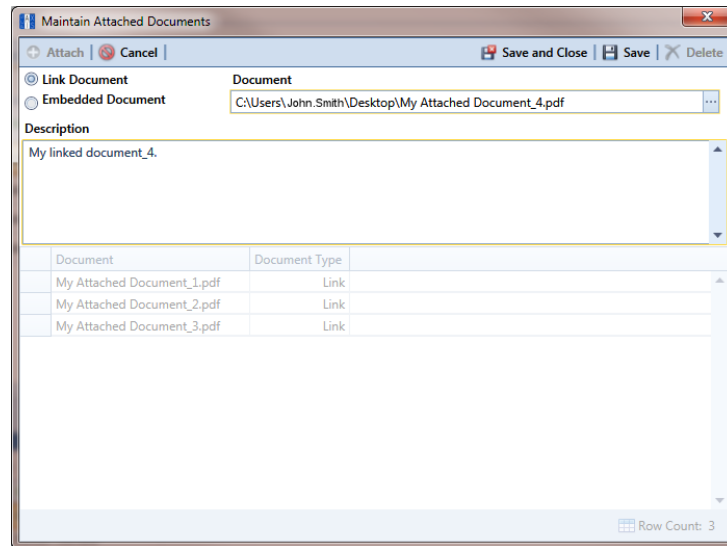
Figure 6-84. Maintain Attached Documents

d   Click ![Save icon] **Save**, then click **OK** when the following message displays:

Linked Document won't be replicated. Do you want to continue?

NOTE: Linked documents are not copied and stored in the PCS Axis database as noted in the previous message. To store a copy of an attached document in the database, use the *Embedded Document* option instead.

---

e   When you finish attaching documents, click the close button ![close button] to close the window and return to the grid.

NOTE: A list of attached documents and whether they are linked or embedded displays in the window. Selecting an item in the list displays its location in the *Document* field.

---

8   If you selected *Link Document* in step 6 and want to add a link to a webpage on the Internet, follow these steps (Figure 6-85):

a   Type an Internet address in the **Document** field. For example, type http://www.aiworldwide.com in the field.

b Type a description for the link in the **Description** field. When a description is not provided, PCS Axis uses the filename of the linked document as the description.
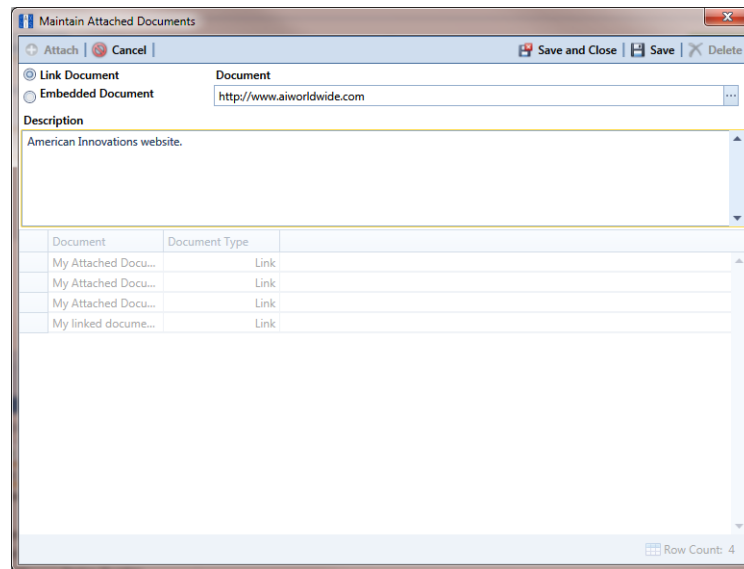
Figure 6-85. Maintain Attached Documents

c Click ![save icon] **Save**, then click **OK** when the following message displays:

Linked Document won't be replicated. Do you want to continue?

NOTE: Linked documents are not copied and stored in the PCS Axis database as noted in the previous message. To store a copy of an attached document in the database, use the *Embedded Document* option instead.

---

d When you finish attaching documents, click the close button ![close button] to close the window and return to the grid.

NOTE: A list of attached documents and whether they are linked or embedded displays in the window. Selecting an item in the list displays its location in the *Document* field.

---

9 If you selected *Embedded Document* in step 6, complete the following steps (Figure 6-86):

a Click the ellipsis button **...** in the **Document** field to open the *Embed File* dialog box.

b   Navigate to the file and select it. Click **Open** to embed a copy of the file and close the dialog box.

c   Type a description for the embedded file in the **Description** field. If a description is not provided, PCS Axis uses the filename of the embedded file as the description.
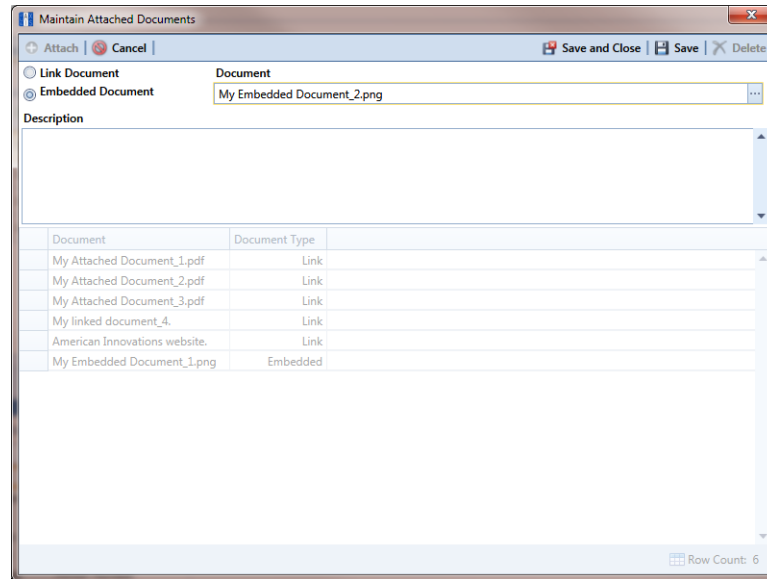
Figure 6-86. Maintain Attached Documents

d   Click ![save icon] **Save**, then click **OK** when the following message displays:

Local changes made to embedded documents won't be saved into PCS. Do you want to continue?

NOTE: Editing an embedded document applies changes only to the copy stored in the PCS Axis database; changes do not apply to the source file stored outside of PCS Axis. Likewise, editing a source file applies changes only to the source file, not the copy stored in PCS Axis.

---

e   When you finish attaching documents, click the close button ![close button] to close the window and return to the grid.

NOTE: A list of attached documents and whether they are linked or embedded displays in the window. Selecting an item in the list displays its location in the *Document* field.

Viewing an Attached Document

If the file type of an attached document is associated with a default software program on the local computer, you can preview the file in the *Preview Attached Documents* window. Additionally, clicking *Open* opens the attached document for editing or viewing purposes.

To view or open an attached document, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window (Figure 6-4, page 168).

2 Open the data entry grid that includes the grid record with the attached document. For example, click **Data Entry** > **Edit CPDM Data** > **Test Point** > **Inspection** to open the *Test Point Inspection* grid.

3 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

4 Click the preview icon 🔍 for the grid record with the attached document (Figure 6-87).
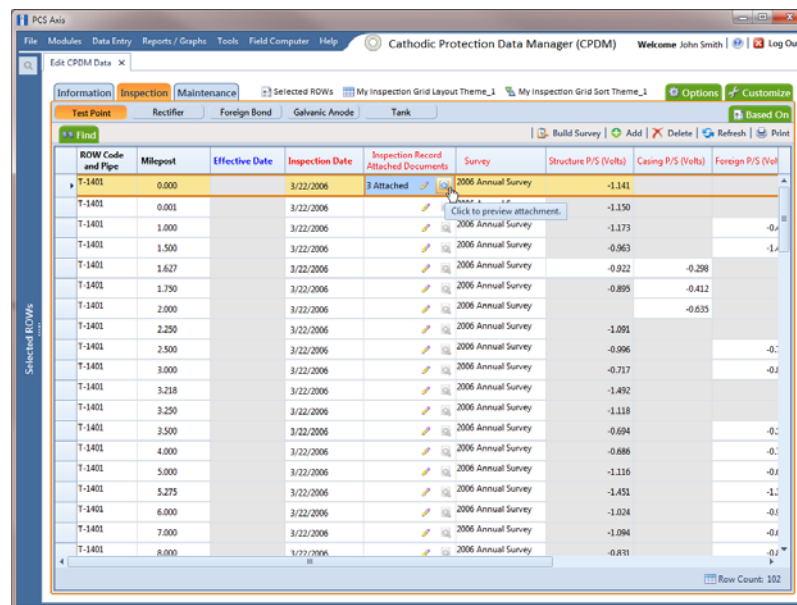
Figure 6-87. View Attached Document

5 When the *Preview Attached Documents* window opens, select a file in the list on the left side of the window to preview the file (Figure 6-88, page 261).

6 If the file type of the attached document is associated with a default software program on the local computer, click 📂 **Open** to open the file.

7 Click the close button [x] to close the *Preview Attached Documents* window.

NOTE: When you open and then edit an embedded document, changes apply only to the copy stored in the PCS Axis database; changes do not apply to the source file stored outside of PCS Axis. Likewise, editing the source file applies changes to the source file, not the copy stored in the PCS Axis database.
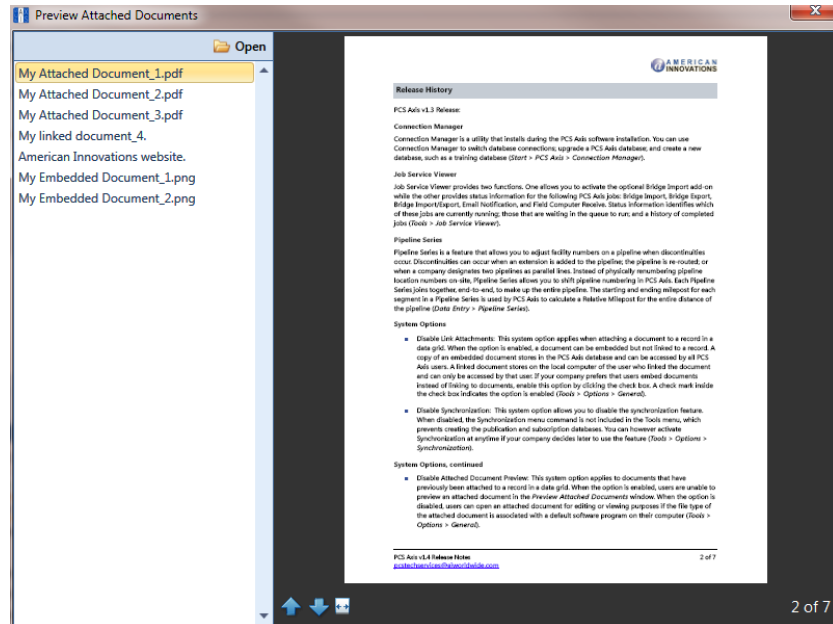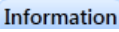
Figure 6-88. Preview Attached Documents

Working with the Target Structure P/S Field

The *Target Structure P/S* field is a system-generated field available in the CPDM Test Point Inspection grid. The field is gray to indicate its contents are system-generated. *Target Structure P/S* is used by PCS Axis to calculate a target reading with a minimum pipe-to-soil (P/S) for meeting criteria. The target reading is calculated based on your selected protection criterion and information in other fields (Table 6-1, page 263).

The default setting for *Target Structure P/S* is -0.850. To change the setting, follow these steps:

1   Click the **Select ROWs** button to open the *Select ROWs* window (Figure 6-4, page 168). Select one or more pipeline segments with facilities you want to work with, then click **Save** to close the window.

2   Open the *Edit CPDM Data* window. Click **Data Entry** > **Edit CPDM Data**.

3   Open the *Test Point Information* grid. Click the **Information** tab [Information] and then the **Test Point** button [Test Point] (Figure 6-89).

4   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5   Select the field **Test Point Protection Criteria** for a test point in the grid. Click the down arrow and select a protection criterion in the selection list. Repeat this step for other test points as needed.
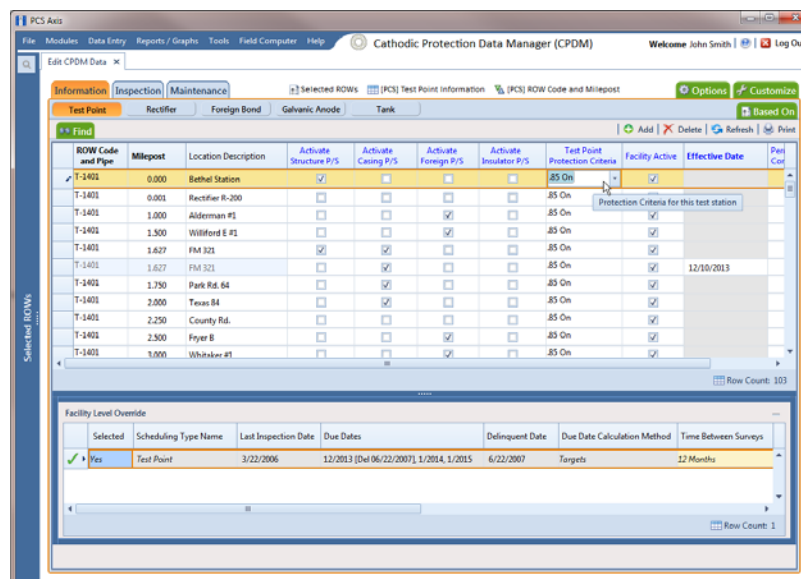
Figure 6-89. Test Point Information Grid

6 Set up other fields used to calculate *Target Structure P/S* according to the information in the next table (Table 6-1). Based on how your data entry grids are arranged, fields may be in the *Test Point Information* or *Inspection* grid.

The following table describes how *Target Structure P/S* is calculated for each protection criterion. Each protection criterion identifies fields required for calculating *Target Structure P/S*. Equations with pipe brackets (|) represent absolute values (Table 6-1).

Table 6-1. Calculating Target Structure P/S

Protection Criterion	Target Structure P/S Calculation
.85 On (default)	–0.850 V
.85 IRF	–0.850 – | Structure P/S – Structure IRF | **Example:** –0.850 – | –1.200 – –0.800 | = –1.250 **Note:** The value in the field User IR Correction (if any) is used instead of the | Structure P/S – Structure IRF | equation.
100 mV	Native P/S – 0.100 – | Structure P/S – Structure IRF | **Example:** –0.550 – 0.100 – | –1.200 – –0.800 | = –1.050 **Note:** The fields Native P/S and Native Date can be included with any survey regardless of how old. PCS Axis always finds the most recent native reading and date, and the most recent pair of structure "on/off" readings (Structure P/S and Structure IRF). This means if the current-year survey includes only "on" readings, PCS Axis uses the last "on/off" reading and native date. This is the case until a new "on/off" reading is taken.
300 mV	This is no longer recognized by NACE RP0169 or DOT regulations.
Ref Read	Add the field Test Point Reference P/S in the grid when using "Ref Read" (reference reading) protection criterion.
Ag/AgCl	Functions the same as ".85 On" but uses –0.800V instead. Use this protection criterion for off-shore (saltwater) or tank "on" readings when using silver/silver chloride half cell.

Table 6-1. Calculating Target Structure P/S (continued)

Protection Criterion	Target Structure P/S Calculation
	The field Target Structure IRF is used for a facility to meet criteria and the calculated minimum value for the Structure IRF field.
.85 On criteria	Calculation: Target Structure IRF = Null

.85 IRF (off) and 100mV criteria	Structure IRF can be compared to Target Structure IRF to determine if the inspection is in compliance. If Structure IRF is more negative than Target Structure IRF, the test point is in compliance.
	
	• Calculation for .85 IRF Criteria: Target Structure IRF = -.85.
	
	  Target Structure P/S is calculated for an inspection that has a Structure IRF.
	
	• Calculation for 100mV Criteria: Target Structure IRF = Native P/S - 0.1. Native Date must be added in the grid.
	
	  Target Structure IRF is calculated for an inspection that has a Structure IRF.
	
	  Native P/S = Most recent Native P/S before the date of the Structure P/S and Structure IRF.

.85 On	Calculation: Target Structure IRF = Null
300 mV	Calculation: Target Structure IRF = Null
Ref Read	Calculation: Structure P/S = Null

Recording Facility Current Values

Information in this section identifies required and optional fields for recording facility current values in data entry grids:

- *Recording Rectifier Current*
- *Recording Pipeline Current* (page 267)
- *Recording Bond Current* (page 270)

Recording Rectifier Current

Information in the following table (Table 6-2) identifies the fields required for recording rectifier current (rectifier DC amps and volts; rectifier anode output current, and rectifier negative output current).

Table 6-2. Recording Rectifier Current Values

Facility & Current Type	Description
Rectifier: DC Amps and DC Volts	**1** Add the following fields in the *Rectifier Information* grid: • *Activate Rectifier Output Current Found* • *Activate Rectifier Output Volts Found* As an option you can also add the following fields in the *Information* grid: • *Rectifier Output Shunt Factor (A/mV)*: use this fields to enter the amps value of the shunt conversion factor. Enter as a whole number value. Together the value in this field and in the *Rectifier Output Shunt Rating (mV/A)* field make up the shunt conversion factor. • *Rectifier Output Shunt Rating (mV/A)*: use this field to enter the millivolts value of the shunt conversion factor. Enter as a whole number value. Together the value in this field and in the *Rectifier Output Shunt Factor (A/mV)* field make up the shunt conversion factor. **2** Add the following fields in the *Rectifier Inspection* grid: • *Rectifier Output Current Found (Amps)* • *Rectifier Output Volts Found (Volts)* • *Rectifier Output Current Left (Amps)* • *Rectifier Output Volts Left (Volts)* • *Rectifier Current Adjusted*

Table 6-2. Recording Rectifier Current Values (continued)

Facility & Current Type	Description
Rectifier: Anode Output Current	Add the field *Number of Impressed Anodes* in either the *Rectifier Information* or *Inspection* grid. The *Rectifier Anode Information* mini-grid in the *Rectifier Information* grid automatically includes the following fields for entering anode data: • *Impressed Anode Current Minimum (Amps)* • *Impressed Anode Current Maximum (Amps)* • *Impressed Anode Shunt Rating (mV/A)* • *Impressed Anode Shunt Resistance (Ohms)* • *Impressed Anode Shunt Factor (A/mV)* See *Working with Rectifier Anodes* (page 273) for more information.
Rectifier: Negative Output Current	Add the field *Number of Negatives* in either the *Rectifier Information* or *Inspection* grid. The *Rectifier Negative Information* mini-grid in the *Rectifier Information* grid automatically includes the following fields for entering rectifier negative data: • *Negative Current Min (Amps)* • *Negative Current Max (Amps)* • *Negative Current Shunt Rating (mV/A)* • *Negative Current Shunt Resistance (Ohms)* • *Negative Shunt Factor (A/mV)* See *Working with Rectifier Negatives* (page 276) for more information.

Recording Pipeline Current

Information in the following table (Table 6-3) identifies the fields required for recording pipeline current values.

Table 6-3. Recording Pipeline Current

Facility & Current Type	Description
Pipeline Current: IR Drop Test Station	**1** Add the following fields in the *Test Point Information* grid. Enable "activate" fields for use. • *Activate Pipeline Current On - mV Drop* • *Activate Pipeline Current Direction* • *Pipeline Current Calibration Factor (A/mV)*: Enter the amps value of the current factor when using the resistance of the pipeline to measure current flow on the pipeline. Enter value as whole number. The value is used in the pipeline current calculation. • *Pipeline Current Measurement Ratio (mV/A)*: Enter the current factor when using the resistance of the pipeline to measure current flow on the pipeline. Enter value as whole number. The value is used in the pipeline current calculation. **2** Add the following fields in the *Test Point Inspection* grid: • *Pipeline Current On (Amps)*: Enter amps reading for pipeline current measured with rectifier on. • *Pipeline Current Direction*: Use this field to describe the direction of the current, such as upstream or downstream.

Table 6-3. Recording Pipeline Current

Facility & Current Type	Description
Pipeline Insulator Current: Shunt for Insulated Flange	**1** Add the following fields in the *Test Point Information* grid. Enable "activate" fields for use. • *Activate Insulator Current* • *Insulator Shunt Factor (A/mV)* • *Insulator Shunt Rating (mV/A)* **2** Add the field *Insulator Current (Amps)* in the *Test Point Inspection* grid. Use the field *Insulator Current (Amps)* to enter the amps value of the insulator shunt reading. PCS Axis uses the reading and the value in the field *Insulator Shunt Rating (mV/A)* to calculate and enter a value in the field *Insulator Shunt Factor (A/mV)*.
Pipeline Insulator P/S	**1** Add and enable the field *Activate Insulator P/S* in the *Test Point Information* grid. **2** Add the field *Insulator P/S* in the *Test Point Inspection* grid. Use the *Insulator P/S* field to enter a potential reading for the other side of an insulated flange, relative to the soil. This type of reading is also referred to as an "insulator-to-soil" potential reading. If the protection criteria option *.85 IRF* or *100mV* is selected in the field *Test Point Protection Criteria*, add and enable the field *Activate Insulator IRF* in the *Test Point Information* grid and then add the field *Insulator IRF (Volts)* in the *Test Point Inspection* grid.

Table 6-3. Recording Pipeline Current

Facility & Current Type	Description

Pipeline Galvanic Current: Shunt for Galvanic Anode	**1** Add the following fields in the *Galvanic Anode Information* grid. Enable "activate" fields for use.
	
	  • *Activate Galvanic Current*
	  • *Galvanic Anode Shunt Factor (A/mV)*
	  • *Galvanic Anode Shunt Rating (mV/A)*
	
	2 Add the field *Galvanic Current (Amps)* in the *Galvanic Anodes Inspection* grid.
	
	Use the field *Galvanic Anode Current (Amps)* to enter the amps value of the galvanic anode shunt reading. PCS Axis uses the reading and the value in the field *Galvanic Anode Shunt Rating (mV/A)* to calculate and enter a value in the field *Galvanic Anode Shunt Factor (A/mV)*.

Recording Bond Current

Table 6-4 identifies the fields required for recording bond current using the *Bond Information* and *Inspection* data entry grids (*Data Entry > Edit CPDM Data > Foreign Bond*).
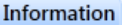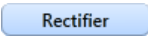
Table 6-4. Recording Bond Current Values

Facility Type	Description
Bond Current	**1** Add the following fields in the *Foreign Bond Information* grid: • *Bond Shunt Rating* • *Bond Shunt Resistance* Use the field *Bond Shunt Rating* to enter the amps reading of the bond conversion shunt factor. Use the field *Bond Shunt Resistance* to enter the millivolt (mV) reading of the bond conversion factor. Readings in both of these fields automatically update the field *Bond Shunt Factor*. **2** Add the following fields in the *Foreign Bond Inspection* grid: • *Bond Current Found* • *Bond Current Left* • *Bond Current Adjusted* Use the field *Bond Current Found* to enter the current reading for a foreign bond as it is found (before adjusting the current). The value automatically copies to the field *Bond Current Left*. To adjust the *Bond Current Found* reading, click the check box *Bond Current Adjusted* and then type the adjusted reading in the field *Bond Current Left*.

Linking Rectifiers to ROWs

When the same rectifier provides current to one or more pipeline segments, or parallel lines entered in the hierarchy as pipeline segments, use the *ROW Links* mini-grid to link the rectifier to each pipeline segment or parallel line. This allows you to enter rectifier information once instead of re-entering the same rectifier information for each pipeline segment or parallel line. This in turn reduces the number of database records and the potential for data entry errors.

To link a rectifier to one or more pipeline segments, follow these steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-4, page 168). Select the pipeline segment(s) with the rectifier you want to work with, then click 💾 **Save** to close the window.

2 Open the *Edit CPDM Data* window. Click **Data Entry** > **Edit CPDM Data**.

3 Open the *Rectifier Information* grid. Click the **Information** tab Information and then the **Rectifier** button Rectifier .

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Select a row of records in the *Rectifier Information* grid with the rectifier you want to link to a pipeline segment. For example, the record for pipeline segment *T-1403* is selected in the following figure (Figure 6-90, page 271).

6 Click the minimize button ▬ in the upper right-hand corner of the *Facility Level Override* mini-grid to hide the mini-grid. Then double-click the **ROW Links** button ROW Links to open the *ROW Links* mini-grid (Figure 6-90).
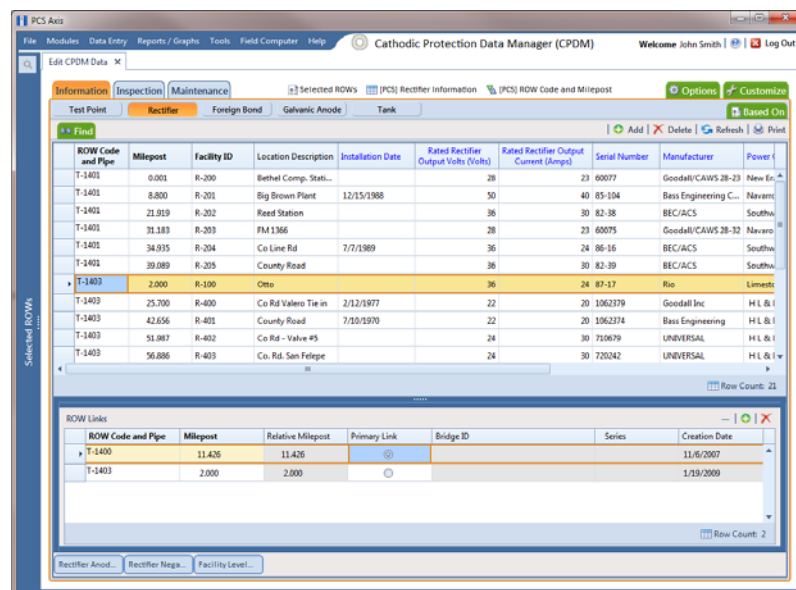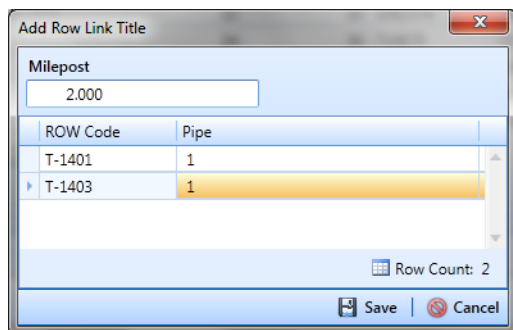
Figure 6-90. ROW Links

7 Click ➕ **Add** in the *ROW Links* mini-grid to open the *Add Row Link* dialog box (Figure 6-91).

Figure 6-91. Add Row Link

8 Identify the milepost number of the pipeline segment you want to link. Type the milepost number in the **Milepost** field, then select the pipeline segment. Click **Save** to save changes and close the dialog box.

After clicking *Save* the following operations occur:

- PCS Axis adds a new ROW link for the selected milepost and pipeline segment in the *ROW Links* mini-grid.

  If this is the first link in the mini-grid, it automatically becomes the *Primary Link*. PCS Axis copies rectifier information from the *Primary Link* to subsequent links added later in the mini-grid. You can however set any link in the mini-grid as the *Primary Link* by clicking the option button. Only one link can be set as the *Primary Link*.

- PCS Axis adds a new record for the selected milepost and pipeline segment in the *Rectifier Information* grid.

  The new record includes rectifier information copied from the record selected as the *Primary Link* in the *ROW Links* mini-grid.

9 Provide a date in the **Creation Date** field to identify when you linked the rectifier to the pipeline segment. Select the **Creation Date** field and then click the down-arrow to select a date using a calendar.

Working with Rectifier Anodes

PCS Axis provides two mini-grids for working with rectifier impressed anodes. Use the *Rectifier Anode Information* mini-grid to provide anode information, such as the shunt rating or shunt resistance for each anode in the ground bed of a rectifier. PCS Axis uses this information to automatically calculate the anode shunt factor.

Use the *Rectifier Anode Inspection* mini-grid to enter inspection readings for each anode in the ground bed of a rectifier, such as a current or shunt reading for each impressed anode in the ground bed.
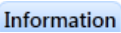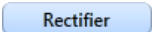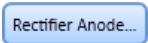
Tracking rectifier impressed anodes in PCS Axis allows you to monitor the capacity of the anode ground bed for a rectifier that produces current. You can track the current flow for each anode to determine which anodes have low or no current output.

Topics in this section include those in the following list:

- *Adding Rectifier Anode Information* (page 273)

- *Adding Rectifier Anode Inspections* (page 275)

Adding Rectifier Anode Information

To add a record in the *Rectifier Anode Information* mini-grid for each anode in the ground bed, follow these steps:

1 Click the **Select ROWs** button [🔍] to open the *Select ROWs* window (Figure 6-4, page 168). Select the pipeline segment(s) with the rectifier you want to work with, then click [💾] **Save** to close the window.

2 Open the *Edit CPDM Data* window. Click **Data Entry** > **Edit CPDM Data**.

3 Open the *Rectifier Information* grid. Click the **Information** tab [Information] and then the **Rectifier** button [Rectifier].

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Select a row of records in the *Rectifier Information* grid with the rectifier you want to add impressed anode records. For example, the record for pipeline segment T-1401 with rectifier R-202 is selected in the next figure (Figure 6-92, page 274).

6 If the *Rectifier Anode Information* mini-grid is not visible, double-click the **Rectifier Anode...** button [Rectifier Anode...] to open the mini-grid (Figure 6-92, page 274). Click the minimize button ▬ in the upper right-hand corner of all other mini-grids to hide these mini-grids.

7 Click ⊕ **Add** in the *Rectifier Anode Information* mini-grid to add an empty record in the mini-grid.

8 Type a name for the anode in the **Name** field. Fields requiring information include a ✖ red icon, such as *Name* shown in the next figure (Figure 6-92).

9 Enter a value in either the field labeled **Impressed Anode Shunt Rating** or **Impressed Anode Shunt Resistance**.

NOTE: If entering a shunt rating, enter it as a mV per A ratio using the format nn.n/nn.n, such as 50.0/25.0 for the shunt rating 50 mV/25 A. If entering a shunt resistance value, enter the actual resistance of the shunt in ohms. When both of these fields are empty, you can enter a value in the field *Impressed Anode Shunt Factor* instead. Otherwise, PCS Axis automatically calculates the shunt factor based on the value in the shunt rating or shunt reading field.

---

10 Repeat steps 7 through 9 to add each remaining anode in the ground bed.

11 Click ⟳ **Refresh** to update 🔴 derived fields, such as *Number of Impressed Anodes* shown in the next figure (Figure 6-92). For more information about derived fields, refer to *Working with Derived Fields* (page 165).
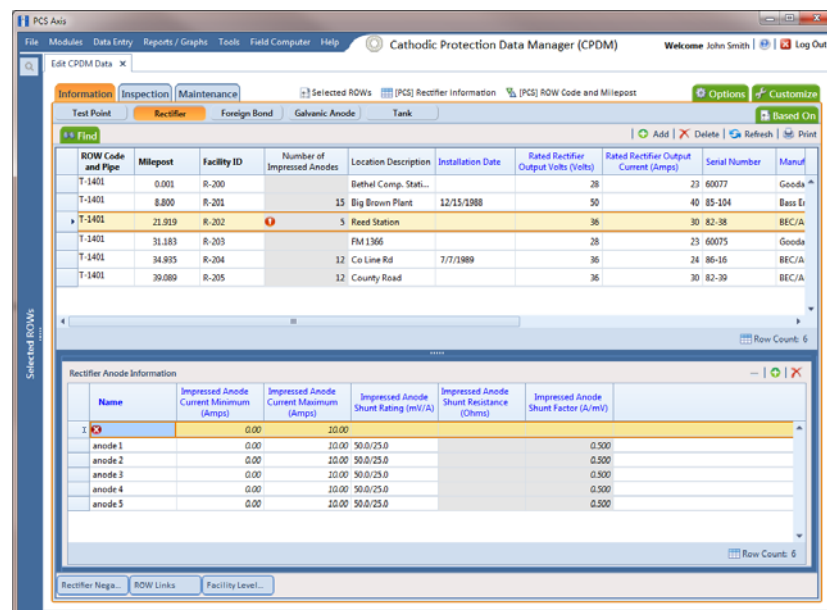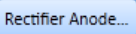
Figure 6-92. Rectifier Anode Information

NOTE: PCS Axis displays the total number of anodes in the system calculated field labeled *Number of Impressed Anodes* in the *Rectifier Information* and *Inspection* grid. This value is based on the total number of anodes in the *Rectifier Anode Information* mini-grid. If the field is not present in your grid, refer to *Adding a Layout Theme* (page 233) to add the field.

Adding Rectifier Anode Inspections

If rectifier anode records have not yet been added in the *Rectifier Anode Information* mini-grid, complete the procedure in the previous section first (*Adding Rectifier Anode Information*, page 273) and then continue with the procedure in this section.

To enter anode inspection readings in the *Rectifier Anode Inspection* mini-grid, follow these steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-4, page 168). Select the pipeline segment(s) with the rectifier you want to work with, then click 💾 **Save** to close the window.

2 Open the *Edit CPDM Data* window. Click **Data Entry** > **Edit CPDM Data**.

3 Open the *Rectifier Inspection* grid. Click the **Inspection** tab `Inspection` and then the **Rectifier** button `Rectifier`.

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Select a row of records in the *Rectifier Inspection* grid with the rectifier and anodes you want to add anode inspection readings. For example, the record for pipeline segment T-1401 with rectifier R-202 is selected in Figure 6-93 (page 276).

6 If the *Rectifier Anode Inspections* mini-grid is not visible, double-click the **Rectifier Anode...** button `Rectifier Anode...` to open the mini-grid. Click the minimize button ― of all other mini-grids to hide these mini-grids.

7 Select an anode record in the mini-grid and then click ➕ **Add**.

8 Type an inspection reading in either the **Impressed Anode Current** or **Anode Shunt Reading** field.

9 Click 🔄 **Refresh** to update 🔴 derived fields, such as *Number of Impressed Anodes* shown in Figure 6-93 (page 276).

NOTE: For more information about 🔴 derived fields, refer to *Working with Derived Fields* (page 165).

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10 Repeat steps 7 through 9 to enter inspection readings for remaining anodes.

Figure 6-93. Rectifier Anode Inspections

Working with Rectifier Negatives

A rectifier can typically have from 1 to 5 negative wires that protect different pipelines. Tracking rectifier negatives in PCS Axis allows you to easily identify which rectifier negative wire is connected to which pipeline. You can also monitor the current flow for each rectifier negative in an effort to determine how much of the total current is used to protect each pipeline.

PCS Axis provides two mini-grids for working with rectifier negatives. Use the *Rectifier Negative Information* mini-grid to provide negative information, such as the shunt rating or shunt resistance for each negative wire of the rectifier. PCS Axis uses this information to automatically calculate the negative shunt factor.
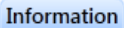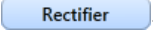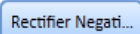
Use the *Rectifier Negative Inspections* mini-grid to enter inspection readings for each negative wire of the rectifier, such as a current or shunt reading for each negative wire.

Topics in this section include those in the following list:

- *Adding Rectifier Negative Information* (page 277)

- *Adding Rectifier Negative Inspections* (page 279)

Adding Rectifier Negative Information

To add a record in the *Rectifier Negative Information* mini-grid for each negative wire of a rectifier providing current to a pipeline(s), follow these steps:

1 Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 6-4, page 168). Select the pipeline segment(s) with the rectifier you want to work with, then click 💾 **Save** to close the window.

2 Open the *Edit CPDM Data* window. Click **Data Entry** > **Edit CPDM Data**.

3 Open the *Rectifier Information* grid. Click the **Information** tab [Information] and then the **Rectifier** button [Rectifier].

4 If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5 Select a row of records in the *Rectifier Information* grid with the rectifier you want to add negative records. For example, the record for pipeline segment T-1401 with rectifier R-202 is selected in the following figure (Figure 6-94, page 278).

6 If the *Rectifier Negative Information* mini-grid is not visible, double-click the **Rectifier Negati...** button [Rectifier Negati...] to open the mini-grid. Click the minimize button ▬ in the upper right-hand corner of all other mini-grids to hide these mini-grids.

7 Click ➕ **Add** in the *Rectifier Negative Information* mini-grid to add an empty record. Fields requiring information include a ❌ red icon, such as the *Name* field.

8 Type a negative name in the **Name** field.

9 If the rectifier rating is different than the minimum and maximum values provided by PCS Axis in the fields **Negative Current Min** and **Negative Current Max**, type the rectifier rating in these fields.

10 Type a value in either the field labeled **Negative Shunt Rating** or **Negative Shunt Resistance**.

NOTE: If entering a shunt rating, enter it as a mV per A ratio using the format nn.n/nn.n, such as 50.0/25.0 for the shunt rating 50 mV/25 A. If entering a shunt resistance value, enter the actual resistance of the shunt in ohms. When both of these fields are empty, you can enter a value in the field *Negative Shunt Factor* instead. Otherwise, PCS Axis automatically calculates the shunt factor based on the value in the shunt rating or shunt reading field.

---

11 Click **Refresh** to update derived fields, such as *Number of Negatives* shown in Figure 6-94.

NOTE: For more information about derived fields, refer to *Working with Derived Fields* (page 165).

---

12 Repeat steps 7 through 11 to add a record for each remaining negative wire.

NOTE: PCS Axis displays the total number of negatives in the system calculated field labeled *Number of Negatives* in the *Rectifier Information* and *Inspection* grid. If the field is not present in your grid, refer to *Adding a Layout Theme* (page 233) to add the field.

Figure 6-94. Rectifier Negative Information

Adding Rectifier Negative Inspections

If rectifier negative records have not yet been added in the *Rectifier Negative Information* mini-grid, complete the procedure in the previous section first (*Adding Rectifier Negative Information*, page 277) and then continue with the procedure in this section.

To enter negative inspection readings in the *Rectifier Negative Inspection* mini-grid, follow these steps:

1   Click the **Select ROWs** button [image] to open the *Select ROWs* window (Figure 6-4, page 168). Select the pipeline segment(s) with the rectifier you want to work with, then click [image] **Save** to close the window.

2   Open the *Edit CPDM Data* window. Click **Data Entry** > **Edit CPDM Data**.

3   Open the *Rectifier Inspection* grid. Click the **Inspection** tab [Inspection] and then the **Rectifier** button [Rectifier].

4   If you want to collapse the *Selected ROWs* panel to view more of the grid, click the **Selected ROWs** bar. Clicking the bar again expands the panel.

5   Select a row of records in the *Rectifier Inspection* grid with the rectifier and negatives you want to add negative inspection readings. For example, the record for pipeline segment T-1401 with rectifier R-201 is selected in the following figure (Figure 6-95).

6   If the *Rectifier Negative Inspections* mini-grid is not visible, double-click the **Rectifier Negati...** button [Rectifier Negati...] to open the mini-grid. Click the minimize button — of all other mini-grids to hide these mini-grids.

7   Select a row of records in the *Rectifier Negative Inspections* mini-grid and then click [image] **Add**.

8   If the rectifier output current has been adjusted and the check box *Rectifier Current Adjusted* is enabled in the *Inspection* grid, complete the following steps: in the *Rectifier Negative Inspections* mini-grid:

   a   Type the amperage reading taken before rectifier adjustments in the field **Negative Current Found**.

   b   Type the amperage reading taken after rectifier adjustments in the field **Negative Current Left**.

9   Type an inspection reading in either the field **Negative Shunt Read Found** or **Negative Shunt Read Left**.

10 Click 🔄 **Refresh** to update 🔴 derived fields, such as *Number of Negatives* shown in Figure 6-95.

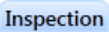**NOTE:** For more information about 🔴 derived fields, refer to *Working with Derived Fields* (page 165).

---

11 Repeat steps 7 through 10 to enter readings for another negative.

Figure 6-95. Rectifier Negative Inspections

Notes

Using a Route

This chapter explains how to work with a route. The information is intended for users with *SysAdmin*, *User*, and *Read Only* permissions. Topics in this chapter include those in the following list:

- *What is a Route?*

- *Quick Start* (page 284)

- *Creating a Route* (page 289)

- *Changing the Order of Facilities* (page 292)

- *Preparing a Route for an Averaged Reading Survey* (page 293)

- *Preparing a Route for Inspection GPS Fields* (page 309)

- *Working with Themes and Filter Groups* (page 323)

- *Previewing a Route* (page 344)

- *Using a Route in PCS Axis* (page 346)

What is a Route?

A route is a user-created list of facilities for inspection. You can include facilities for one or more facility types in the same route, such as test points, valves, and atmospherics. The main advantage in a route is the ability to arrange facilities in a particular order that is more suitable in a survey. For example, you can arrange facilities in survey order instead of numerically by ROW Code and milepost number.

Routes are used in several areas of PCS Axis. You can view inspection records in a grid based on a route; transfer a survey to the Allegro Field PC based on a route; and generate reports based on a route.

Quick Start

Information in this section assumes one or more routes have previously been created. If no routes exist, skip this section and begin with *Creating a Route* (page 289).

The following procedure explains how to display and set properties in a route. Property settings include selection of a layout and sort theme. Both of these themes determine how PCS Axis displays facility records in a route.

As an option, you can also set up one or more filter groups that apply only to the current session. A filter group filters data in a route by including or excluding certain facility records. It allows you to work with a subset of facility records for the currently selected ROW based on filter selection criteria.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the route. Click 💾 **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window.

3 Click the down arrow in **Routes** and select a route in the selection list (Figure 7-1).

Route Selection
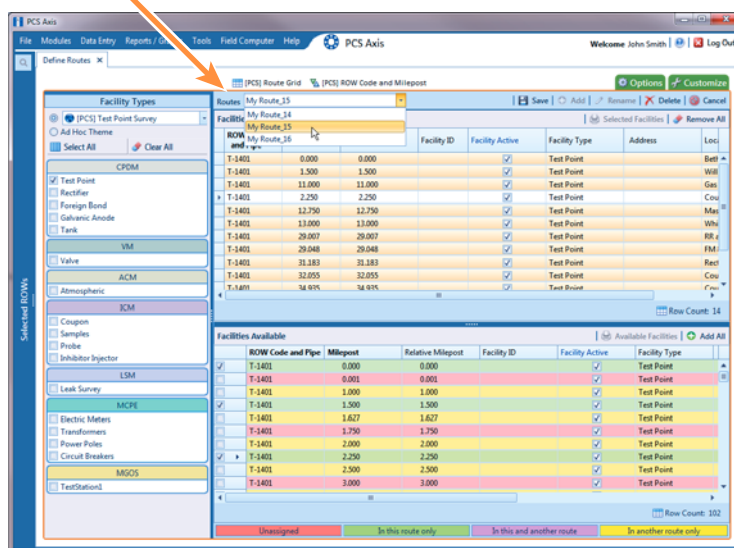
Figure 7-1. Define Routes

4 Click the **Options** tab [⚙ Options] to open the options page (Figure 7-2).
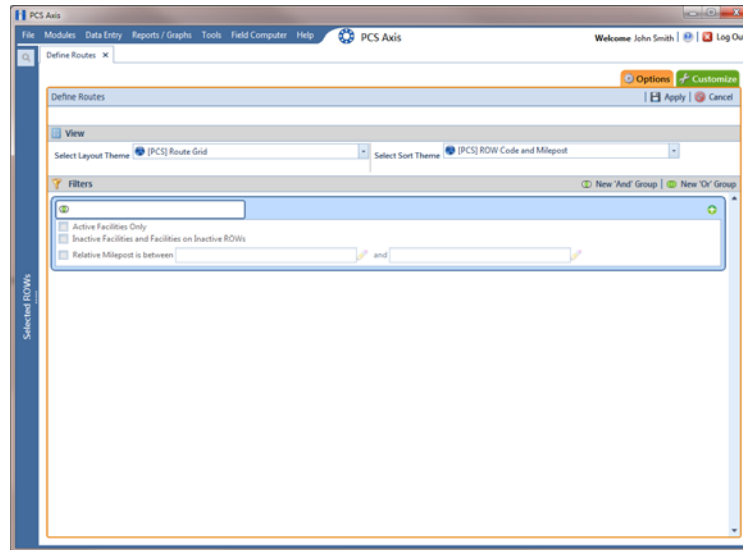
Figure 7-2. Options

5 Choose a layout and sort theme. Click the down arrow in the field **Select Layout Theme** and select a layout theme. Then click the down arrow in the field **Select Sort Theme** and select a sort theme (Figure 7-2).

6 If you want to filter records in the grid and route, complete the following steps. Otherwise, click [💾] **Apply** to save and apply changes. PCS Axis closes the options page and returns to the *Define Routes* window.

Clicking [🚫] **Cancel** allows you to close the options page without saving and applying changes.

IMPORTANT: Filter settings in the options page of *Define Routes* apply only to the current session and are not saved. See *Working with Themes and Filter Groups* (page 323) for information about saving filter settings in a theme.

---

a Click the check box of one or more options in *Filters* and then click [💾] **Apply**. For example, click **Active Facilities Only** to only include active facilities (Figure 7-3, page 286).

A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark.

b If you want to add a filter, click the ⊕ **Add** button and then use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions. Then click ▣ **Apply** to save and apply changes.

PCS Axis closes the options page and returns to the *Define Routes* window.

c If you want to add a new AND or OR filter group, continue with one of the following steps. Otherwise continue with step (page 289).

- To add a new AND filter group continue with step 7.

- To add a new OR filter group continue with step 8 (page 288).
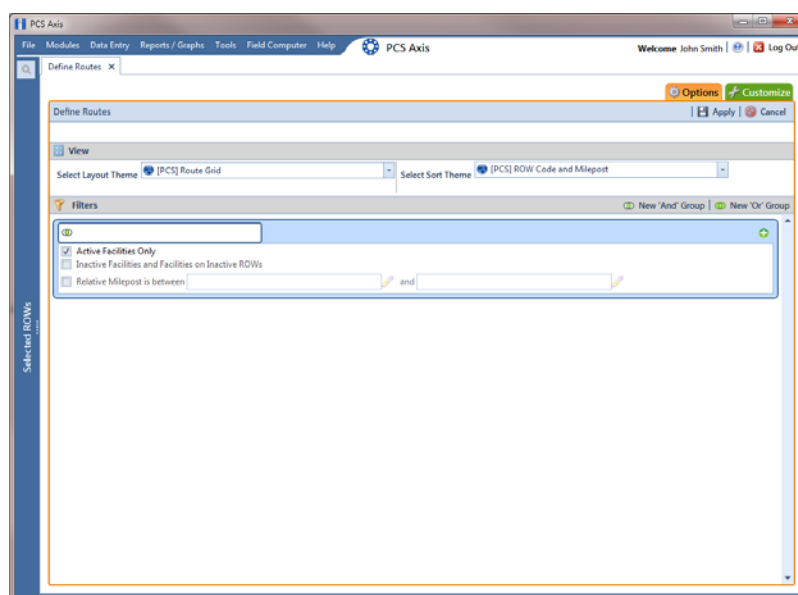
Figure 7-3. Filters

7 If you want to add a new AND filter group, complete the following steps. With an AND filter group, PCS Axis includes a subset of records that meet *all* filter conditions defined for the filter group. Records are filtered in the grid and in the route (Figure 7-4, page 287).

a Click ⬤ **New 'And' Group** to open the filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

• Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

• To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings.

c Click 🖫 **Apply** to save and apply changes. PCS Axis closes the options page and returns to the *Define Routes* window.
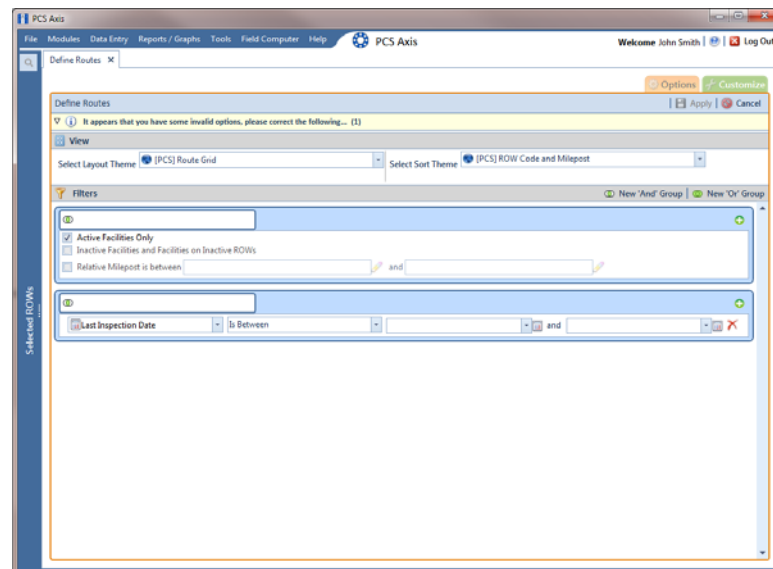
Figure 7-4. New 'And' Filter Group

8 If you want to add a new OR filter group, complete the following steps. With an OR filter group, PCS Axis includes a subset of records that meet *any* filter condition defined for the filter group. Records are filtered in the grid and in the route:

a Click ⬤ **New 'Or" Group** to open a filter properties group box (Figure 7-5).
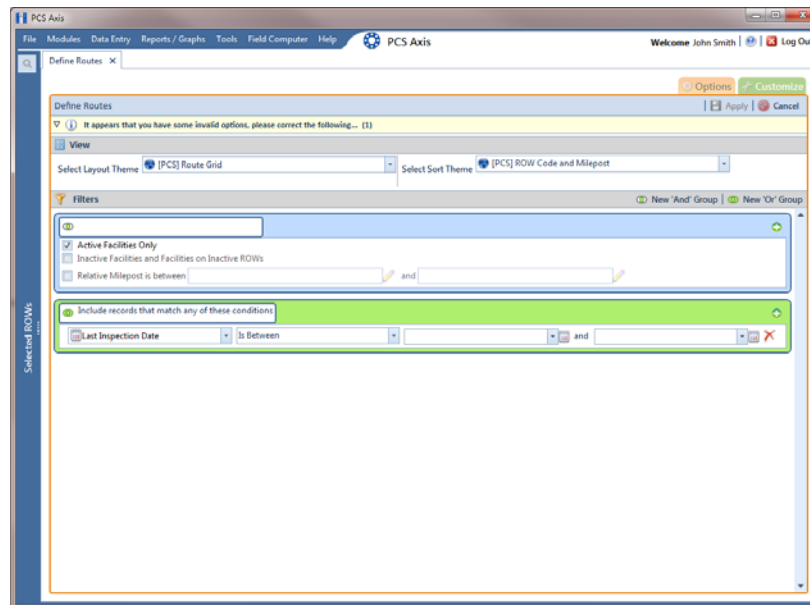
Figure 7-5. New 'Or Filter Group

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

• Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings.

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

• To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

c Click 💾 **Apply** to save and apply changes. PCS Axis closes the options page and returns to the *Define Routes* window.

Creating a Route

The following information explains how to create a route with a list of facilities for inspection. Facilities for inspection are based on the pipeline segment(s) you select in the *Select ROWs* window.

Complete the following steps:

1 Click the **Select ROWs** button [icon] to open the *Select ROWs* window (Figure 7-6). Select one or more pipeline segments with facilities you want to include in the route. Click [icon] **Save** to close the window.

NOTE: A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark. A shaded check box indicates selection of some, not all, child folders, ROWs, and pipelines.
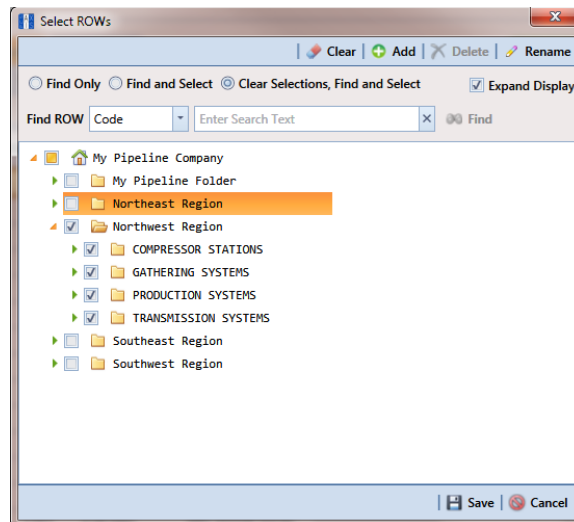
Figure 7-6. Select ROWs

2   Click **Data Entry** > **Define Routes**.

3   If this is the first route to be created, the *Add New Route* dialog box opens. Type a name for the new route in the field **Enter Route Name**. Then click ✔ **OK** (Figure 7-7).
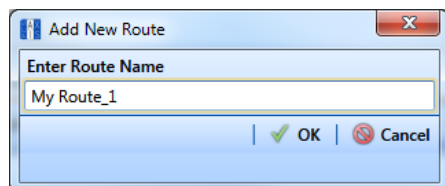
Figure 7-7. Add New Route

4   Select the facility type(s) you want to work with using the method described in step "a" or "b":

a   To select a facility type, click the facility type option button and then click the down arrow and select a facility type in the list, such as 🌐 **[PCS] Rectifier Survey** (Figure 7-8).
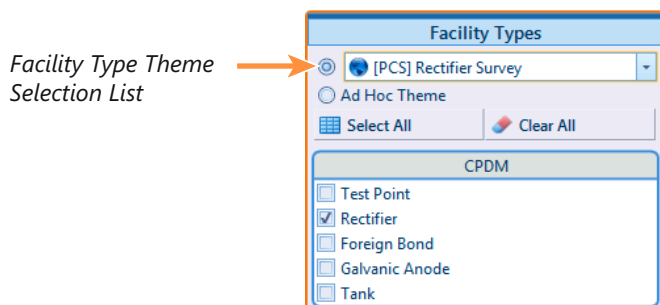
Figure 7-8. Facility Type Theme Option

b   To select multiple facility types, click the option button **Ad Hoc Theme** and then click the check box for one or more facility types, such as *Test Point*, *Rectifier*, and *Foreign Bond* (Figure 7-9, page 291).

NOTE: An *Ad Hoc Theme* only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.
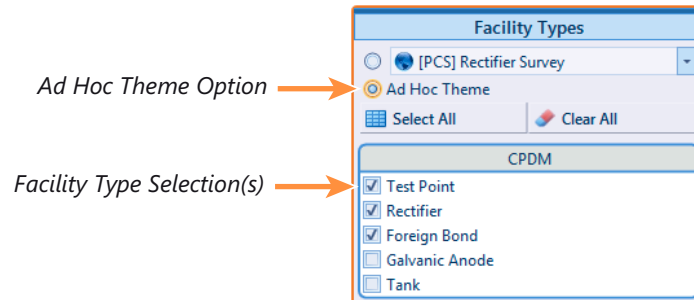
Figure 7-9. Ad Hoc Theme Option

5 Complete the following steps in the *Facilities Available* grid (Figure 7-10):

a Select which facilities to include in the route. To include all facilities, click
⊕ **Add All** and then click **Yes** when the *Add All* message opens.

To only include facilities you select, click the check box for each facility in the
Facilities Available grid. Or double-click each facility.

NOTE: Selected facilities display in the *Facilities in Route* grid.

---

b Click 🔲 **Save** to save changes. Continue with the next section to change the
order of facilities in the route (page 292).
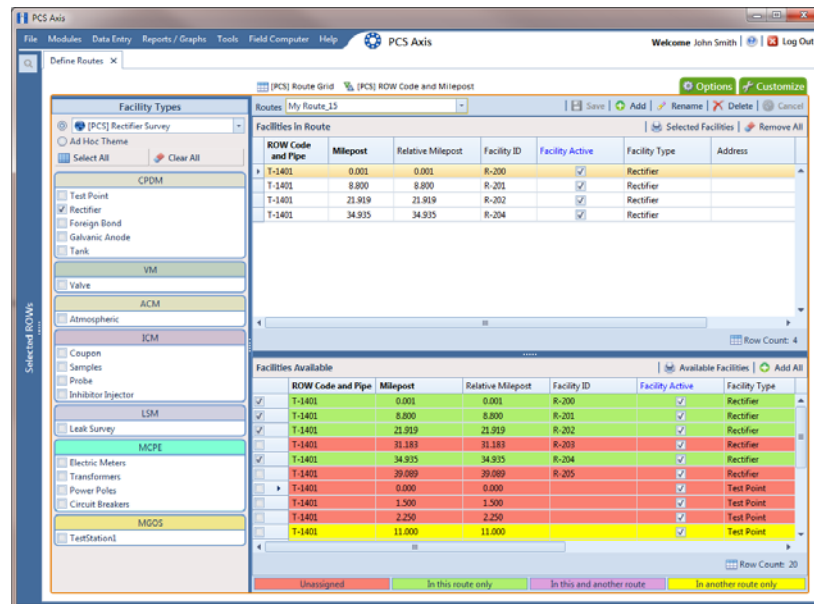
Figure 7-10. Define Routes

Changing the Order of Facilities

The order of facilities shown in the *Facilities in Route* grid identifies the facility order used in a route. You can easily change the order of facilities by dragging and dropping one or more grid rows to a different location in the grid. Changing the order allows you to arrange facilities based on particular criteria, such as arranging facilities in the order a survey is taken.

To change the order of facilities in a route, follow these steps:

1 If the *Define Routes* window is not open, complete the following steps:

    a Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click **Save** to close the window.

    b Click **Data Entry** > **Define Routes**, then click the down arrow in **Routes** and select a route (Figure 7-1, page 284).

2 Arrange the order of facilities listed in the *Facilities in Route* grid as needed using any of the following methods (Figure 7-11):

- To move a single grid row, select the row, then drag and drop the row in a different location in the grid. Click 💾 **Save** to save changes.

> **NOTE:** A message displays when moving selected grid rows to confirm the new location in the grid (Figure 7-11, page 293).

- To move a group of consecutive grid rows, click the first row, press and hold the **Shift** key, then click the last row. Drag and drop selected rows in a different location in the grid. Click 💾 **Save** to save changes.

- To move a group of non-consecutive grid rows, press and hold the **Ctrl** key, then click each row you want to select. Drag and drop selected rows in a different location in the grid. Click 💾 **Save** to save changes.
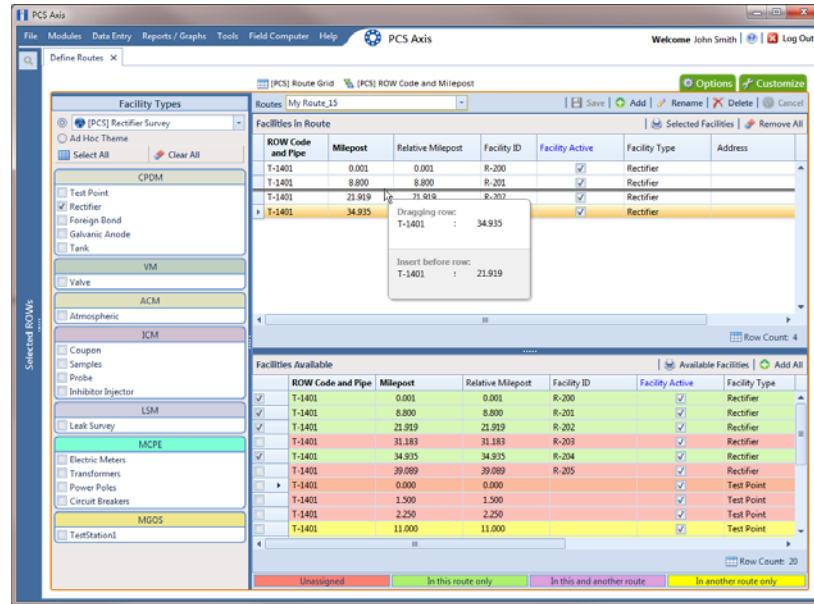
Figure 7-11. Arranging the Order of Facilities

Preparing a Route for an Averaged Reading Survey

This section applies only to the CPDM module. It explains how to prepare and send a survey to the Allegro based on a route with facilities in an averaged reading survey. Facilities for inspection are also set up with timed reading fields in the *Test Point Information* and *Inspection* data entry grid.

Topics in this section include those in the following list:
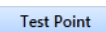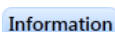
- *Adding Timed Reading Fields in the Information Grid*

- *Adding Timed Reading Fields in the Inspection Grid* (page 297)

- *Editing a Route for an Averaged Reading Survey* (page 299)

- *Sending a Survey to the Allegro Based on a Route* (page 301)
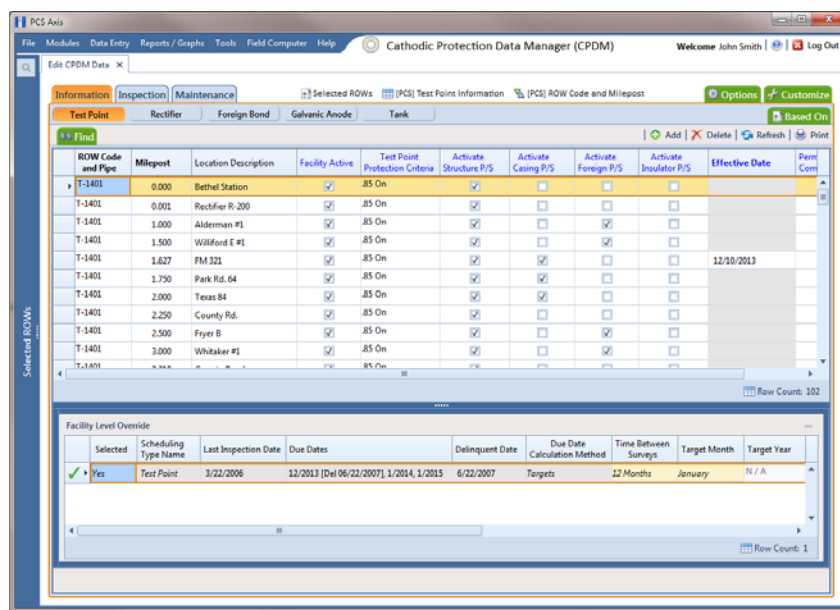
NOTE: See the *Allegro User Guide* for information about taking an averaged reading survey using the Periodic Survey software on the Allegro.

Adding Timed Reading Fields in the Information Grid

Timed reading fields are added in the *Test Point Information* data entry grid to allow data entry of inspection readings in the *Test Point Inspection* data entry grid for an averaged reading survey. Information in this section explains how to add timed reading fields in a layout theme and then apply the theme to the *Information* data entry grid.

Complete the following steps:

1   Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Select pipeline segments with facilities you plan to include in the route. Click ![save icon] **Save** to close the window.

2   Click **Data Entry** > **Edit CPDM Data**.

3   Click the **Test Point** button [Test Point], then the **Information** tab [Information] to open the *Test Point Information* data entry grid (Figure 7-12, page 294).

Figure 7-12. Test Point Information Data Entry Grid

4 Click the **Customize** tab ![Customize] to open the *Layouts* page (Figure 7-13, page 295).

5 Choose a data entry grid layout theme. Click the down arrow in **Select Layout Theme** and select a theme in the selection list.

6 Double-click ![icon] **Test Point Information Fields** in the left pane of the window to view a list of fields available for selection.

7 Add the following list of timed reading fields in the layout theme. To add fields, double-click each timed reading field listed in the left pane of the *Layouts* page to move fields to the right pane. Add other fields as required. The data entry grid layout theme includes all fields listed in the right pane of the *Layouts* page.

- Activate Average P/S

- Activate Max P/S

- Activate Min P/S

- Activate P/S Sample Time
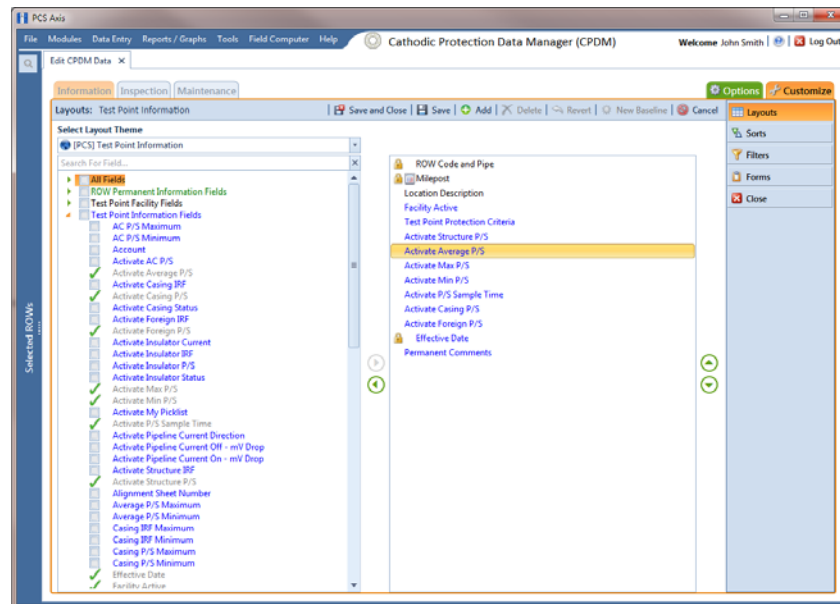
Figure 7-13. Layouts

8   Click ![save icon] **Save**, then click the **Options** tab ![Options button] to open the options page (Figure 7-14).

9   Apply the layout theme to the data entry grid. Click the down arrow in the field **Select Layout Theme** and select the layout theme with timed reading fields.

10 Click ![save icon] **Apply** to save and apply changes. PCS Axis closes the options page and returns to the *Test Point Information* data entry grid.
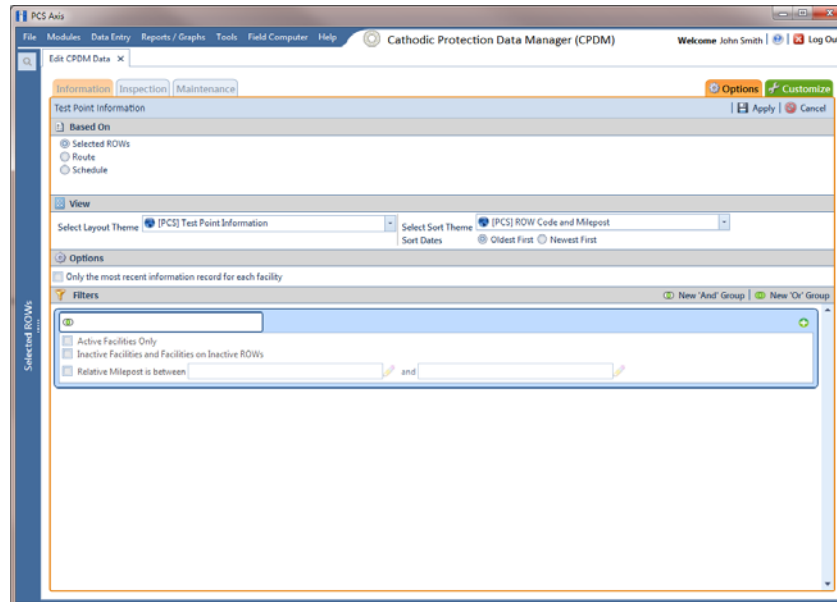
Figure 7-14. Options

11 In each column labeled with an "activate" timed reading field, click the check box associated with the facility you plan to record Allegro timed readings (Figure 7-15).

12 Continue with the next section *Adding Timed Reading Fields in the Inspection Grid* (page 297).
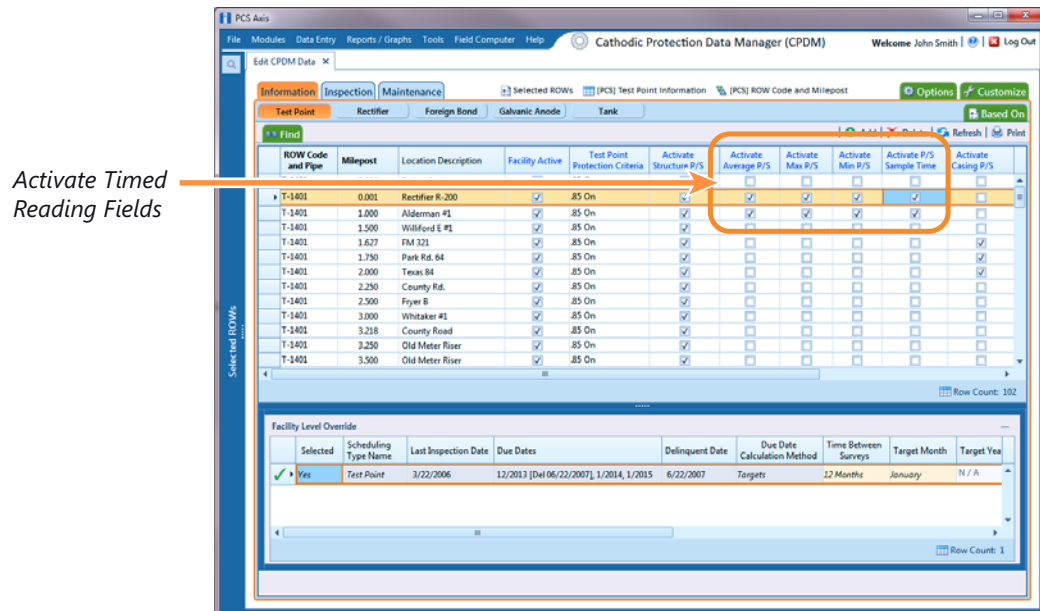
Figure 7-15. Test Point Information Data Entry Grid

Adding Timed Reading Fields in the Inspection Grid

Complete the following steps to add timed reading fields in a layout theme and then apply the theme to the *Test Point Inspection* data entry grid:

1 If the *Test Point Inspection* data entry grid is not visible, click the **Test Point** button and then the **Inspection** tab .

2 Click the **Customize** tab to display the *Layouts* page.

3 Choose a layout theme. Click the down arrow in **Select Layout Theme** and select a theme in the selection list.

4 Double-click **Test Point Inspection Fields** in the left pane of the window to view a list of fields available for selection (Figure 7-16, page 298).

5 Add the following list of timed reading fields in the layout theme. To add a field, double-click a timed reading field listed in the left pane to move the field to the right pane. Add other fields as required. The layout theme includes all fields listed in the right pane of the *Layouts* page.

- • Average P/S

- • Max P/S

- • Min P/S

- • P/S Sample Time
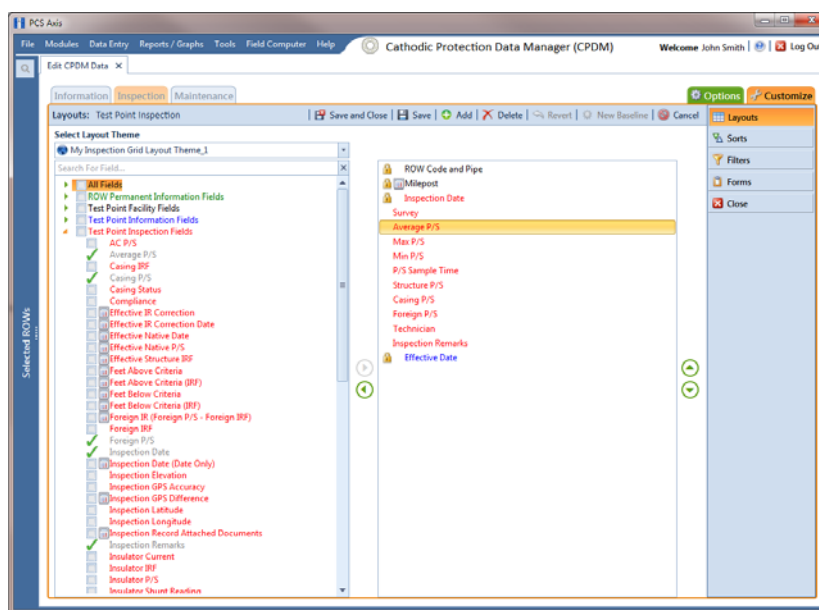
Figure 7-16. Layouts

6 Click **Save**, then click the **Options** tab to open the options page (Figure 7-17, page 299).

7 Apply the layout theme to the data entry grid. Click the down arrow in the field **Select Layout Theme** and select the layout theme with timed reading fields.

8 Click **Apply** to save and apply changes. PCS Axis closes the options page and returns to the *Test Point Inspection* data entry grid.

9 Click the close icon to close the *Edit CPDM Data* window. Continue with the next section *Editing a Route for an Averaged Reading Survey* (page 299).
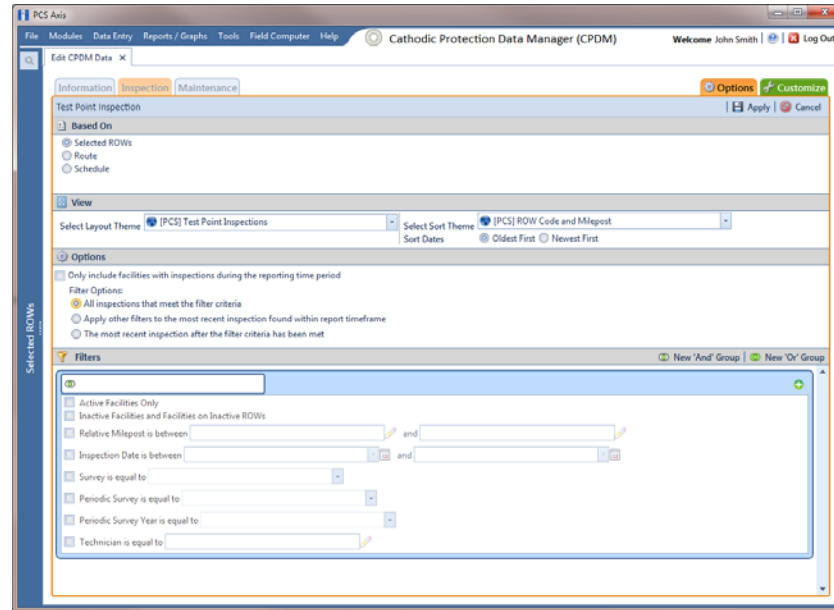
Figure 7-17. Options

Editing a Route for an Averaged Reading Survey

Complete the following steps to set up a route with facilities for inspection in an averaged reading survey:

1   Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Select pipeline segments with facilities you plan to include in a route for an averaged reading survey. Click [icon] **Save** to close the window.

2   Open the *Define Routes* window and select a route. Click **Data Entry** > **Define Routes**. Then click the down arrow in **Routes** and select a route in the selection list.

3   Click the down arrow in **Facility Types** and select [icon] **[PCS] Test Point Survey**. Or, select **Ad Hoc Theme** and then click the **Test Point** check box.

4   Select which facilities to include in the route. To include all facilities, click [icon] **Add All** and then click **Yes** when the *Add All* message opens.

    To only include facilities you select, click the check box for each facility in the *Facilities Available* grid. Or double-click each facility.

***

NOTE: Selected facilities display in the *Facilities in Route* grid.

***

5 Arrange the survey order of facilities listed in the *Facilities in Route* grid as needed using any of the following methods:

- To move a single grid row, select the row, then drag and drop the row in a different location in the grid.

    NOTE: A message displays when moving selected grid rows to confirm the new location in the grid (Figure 7-11, page 293).

- To move a group of consecutive grid rows, click the first row, press and hold the **Shift** key, then click the last row. Drag and drop selected rows in a different location in the grid.

- To move a group of non-consecutive grid rows, press and hold the **Ctrl** key, then click each row you want to select. Drag and drop selected rows in a different location in the grid.

6 Click **Save** to save changes and then click the close icon to close the *Define Routes* window.

7 Continue with the next section *Sending a Survey to the Allegro Based on a Route* (page 301).

Sending a Survey to the Allegro Based on a Route

Information in this section explains how to send a survey to the Allegro based on a route with facilities in an averaged reading survey. The process includes adding a theme with prompts for timed reading fields. Prompts are data entry fields in an Allegro survey file that require survey data, such as an inspection reading at each facility location.

Complete the following steps:

1 Verify the Allegro is connected to your computer. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Select pipeline segments with facilities you plan to include in an averaged reading survey. Click 💾 **Save** to close the window.

3 Click **Field Computer** > **Send** to open the *Field Computer Send* window (Figure 7-18).
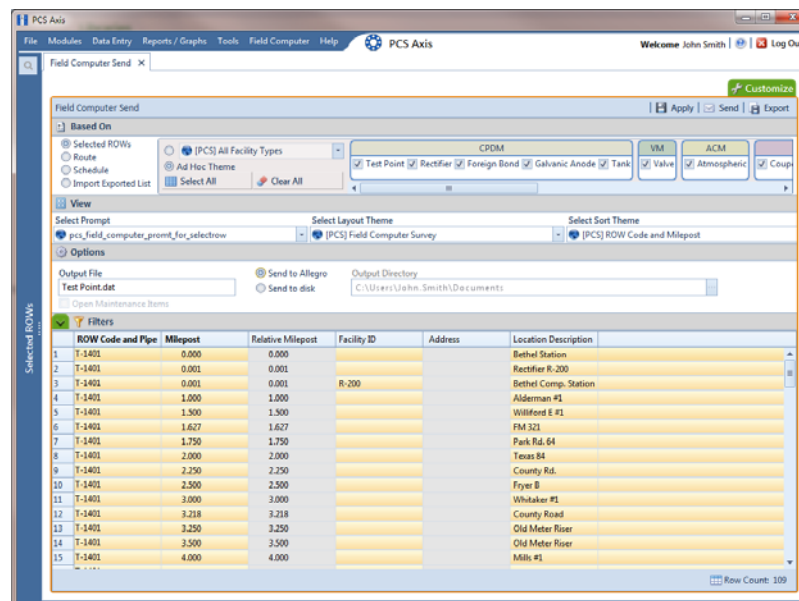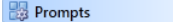
Figure 7-18. Field Computer Send

4   Click the **Customize** tab ⚡ Customize , then the **Prompts** button 🔳 Prompts to open the *Prompts* page (Figure 7-19).
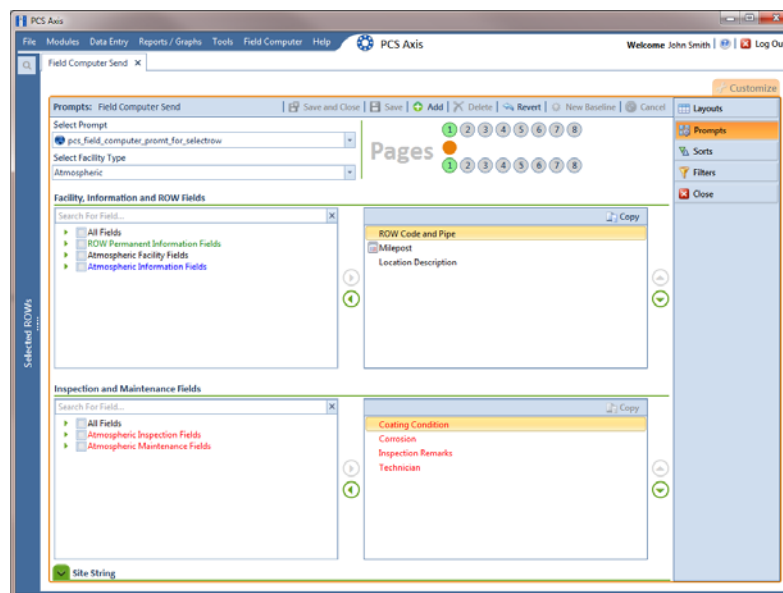
Figure 7-19. Prompts

5   Click ➕ **Add** to open the *New Prompt* dialog box (Figure 7-20).

6   Type a name for the theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the theme saves as a *private* theme.

7   If you want to copy fields from an existing theme, click the **Copy Content** check box to place a check mark inside the check box. Then click the down arrow in the field **Copy Fields From Theme** and select a theme in the selection list.

        If you do not want to copy fields from an existing prompt theme, clear the check mark inside the *Copy Content* check box by clicking the check box.

8   Click ✔ **OK** to save changes and return to the *Prompts* page.
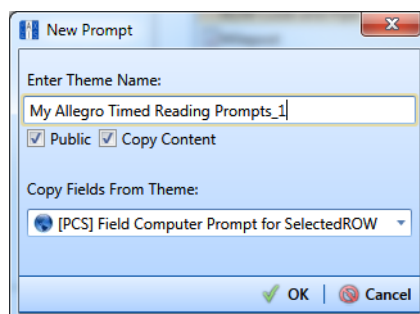
Figure 7-20. New Prompt

9   Verify the name of the new theme displays in the **Select Prompt** field. If not, click the down arrow and select the theme in the selection list (Figure 7-21).

10   Click the down arrow in **Select Facility Type** and select **Test Point**.
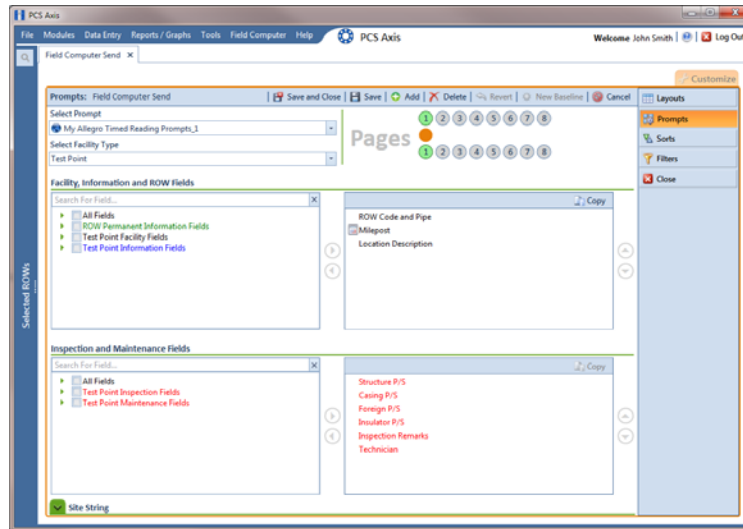
Figure 7-21. Prompts

11   To add information prompts, follow these steps:

a   Double-click ▶ **All Fields** in *Facility, Information and ROW Fields* to view a list of fields available for selection.

b   Double-click one or more fields in the selection list to move fields to the right pane. All fields listed in the right pane are included in the prompt theme (Figure 7-21).

12   To add timed reading prompts, follow these steps:

a   Double-click ▶ **All Fields** in *Inspection and Maintenance Field* (Figure 7-21).

b   Double-click the following timed reading fields to move the fields to the right pane:

- Average P/S

- Max P/S

- Min P/S

- P/S Sample Time

NOTE: If you want to remove information, inspection, or maintenance fields, double-click a field listed in the right pane to move it back to the left pane.

13 Complete the following steps to add site string prompts that help identify one facility from another when using the Allegro. Site string prompts are included with each facility and can be viewed in the Allegro *Site List* window.

    a Click the ☑ **Site String** tab to view a list of fields available for selection (Figure 7-21, page 303).

    b Double-click one or more fields in the selection list to move fields to the right pane. For example, double-click **Facility ID** and **Location Description**. Click the ☑ **Site String** tab again to close the pane.

14 If you want to add another page of prompts, click ▤ **Copy** and then double-click one or more fields as needed in the left pane of *Inspection and Maintenance Fields*. When you have multiple pages of prompts, clicking a page number icon, such as (2), displays prompts for the selected page.

NOTE: Information fields in *Facility, Information, and ROW Fields* automatically copy to each page of prompts.

---

15 Click 🖫 **Save and Close** to save changes and return to the *Field Computer Send* window.

16 Click the **Route** option and select a route in the selection box. Then click 🖫 **Apply** to update the grid (Figure 7-22).
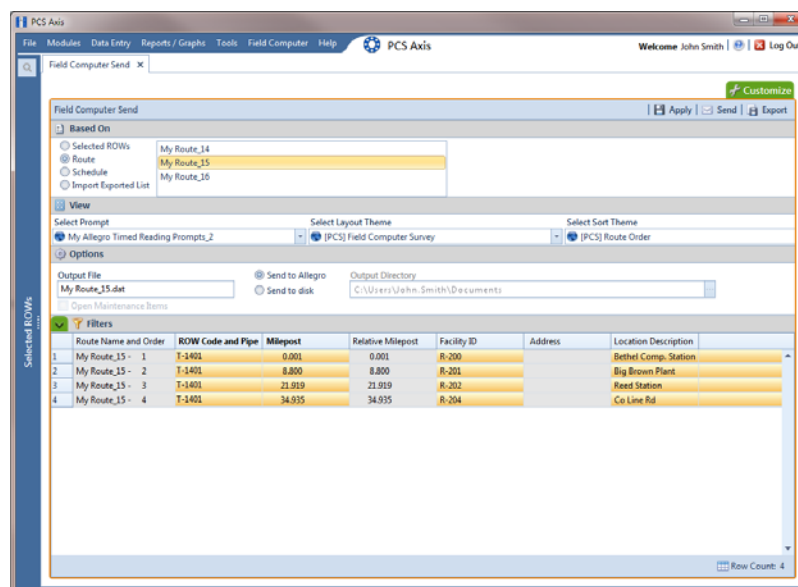
Figure 7-22. Field Computer Send

17 Click the down arrow in **Select Prompt** and select a theme with timed reading fields (Figure 7-22, page 304).

18 Select a layout and sort theme as follows:

    a Click the down arrow in the field **Select Layout Theme** and select a theme in the list.

    b Click the down arrow in the field **Select Sort Theme** and select a theme in the list.

19 If you want to rename the survey file, type a name in the **Output File** field making sure to include the .*dat* file extension.

20 Select the option **Send to Allegro**.

21 If the check box **Open Maintenance Items** is available for selection, click the check box if you want to include open maintenance records in the survey file.

> **NOTE:** When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled and unavailable for selection when maintenance prompts are not included in the currently selected prompt theme.

22 Click the ⌄ **Filters** button to open the *Filters* panel (Figure 7-23).

23 If you want to filter records in the grid and in the route sent to the Allegro, select one or more options in *Filters*. For example, click *Active Facilities Only* to only include active facilities.

> **IMPORTANT:** Filter settings in *Field Computer Send* apply only to the current session and are not saved. See *Working with Themes and Filter Groups* (page 323) for information about saving filter settings in a theme.
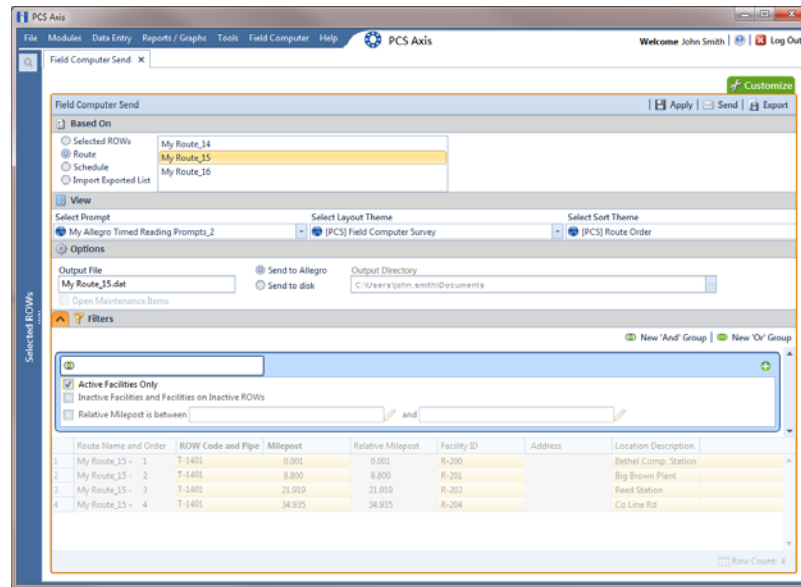
Figure 7-23. Filters

If you want to add a new AND or OR filter group, continue with step 24 or step 25 (page 307).

24 To filter records in the grid and in the route sent to the Allegro based on a subset of records that meet *all* filter conditions, complete the following steps to add a new AND filter group (Figure 7-24, page 307):

a Click 🔵 **New 'And' Group** to open the filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

- Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

- To set a date range using dynamic start and end dates, click the 🔲 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings (Figure 7-24).

Figure 7-24. New 'And' Filter Group

25 To filter records in the grid and in the route sent to the Allegro based on a subset of records that meet *any* filter condition, complete the following steps to add a new OR filter group (Figure 7-25):

a   Click 🟢 **New 'Or" Group** to open a filter properties group box.

b   Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

• Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

• To set a date range using dynamic start and end dates, click the 🗓 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

Figure 7-25. New 'Or Filter Group

26 Click the ⌃ **Filters** button to close the *Filters* panel. Then click 🖫 **Apply** to update the grid.

27 Click ✉ **Send** to send the survey file to the Allegro.

28 When a message displays confirming the send process is complete, click ✔ **OK** to close the message (Figure 7-26). PCS Axis sends the survey file to the *PSData* folder on the Allegro.
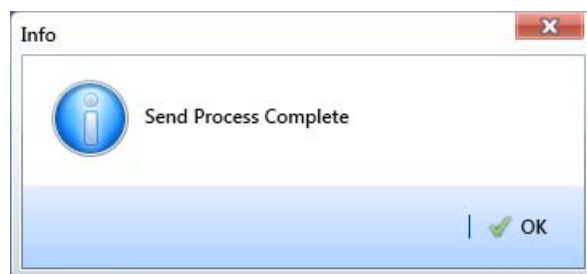
Figure 7-26. Send Process Complete

Preparing a Route for Inspection GPS Fields

This section explains how to prepare and send a survey to the Allegro based on a route with inspection GPS fields. Facilities for inspection are also set up in the *Inspection* data entry grid with inspection GPS fields.

Including inspection GPS fields in a survey allows you to capture GPS location data for each facility inspection reading. These fields also allow you to verify inspection readings are taken at the correct location.

Information in this section applies to all PCS Axis modules. Examples are based on the CPDM module. Topics in this section include those in the following list:
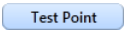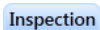
- *Adding Inspection GPS Fields in the Inspection Grid* (page 309)

- *Editing a Route with Facilities for Inspection* (page 312)

- *Sending a Survey to the Allegro Based on a Route* (page 313)

Adding Inspection GPS Fields in the Inspection Grid

The procedure in this section explains how to add inspection GPS fields in a layout theme and then apply the theme to an *Inspection* data entry grid. The procedure uses the *Test Point Inspection* data entry grid as an example.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Select pipeline segments with facilities you plan to include in a route. Click [icon] **Save** to close the window.

2 Open the *Inspection* data entry grid for a facility type.

For example, click **Data Entry** > **Edit CPDM Data**. Click the **Test Point** button [Test Point], then the **Inspection** tab [Inspection] to open the *Test Point Inspection* data entry grid (Figure 7-27).

Figure 7-27. Test Point Inspection Data Entry Grid

3 Click the **Customize** tab [Customize] to view the *Layouts* page (Figure 7-28, page 311).

4 Choose a data entry grid layout theme. Click the down arrow in **Select Layout Theme** and select a theme in the selection list.

5 Double-click the *Inspection Fields* category in the left pane of the window to view a list of fields available for selection. For example, double-click ▶ **Test Point Inspection Fields**.

6 Add the following inspection GPS fields in the layout theme. To add a field, double-click a inspection GPS field in the left pane to move the field to the right pane. Add other fields as required. The layout theme includes all fields listed in the right pane.

- Inspection Elevation

- Inspection GPS Accuracy

- Inspection GPS Difference

- Inspection Latitude

- Inspection Longitude
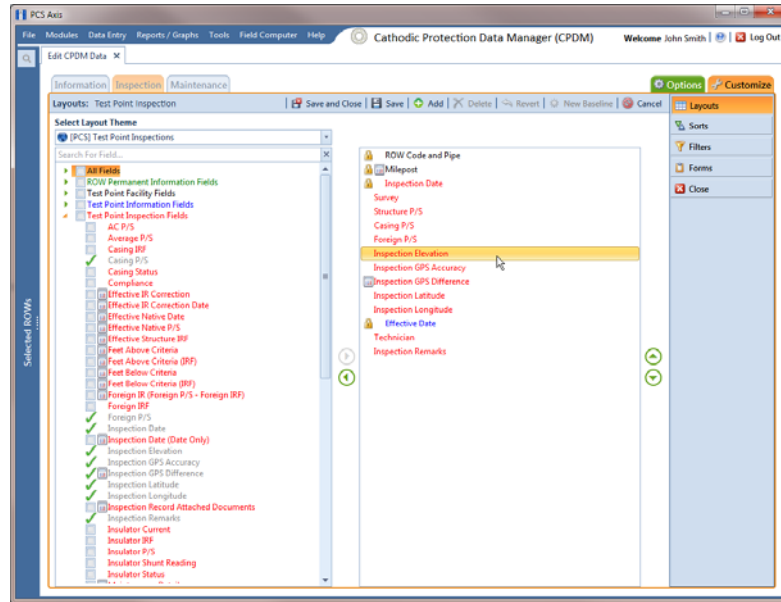
Figure 7-28. Layouts

7   Click **Save**, then click the **Options** tab to open the options page (Figure 7-29, page 312).

8   Apply the layout theme to the data entry grid. Click the down arrow in **Select Layout Theme** and select the theme with inspection GPS fields.

9   Click **Apply**.

PCS Axis saves and applies changes, then closes the options page and returns to the *Test Point Inspection* data entry grid.

10 Click the close close icon to close the *Edit CPDM Data* window. Continue with the next section *Editing a Route with Facilities for Inspection* (page 312).
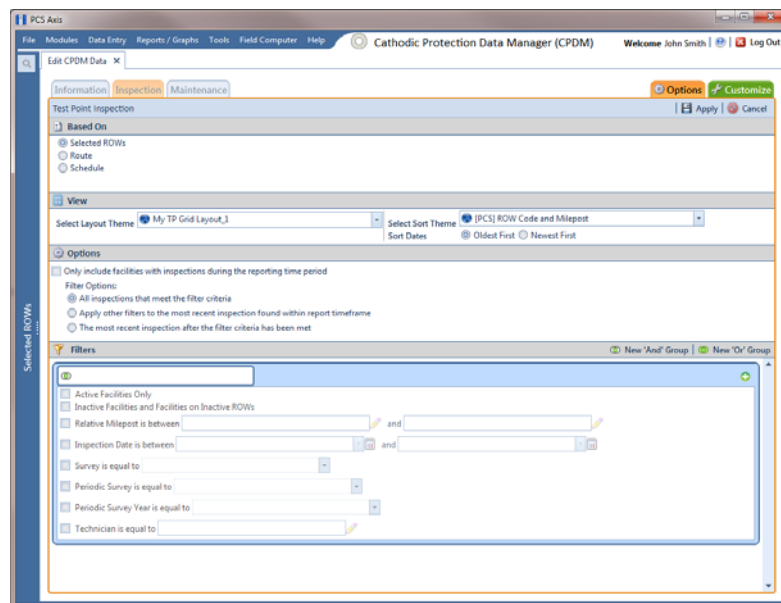
Figure 7-29. Options

Editing a Route with Facilities for Inspection

Complete the following steps to set up a route with facilities for inspection that include inspection GPS fields:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Select pipeline segments with facilities you plan to include in the route. Click 💾 **Save** to close the window.

2 Open the *Define Routes* window and select a route. Click **Data Entry** > **Define Routes**. Then click the down arrow in **Routes** and select a route in the selection list.

3 Click the down arrow in **Facility Types** and select a facility type theme. Or, select **Ad Hoc Theme** and then click the check box for one or more facility types.

4 Choose which facilities to include in the route. To include all facilities, click ➕ **Add All** in the *Facilities Available* grid.

To only include facilities you select, click the check box for each facility in the *Facilities Available* grid. Or double-click each facility.

NOTE: Selected facilities display in the *Facilities in Route* grid.

5   Arrange the survey order of facilities listed in the *Facilities in Route* grid as needed using any of the following methods:

•   To move a single grid row, select the row, then drag and drop it in a different location in the grid.

NOTE: A message displays when moving selected grid rows to confirm the new location in the grid (Figure 7-11, page 293).

•   To move a group of consecutive grid rows, click the first row, press and hold the **Shift** key, then click the last row. Drag and drop selected rows in a different location in the grid.

•   To move a group of non-consecutive grid rows, press and hold the **Ctrl** key, then click each row you want to select. Drag and drop selected rows in a different location in the grid.

6   Click ![save icon] **Save** to save changes. Then click the close icon ![close icon] to close the *Define Routes* window.

7   Continue with the next section *Sending a Survey to the Allegro Based on a Route* (page 313).

Sending a Survey to the Allegro Based on a Route

Information in this section explains how to send a survey to the Allegro based on a route with facilities that include inspection GPS fields. The process includes adding a prompts theme with prompts for inspection GPS fields. Prompts are data entry fields in an Allegro survey file that require survey data, such as GPS data for each facility inspection reading.

Complete the following steps:

1   Verify the Allegro is connected to your computer. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2   Select one or more pipeline segments in the *Select ROWs* window. Select pipeline segments with facilities you plan to survey. Click ![save icon] **Save** to close the window (Figure 7-6, page 289).

3   Click **Field Computer** > **Send** to open the *Field Computer Send* window (Figure 7-30, page 314).
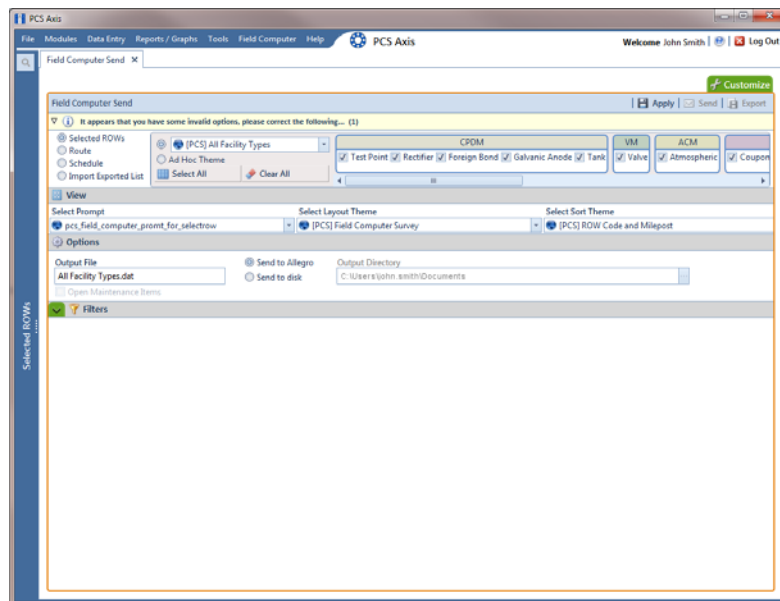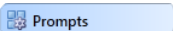
Figure 7-30. Field Computer Send

4 Click the **Customize** tab [Customize], then the **Prompts** button [Prompts] to open the *Prompts* page (Figure 7-31).
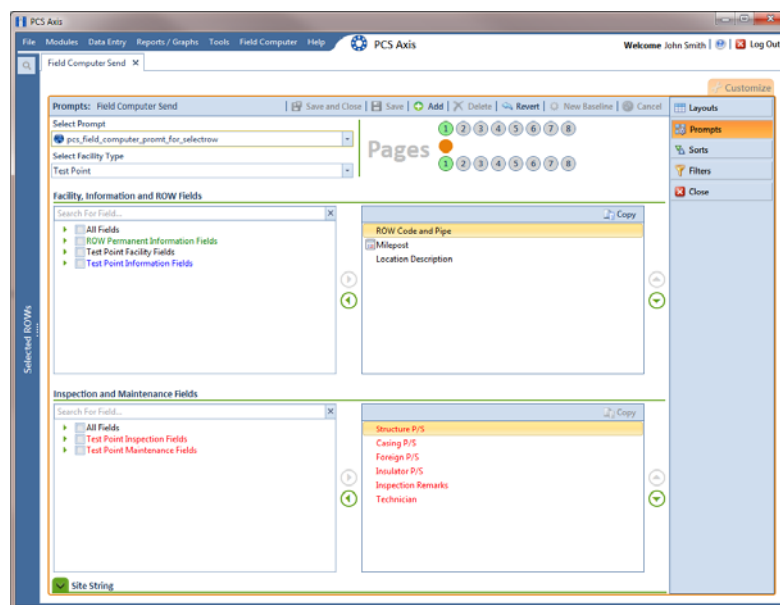
Figure 7-31. Prompts

5   Click the ⊕ **Add** button to open the *New Prompt* dialog box (Figure 7-32).

6   Type a name for the theme in the field **Enter Theme Name**. If you want to create a public theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the theme saves as a private theme.

7   If you want to copy fields from an existing theme, click the **Copy Content** check box to place a check mark inside the check box. Then click the down arrow in the field **Copy Fields From Theme** and select a theme in the selection list.

If you do not want to copy fields from an existing prompt theme, remove the check mark inside the *Copy Content* check box by clicking the check box.

8   Click ✔ **OK** to save changes and return to the *Prompts* page.

Figure 7-32. New Prompt

9   Verify the name of the new theme displays in the **Select Prompt** field. If not, click the down arrow and select the theme in the selection list (Figure 7-33, page 316).

10 Click the down arrow in **Select Facility Type** and select a facility type in the selection list. For example, select *Test Point*.
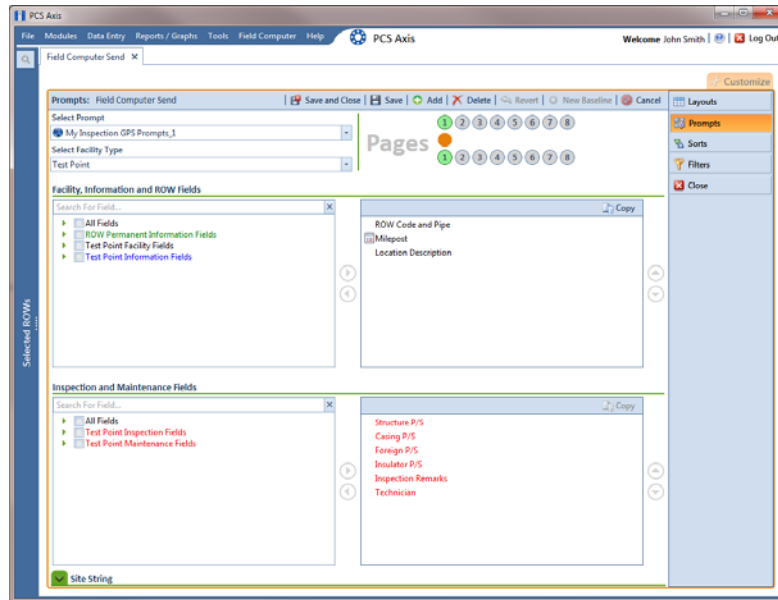
Figure 7-33. Prompts

11 To add information prompts, follow these steps (Figure 7-33):

a Double-click ▶ **All Fields** in *Facility, Information and ROW Fields* to view a list of fields available for selection.

b Double-click one or more fields in the selection list to move fields to the right pane. All fields listed in the right pane are included in the prompt theme.

12 To add inspection GPS prompts, follow these steps:

a Double-click ▶ **All Fields** in *Inspection and Maintenance Fields*.

b Double-click the following inspection GPS fields to move the fields to the right pane:

- Inspection Elevation

- Inspection GPS Accuracy

- Inspection GPS Difference

- Inspection Latitude

- Inspection Longitude

NOTE: If you want to remove information, inspection, or maintenance fields, double-click a field listed in the right pane to move it back to the left pane.

13 Complete the following steps to add site string prompts that help identify one facility from another when using the Allegro. Site string prompts are included with each facility and can be viewed in the Allegro *Site List* window.

a Click the ⌄ **Site String** and then double-click ▶ **All Fields** in the left pane to view a list of fields available for selection (Figure 7-33, page 316).

b Double-click one or more fields in the left pane to move fields to the right pane. For example, double-click **Facility ID** and **Facility Location**. Click the ⌃ **Site String** button again to close the pane.

14 If you want to add another page of prompts, click ⧉ **Copy** and then double-click one or more fields as needed in the left pane of **Inspection and Maintenance Fields**. Information fields in *Facility, Information, and ROW Fields* automatically copy to each page of prompts (Figure 7-21, page 303).

15 Click 💾 **Save**.

16 If you have multiple pages of prompts, clicking a page number icon displays prompts for the selected page. For example, clicking ② displays prompts set up in page 2 as shown in the following example (Figure 7-34).
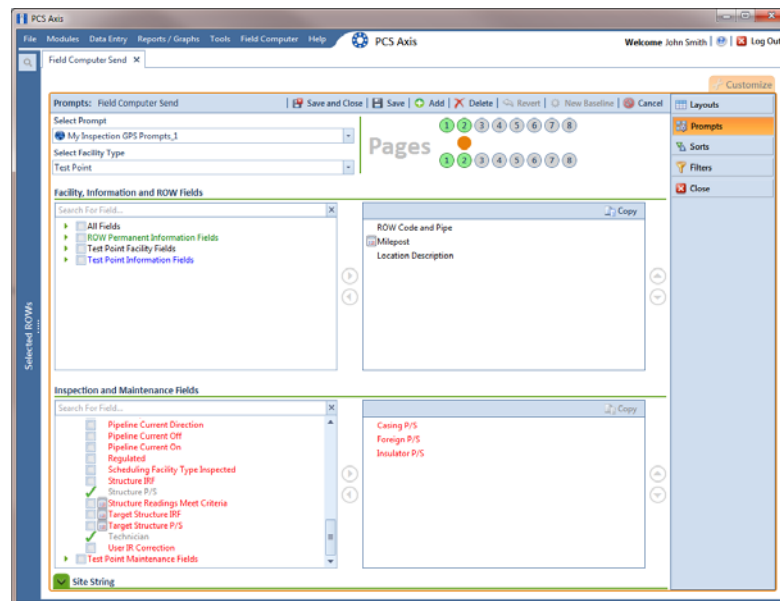
Figure 7-34. Prompts

17 Click ✖ **Close** to return to the *Field Computer Send* window.

18 Click the **Route** option and select a route in the selection box. Then click 💾 **Apply** to update the grid (Figure 7-35).

19 Complete the following steps to select a prompt, layout, and sort theme:

a Click the down arrow in **Select Prompt** and select the prompt theme with inspection GPS fields.

b Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.

c Click the down arrow in **Select Sort Theme** and select a sort theme in the selection list.

20 If you want to rename the survey file, type a name in the field **Output File**.

21 Select **Send to Allegro** to send the survey file to the Allegro.

22 If the check box **Open Maintenance Items** is available for selection, click the check box if you want to include open maintenance records in the survey file.

NOTE: When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled when maintenance prompts are not included in the currently selected prompt theme.
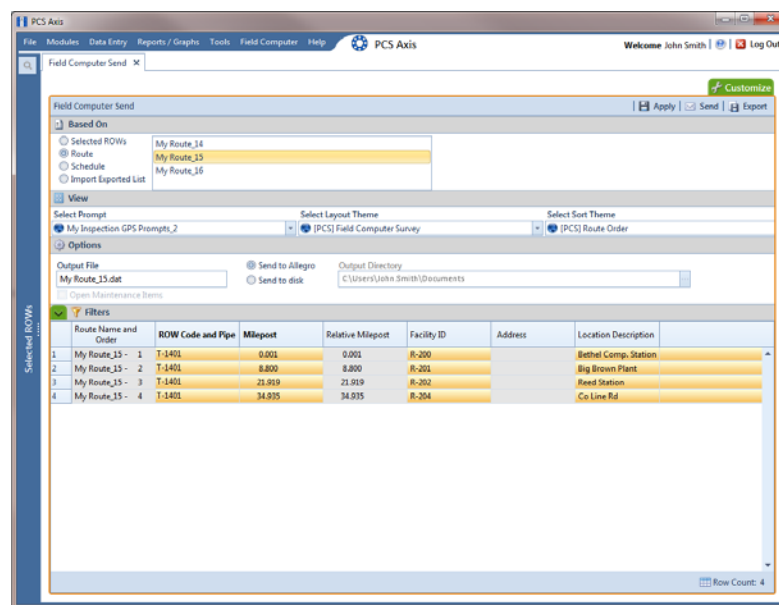
Figure 7-35. Field Computer Send

23 If you want to filter records in the grid and in the route sent to the Allegro, complete the following steps.

IMPORTANT: Filter settings in *Field Computer Send* apply only to the current session and are not saved. See *Working with Themes and Filter Groups* (page 323) for information about saving filter settings in a theme.

---

a Click the ⌄ **Filters** tab to open the *Filters* panel (Figure 7-35, page 318).

b Select one or more options in *Filters.* For example, click **Active Facilities Only** to only include active facilities in the grid and in the route sent to the Allegro (Figure 7-36).

c If you want to add a new AND or OR filter group, continue with one of the following steps. Otherwise continue with step 26 (page 322).

 • To add a new AND filter group continue with step 24 (page 306).

 • To add a new OR filter group continue with step 25 (page 307).
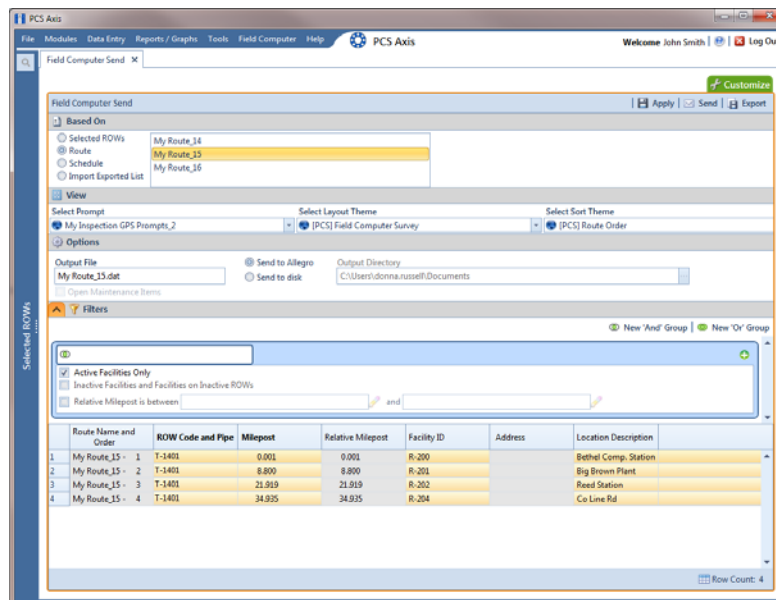
Figure 7-36. Filters

24 If you want to add a new AND filter group, complete the following steps. With an AND filter group, PCS Axis includes a subset of records that meet *all* filter conditions defined for the filter group. Records are filtered in the grid and in the route sent to the Allegro (Figure 7-37).

a Click ![icon] **New 'And' Group** to open the filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

• Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

• To set a date range using dynamic start and end dates, click the ![icon] calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

NOTE: Clicking the ![icon] toggle button in the ![icon] information bar displays important information related to required settings.

Figure 7-37. New 'And' Filter Group

25 If you want to add a new OR filter group, complete the following steps. With an OR filter group, PCS Axis includes a subset of records that meet *any* filter condition defined for the filter group. Records are filtered in the grid and in the route sent to the Allegro (Figure 7-38):

a Click [icon] **New 'Or" Group** to open a filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

• Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

• To set a date range using dynamic start and end dates, click the [icon] calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings.

Figure 7-38. New 'Or Filter Group

26 Click the ⌃ **Filters** tab to close the *Filters* panel. Then click ⊟ **Apply** to update the grid.

27 Click ✉ **Send** to send the survey file to the Allegro.

28 Click ✔ **OK** when the message *Send Process Complete* displays (Figure 7-39). PCS Axis sends the survey file to the *PSData* folder on the Allegro.
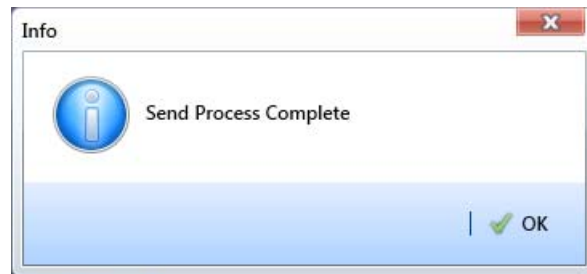
Figure 7-39. Send Process Complete

Working with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS Axis software installation. PCS Axis installed themes are public themes available to all PCS Axis users. These themes are identified with a globe icon and PCS in brackets [PCS], such as **[PCS] Route Grid**.

A filter group is a named set of one or more filters that affect the data output in the *Define Routes* grid and subsequently the route itself. PCS Axis provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in the *Define Routes* grid and the route. Adding an AND filter group produces a subset of records that meet *all* filter conditions. Adding an OR filter group produces a subset of records that meet *any* filter condition. When you apply a filter group, PCS Axis processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and one or more optional filter groups. Topics include those in the following list:

- *Working with a Layout Theme*

- *Working with a Sort Theme* (page 331)

- *Adding an AND Filter Group* (page 337)

- *Adding an OR Filter Group* (page 340)

- *Editing and Arranging Filters and Filter Groups* (page 342)

Working with a Layout Theme

A layout theme is a named set of fields that are present when working in the route grid. A layout theme also determines which fields are included when printing a route.

Two types of layout themes are available for use. They include *installed* and *addition* layout themes. An installed layout theme is one that has been installed during the PCS Axis software installation, such as *[PCS] Route Grid*. A layout theme addition is one that you create.

Topics in this section explain how to work with a layout theme and include those in the following list:

- *Editing an Installed Layout Theme*

- *Adding a Layout Theme Addition* (page 326)

- *Editing a Layout Theme Addition* (page 329)

Editing an Installed Layout Theme

An installed layout theme includes [PCS] in the name of the theme, such as 🌐 [**PCS] Route Grid**. A layout theme determines which fields are present when viewing or printing a route. The procedure in this section explains how to complete the following tasks to edit a PCS Axis installed layout theme:

- add fields in an installed layout theme

- remove fields in an installed layout theme

- revert an installed layout theme

To edit a PCS Axis installed layout theme, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click 💾 **Save** to close the window.

2   Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the list (Figure 7-40).

Route Selection
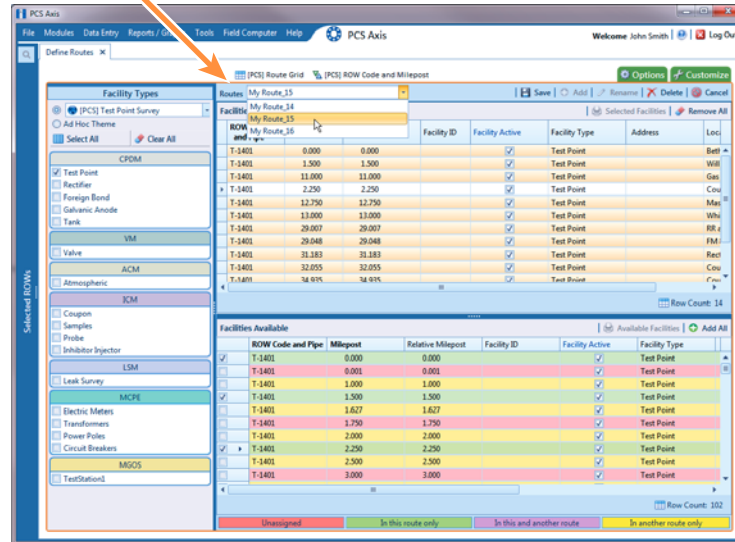
Figure 7-40. Define Routes

3   Click the **Customize** tab [Customize] to view the *Layouts* page (Figure 7-41, page 326).

4   Select a PCS Axis installed layout theme. Click the down arrow in **Select Layout Theme** and select a theme in the selection list, such as 🌐 **[PCS] Route Grid**.

5   Click the toggle arrow ▶ for a field category in the left pane to view a list of fields available for selection, such as ▶ **All Fields**.

6   Click the check box for each field you want to include in the theme. Then click the top arrow button ➡ to move selected fields to the right pane. The theme includes all fields listed in the right pane.

NOTE: Double-clicking a field in the left pane also moves it to the right pane.

7 To remove fields in an installed layout theme:

- Select one or more fields listed in the right pane, then click the bottom arrow button ⬅.

NOTE: Double-clicking a field in the right pane also moves it back to the left pane. Fields with a lock icon 🔒 are required and cannot be removed from the theme, such as 🔒 **Milepost**.
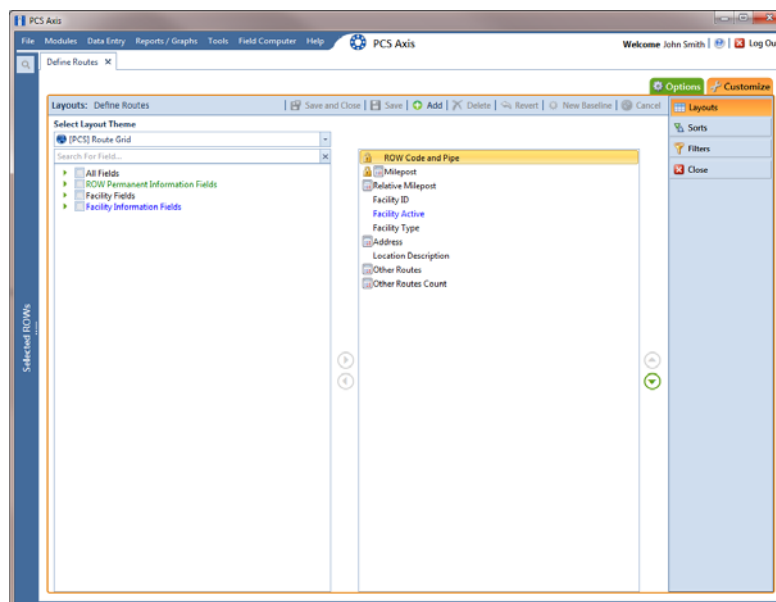
Figure 7-41. Layouts

8 Click 💾 **Save** to save changes.

9 To revert an installed theme and restore settings prior to editing:

- Click ⬅ **Revert**, then click **Yes** when the *Confirm Revert* message displays.

10 Click 💾 **Save and Close** to save changes and return to the *Define Routes* window.

Adding a Layout Theme Addition

Complete the following steps to add a layout theme addition:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click 💾 **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab Customize to view the *Layouts* page (Figure 7-41).

4 Click ⊕ **Add** to open the *New Layout Theme* dialog box (Figure 7-42, page 327).
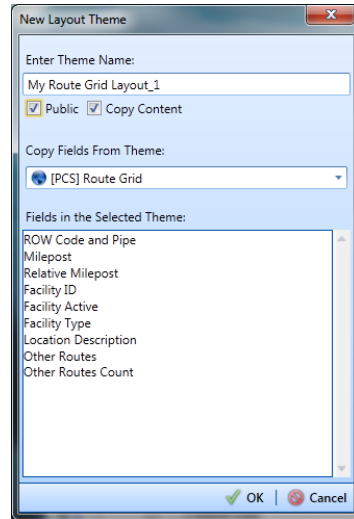
Figure 7-42. New Layout Theme

5 Type a name for the theme in the field **Enter Theme Name**.

6 Select the **Public** check box if you want the new theme available to all PCS Axis users. When a theme is not public, it is a private theme available only to the user who creates it.

NOTE: Creating public themes is a function available only to users assigned the SysAdmin user role. Private themes can be created by users assigned the User, Read Only, or SysAdmin user role. See *System Security* (page 645) for more information.

---

7 Select a layout theme with fields you want to copy to the new layout theme. Click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

8 Click ✔ **OK** to save changes and return to the *Layouts* page.

9 Verify the name of the new layout theme displays in the field *Select Layout Theme*. If not, click the down arrow in **Select Layout Theme** and select the new theme in the selection list.

10 Add and remove fields in the new layout theme as required. If needed, refer to *Editing a Layout Theme Addition* (page 329). When you finish, click 🖫 **Save**.

11 To apply the new layout theme in the *Define Routes* grid, follow these steps:

a Click the **Options** tab 🔘 Options to open the options page (Figure 7-43, page 328).

b Click the down arrow in **Select Layout Theme** and select the new layout theme in the selection list.

c Click 🖫 **Apply** to apply changes and return to the grid in *Define Routes*.

NOTE: Clicking 🚫 **Cancel** allows you to close the *Options* page without saving changes.
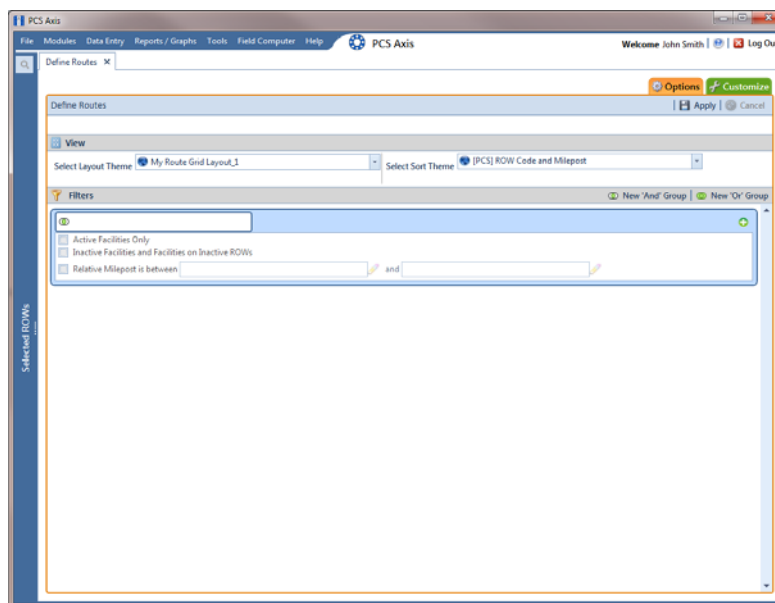
Figure 7-43. Options

Editing a Layout Theme Addition

Information in this section explains how to perform the following tasks when working with a layout theme addition:

- add or remove fields in a layout theme addition

- revert a layout theme addition

- create a new baseline layout theme addition

- delete a layout theme addition

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click ⊟ **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab ⚡ Customize to view the *Layouts* page (Figure 7-41, page 326).

4 Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.

5 To add fields in a layout theme addition:

  a Click the toggle arrow ▶ for a field category in the left pane to view a list of fields available for selection, such as ▶ **All Fields**.

  b Click the check box for each field you want to include in the theme. Then click the top arrow button ➡ to move selected fields to the right pane. The theme includes all fields listed in the right pane.

  > **NOTE:** Double-clicking a field in the left pane also moves it to the right pane.

  c Click ⊟ **Save** to save changes.

6 To remove fields in a layout theme addition:

- Select one or more fields listed in the right pane of the window, then click the bottom arrow button [icon].

  To multi-select fields in the right pane, press the *Ctrl* key when selecting fields in non-consecutive order; or press the *Shift* key when selecting fields in consecutive order.

7 Click [icon] **Save** to save changes. The layout theme includes all fields listed in the right pane (Figure 7-44, page 330).

8 To revert a layout theme addition and restore settings prior to editing:

- Click [icon] **Revert**, then click **Yes** when the *Confirm Revert* message displays.

9 To save current settings as new baseline settings, click [icon] **New Baseline**. When future changes are made and then reverted, PCS Axis restores the theme with baseline settings.

10 To delete a layout theme addition:

a Click the down arrow in **Select Layout Theme** and select a layout theme addition.

b Click [icon] **Delete**, then click **Yes** when the *Confirm Delete* message displays.

11 Click [icon] **Close** to close the *Layouts* page and return to the *Define Routes* window.
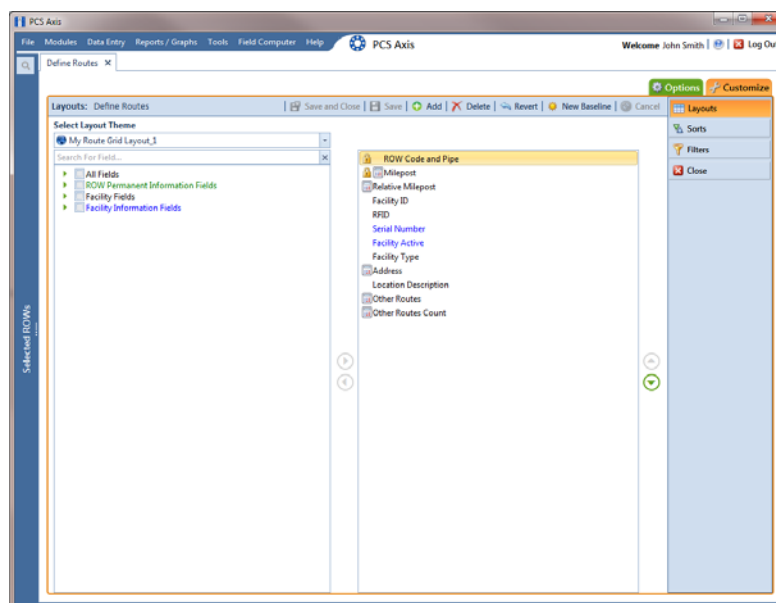
Figure 7-44. Layouts

Working with a Sort Theme

A sort theme is a named set of one or more fields that indicate the sorting order of grid rows in the route grid. A sort theme also determines the sorting order when printing a route.

Two types of sort themes are available for use. They include *installed* and *addition* sort themes. An installed sort theme is one that has been installed during the PCS Axis software installation, such as *[PCS] Address*, *[PCS] Facility ID*, and *[PCS] ROW Code and Milepost*. A sort theme addition is one that you create.

Topics in this section explain how to work with a sort theme and include those in the following list:
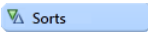
- *Editing an Installed Sort Theme*

- *Adding a Sort Theme Addition* (page 333)

- *Editing a Sort Theme Addition* (page 335)

Editing an Installed Sort Theme

An installed sort theme includes [PCS] in the name of the theme, such as 🌐 *[PCS] Facility ID*. The procedure in this section explains how to complete the following tasks to edit an installed layout theme:

- add fields in an installed sort theme

- remove fields in an installed sort theme

- revert an installed sort theme

To edit an installed sort theme, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click 💾 **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab ⚙ Customize , then the **Sorts** button 🔻 Sorts to open the *Sorts* page (Figure 7-45, page 332).

4 Click the down arrow in **Select Sort Theme** and select a PCS Axis installed sort theme, such as 🌐 **[PCS] Facility ID**.

5 Click the toggle arrow ▶ for a field category in the left pane to view a list of fields available for selection, such as ▶ **All Fields**.

6 Click the check box for each field you want to include in the theme. Then click the top arrow button ➡ to move selected fields to the right pane. The theme includes all fields listed in the right pane.

NOTE: Double-clicking a field in the left pane also moves it to the right pane.

---

7 Select a sort method for each field listed in the right pane. To sort grid rows in ascending order, click the toggle button to select **ASC** ⎣ASC⎦. To sort in descending order, click the toggle button to select **DESC** ⎣DESC⎦.

8 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⌃ or down ⌄ button.

9 Click 💾 **Save**.
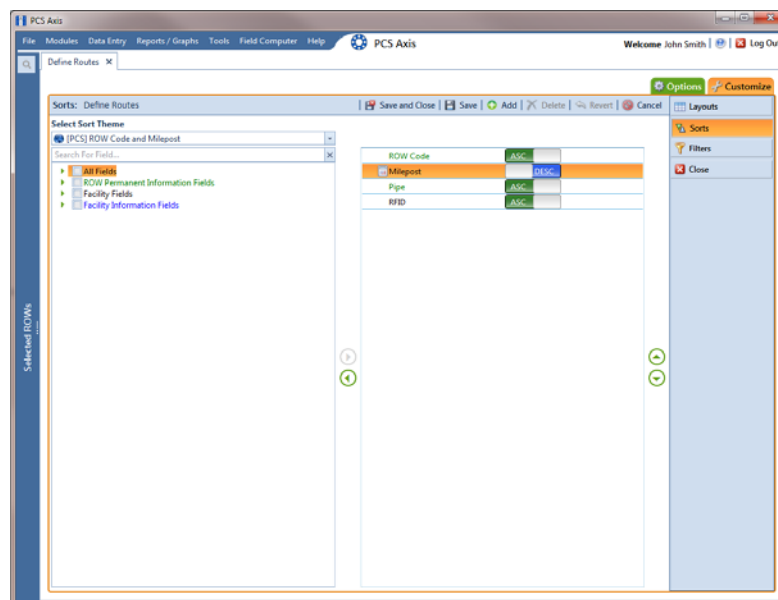
Figure 7-45. Sorts
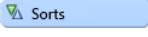
10 To apply the sort theme in the grid, follow these steps:

  a Click the **Options** tab ⚙ Options to open the options page.

b Click the down arrow in **Select Sort Theme** and select the sort theme in the selection list.

c Click ![save] **Apply** to apply changes and return to the grid in *Define Routes*.

NOTE: Clicking 🚫 **Cancel** allows you to close the *Options* page without saving changes.

Adding a Sort Theme Addition

Complete the following steps to add a sort theme addition:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click ![save] **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab ![Customize], then the **Sorts** button ![Sorts] to open the *Sorts* page (Figure 7-45, page 332).

4 Click ![add] **Add** to open the *New Sort Layout* dialog box (Figure 7-46, page 333).
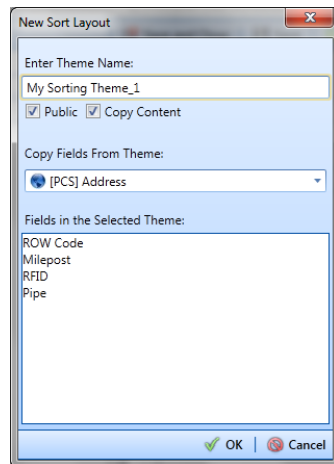
Figure 7-46. New Sort Layout

5 Type a name for the theme in the field **Enter Theme Name**.

6 Select the **Public** check box if you want the new theme available to all PCS Axis users. When a theme is not public, it is a private theme available only to the user who creates it.

NOTE: Creating public themes is a function available only to users assigned the SysAdmin user role. Private themes can be created by users assigned the User, Read Only, or SysAdmin user role. See *System Security* (page 645) for more information.

---

7 Select a layout theme with fields you want to copy to the new layout theme. Click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

8 Click ✔ **OK** to save changes and return to the *Sorts* page.

9 Verify the name of the new sort theme displays in the field *Select Sort Theme*. If not, click the down arrow in **Select Sort Theme** and select the new theme in the selection list (Figure 7-47, page 335).

10 Add and remove fields in the new theme as required. If needed, refer to *Editing a Layout Theme Addition* (page 329).

11 Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC** `ASC`. To sort in descending order, click the toggle button to select **DESC** `DESC`.

12 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

13 Click 💾 **Save** to save changes.

14 To apply the sort theme in the grid, follow these steps:

    a Click the **Options** tab `Options` to open the options page (Figure 7-47, page 335).

    b Click the down arrow in **Select Sort Theme** and select the sort theme in the selection list.

    c Click 💾 **Apply** to apply changes and return to the grid in *Define Routes*.

NOTE: Clicking 🚫 **Cancel** allows you to close the *Options* page without saving changes.

Figure 7-47. Options

Editing a Sort Theme Addition

The following procedure explains how to perform the following tasks to edit a sort theme addition:

- add or remove one or more sort fields

- revert a sort theme addition

- delete a sort theme addition

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click ![Save icon] **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab ![Customize button], then the **Sorts** button ![Sorts button] to open the *Sorts* page (Figure 7-48, page 336).

4 Click the down arrow in **Select Sort Theme** and select a sort theme addition.

5 To add fields and select a sort order:

a Click the toggle arrow ![toggle arrow] for a field category in the left pane to view a list of fields available for selection, such as ![toggle arrow] **All Fields**.

b Click the check box for each field you want to include in the theme. Then click the top arrow button ➡ to move selected fields to the right pane. The theme includes all fields listed in the right pane.

NOTE: Double-clicking a field in the left pane also moves it to the right pane.

---

c Select a sorting method for each field listed in the right pane. To sort grid rows in ascending order, click the toggle button to select **ASC** ASC . To sort in descending order, click the toggle button to select **DESC** DESC .

d To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

e Click 💾 **Save** to save changes.
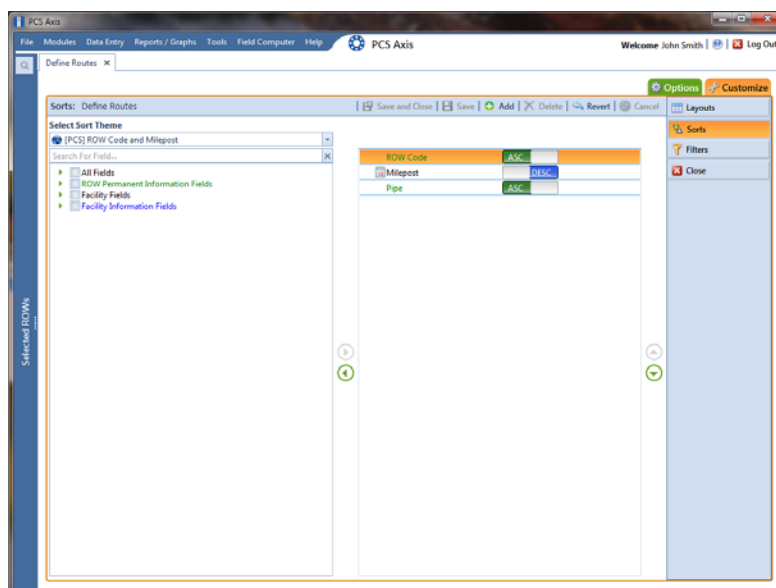
Figure 7-48. Sorts

6 To remove fields in the sort theme addition:

- Select one or more fields listed in the right pane of the window, then click the bottom arrow button ⬅. Click 💾 **Save** to save changes. The sort theme includes all fields listed in the right pane.

  To multi-select fields in the right pane, press the *Ctrl* key when selecting fields in non-consecutive order; or press the *Shift* key when selecting fields in consecutive order.

7 To revert a sort theme addition and restore settings prior to editing:

- Click 🔙 **Revert**, then click **Yes** when the *Confirm Revert* message displays.

8 To delete a sort theme addition:

a Click the down arrow in **Select Sort Theme** and select a sort theme addition.

b Click ✖ **Delete**, then click **Yes** when the *Confirm Delete* message displays.

9 To apply a sort theme addition in the grid, follow these steps:

a Click the **Options** tab ⚙ Options to open the options page (Figure 7-47, page 335).

b Click the down arrow in **Select Sort Theme** and select the sort theme in the selection list.

c Click 💾 **Apply** to apply changes and return to the grid in *Define Routes*.

**NOTE:** Clicking 🚫 **Cancel** allows you to close the *Options* page without saving changes.

Adding an AND Filter Group

An AND filter group is a named set of one or more filters that affect the data output in a route selected in *Define Routes*. Adding an AND filter group produces a subset of records that meet *all* filter conditions. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an AND filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window (Figure 7-6, page 289).

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Then click the down arrow in **Routes** and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab 🔧 Customize, then the **Filters** button 🪣 Filters to open the *Filters* page.

4 Click ⊚ **New 'And' Group** to open a filter properties group box (Figure 7-49).

5   Type a name for the filter group in the field **Filter Group Caption**.

6   Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.
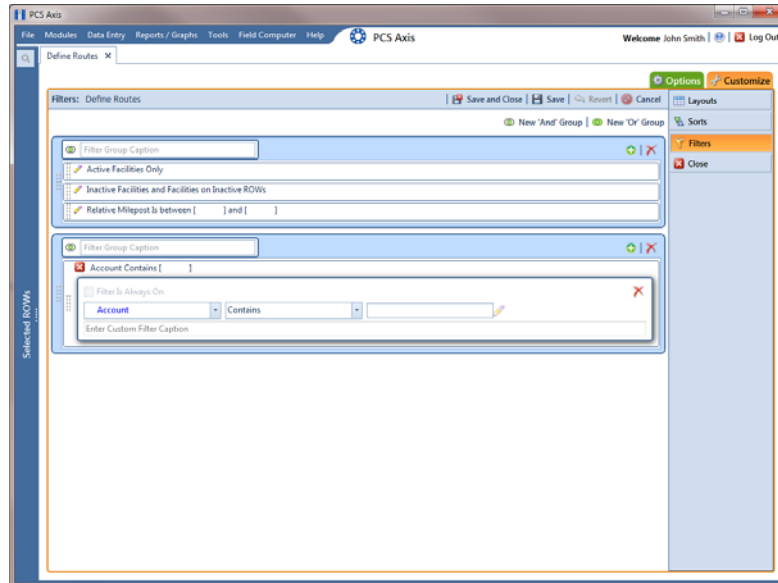
Figure 7-49. Filters

7   If you want the filter to remain on for all sessions when working with the selected route, click the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

8   Type a name for the filter in the field **Enter Custom Filter Caption**.

9   If you want to set up additional filter criteria for the filter group:

   a   Click ⊕ **Add** to open another filter properties group box. Then click the ✏ edit icon to display selection fields.

   b   Type a name for the filter in the field **Enter Custom Filter Caption**. Repeat steps 6 through 8 to set up filter criteria.

10   To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

   a   Point the mouse at the filter handle ⠿ to change the cursor to a vertical resize cursor ↕.

b Drag and drop the filter or the filter group to a new location.

> **NOTE:** PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

11 Click 💾 **Save**.

> **NOTE:** Clicking the 🖊 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

12 To apply one or more filters to the selected route and the *Define Routes* grid (Figure 7-50, page 339):

a Click the **Options** tab ⚙ **Options** to open the options page.

b Click the check box for each filter you want to apply. Then click 💾 **Apply** to save changes and return to the *Define Routes* grid.
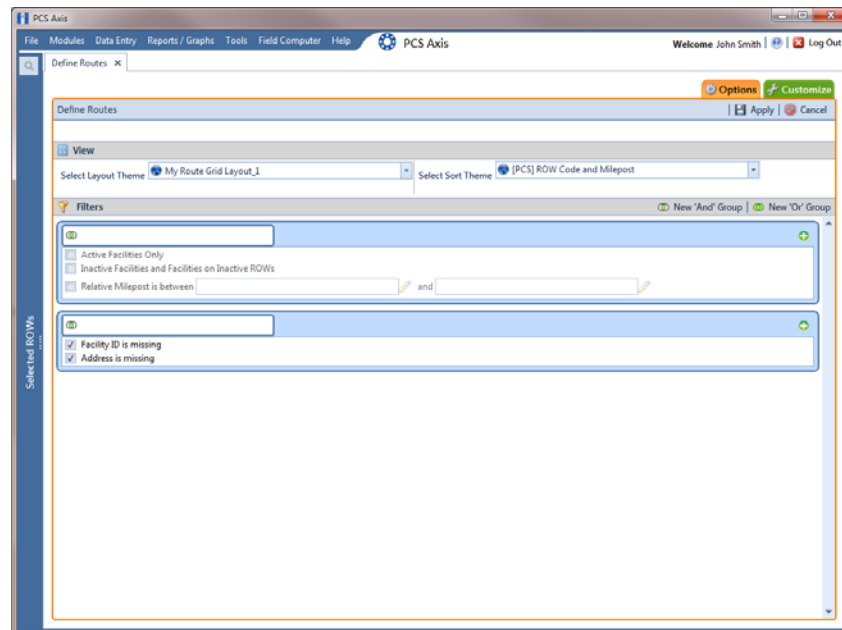
Figure 7-50. Options

Adding an OR Filter Group

An OR filter group is a named set of one or more filters that affect the data output of a route selected in *Define Routes*. Adding an OR filter group produces a subset of records that meet any filter condition. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an OR filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click **Save** to close the window (Figure 7-6, page 289).

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Then click the down arrow in **Routes** and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab , then the **Filters** button to open the *Filters* page.

4 Click **New 'Or' Group** to open a filter properties group box (Figure 7-51).

5 Type a name for the filter group in the field **Include records that match any of these conditions**.

6 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

7 If you want the filter to remain on for all sessions when working with the selected route, click the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

8 Type a name for the filter in the field **Enter Custom Filter Caption**.
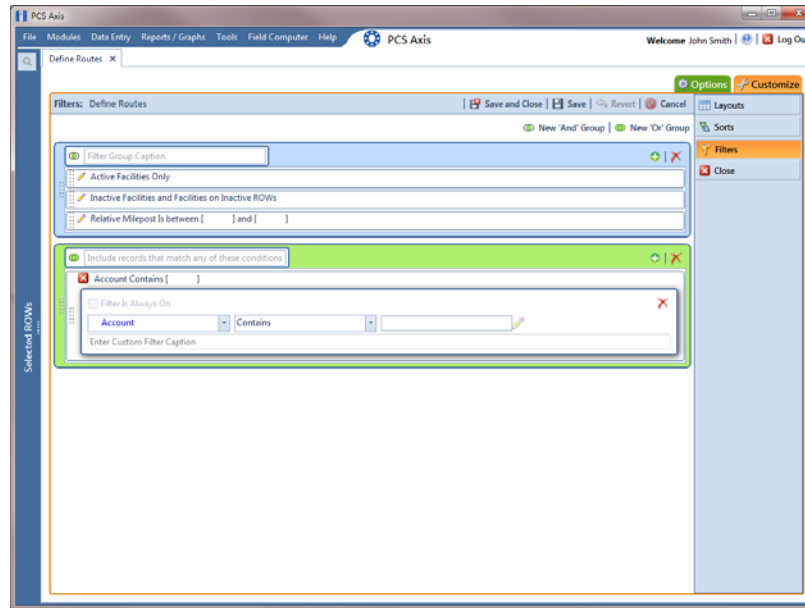
Figure 7-51. Filters

9 If you want to set up additional filter criteria for the filter group:

a Click ⊕ **Add** to open another filter properties group box. Then click the 🖉 edit icon to display filter selection fields.

b Repeat steps 5 through 8 to set up the filter group.

10 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

a Point the mouse at the filter handle ⋮⋮ to change the cursor to a vertical resize cursor ⬍.

b Drag and drop the filter or the filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

11 Click 💾 **Save**.

NOTE: Clicking the 🖉 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

12 To apply one or more filters to the selected route and the *Define Routes* grid (Figure 7-52):

a Click the **Options** tab 🔘 Options to open the options page.

b Click the check box for each filter you want to apply. Then click 💾 **Apply** to save changes and return to the *Define Routes* grid.
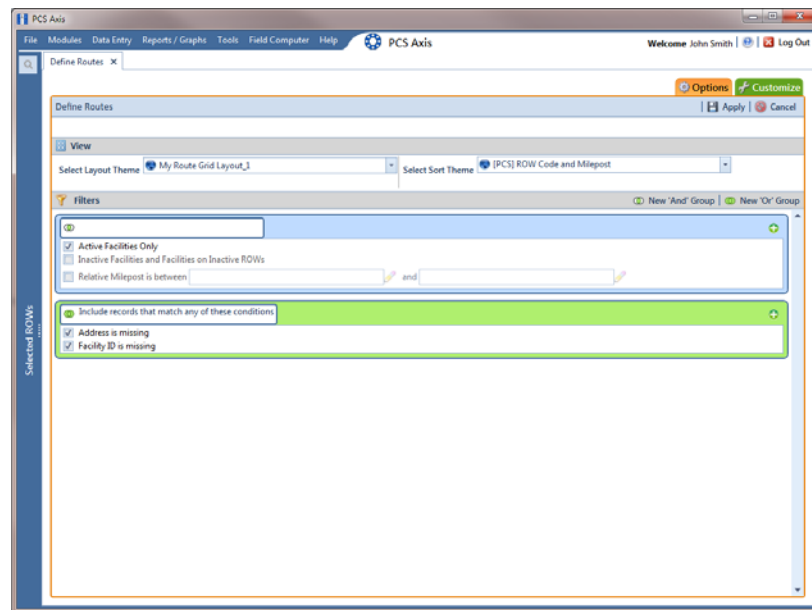
Figure 7-52. Options

Editing and Arranging Filters and Filter Groups

PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window (Figure 7-6, page 289).

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Then click the down arrow in **Routes** and select a route in the selection list (Figure 7-40, page 325).

3 Click the **Customize** tab 🔧 Customize, then the **Filters** button 🔽 Filters to open the *Filters* page.

4 Click the edit icon 🖋 to display a filter's property settings (Figure 7-53).
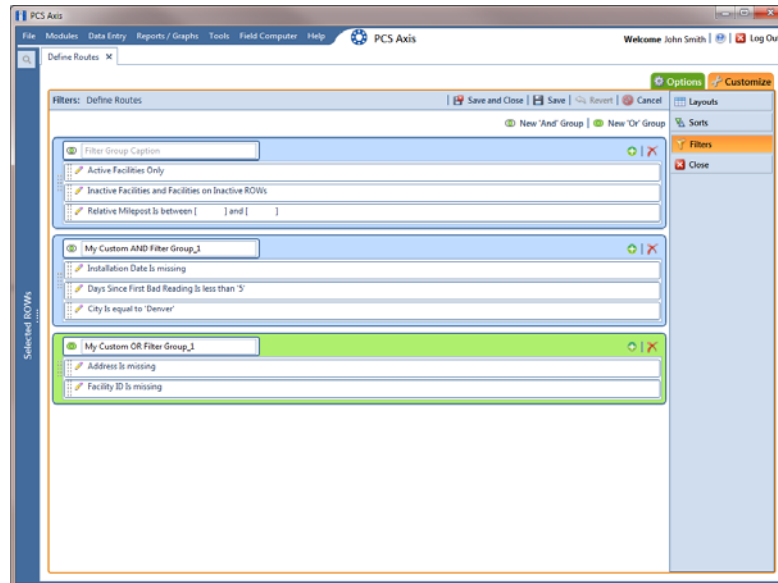
Figure 7-53. Filters

5 To delete a filter in a filter group, click the filter's ✗ delete button. Then click ✔ **OK** when the *Delete* message displays.

6 To rename a filter, type a description in the filter's name field.

7 To change filter criteria, use filter selection fields to select a PCS Axis field, operator, and one or more filter conditions.

8 To enable a filter for all sessions of the data entry grid, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

9 Click the ✗ close button to close the filter's property settings group box.

10 To move a filter to a different position in a filter group, or to move a filter group to a different position, follow these steps:

a Point the mouse at the handle ⦙⦙ of a filter or filter group to display a vertical resize cursor ⬍.

b Drag and drop the filter or filter group to a new location.

> **NOTE:** PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

11 Click 🖫 **Save**.

12 To apply filter changes to the selected route and the *Define Routes* grid:

a Click the **Options** tab 🔘 **Options** to open the options page.

b Click 🖫 **Apply** to apply filter changes and return to the *Define Routes* grid.

Previewing a Route

Information in this section describes how to view, print, and export a route with selected or available facilities.

Selected facilities are those included in the route. These facilities are also listed in the *Facilities in Route* grid of the *Define Routes* window (Figure 7-54, page 345). Available facilities are linked to the current ROW selection, but are *not* included in the route. Available facilities are listed in the *Facilities Available* grid of the *Define Routes* window.

Complete the following steps:
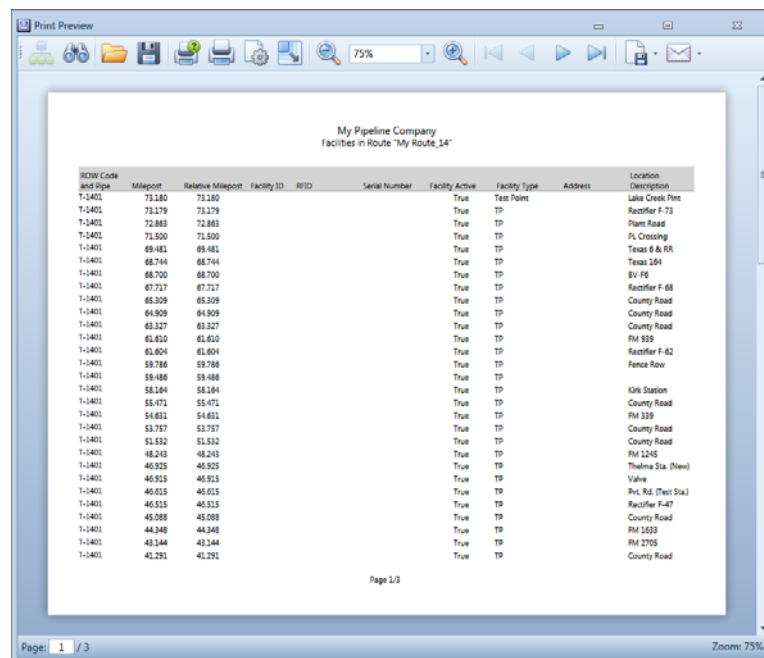
1 Select one or more pipeline segments in the *Select ROWs* window (Figure 7-6, page 289). Click 🖫 **Save** to close the window.

2 Click **Data Entry** > **Define Routes** to open the *Define Routes* window. Click the down arrow in the **Routes** field and select a route in the selection list.

3   To view selected facilities in a *Print Preview* window (Figure 7-54), click the 🖶 **Selected Facilities** button in the *Facilities in Route* grid.

To view available facilities in a Print Preview window, click the 🖶 **Available Facilities** button in the *Facilities Available* grid.

Clicking 🖶 *Selected Facilities* allows you to view a report with facilities included in the route. Clicking 🖶 *Available Facilities* opens a report with facilities listed in the *Facilities Available* grid.

4   Click the 🖶 **Print** button to open the *Print* dialog box and select a printer to print the route. Or, click the 🖶 **Quick Print** button to print the route using the default printer set up in Windows.

5   If you want to export the route, click the 🗋 **Export Document** button and select any of the following file formats: PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, IMG, and XPS.

6   Click the ✕ **Close** button to close the *Print Preview* window and return to the *Define Routes* window.

Figure 7-54. Print Preview

Using a Route in PCS Axis

You can use a route in PCS Axis to perform any of the following tasks:

- view inspection records in a grid based on a route. Refer to *Viewing Records Based on a Schedule* (page 189).

- transfer a survey to the Allegro Field PC based on a route. Refer to *Using Field Computer* (page 473).

Notes

8

Using a Schedule

This chapter explains how to work with a schedule. The information is intended for users with *SysAdmin*, *User*, and *Read Only* permissions. Topics in this chapter include those in the following list:

- *What is Scheduling?*

- *Scheduling Workflow* (page 350)

- *Setting Up Scheduling Criteria* (page 351)

- *Creating a Schedule* (page 373)

- *Working with a Schedule Definition* (page 378)

- *Using a Schedule in PCS Axis* (page 384)

What is Scheduling?

A schedule is a group of facilities to be surveyed for a specific time period, such as a month or year. The same schedule can include multiple facility types as well as facilities requiring bi-monthly, annual, and multi-year inspections, if those inspections are due in the same year. You can set up some schedules to include every facility that may be due for inspection and others to include one type of facility or survey period. PCS Axis dynamically generates a schedule with the most current information.

A schedule is different from a route, which assigns a specific order to facility inspections. A schedule is a list of facilities that are due to be inspected. A schedule is always ordered by due date and then as an option, sorted by facility ID, address, or route order. If you plan to create a schedule in route order, routes must be defined first (*Data Entry > Define Routes*).

A valuable feature of scheduling is the ability to transfer a survey based on a schedule to the Allegro Field PC. Once the survey is complete, the PCS Axis database is easily updated by transferring inspection data from the Allegro Field PC to PCS Axis.

Scheduling Workflow

The process for working with a schedule includes the following tasks (Figure 8-1):

- Set up scheduling properties in *Edit Schedule Settings* (*Data Entry > Edit Schedule Settings*). Scheduling properties define the parameters PCS Axis uses to calculate facility inspection due dates.

- Create a schedule definition with one or more schedule types in *Define Schedules* (*Data Entry > Define Schedules*). A schedule type identifies which facility types to include in the schedule, and as an option, to include all facility types on a ROW that are due for an inspection.

- Use a schedule to view facility records in a data grid based on a schedule; transfer a survey based on a schedule to the Allegro Field PC; and view and print a data collection form based on a schedule.
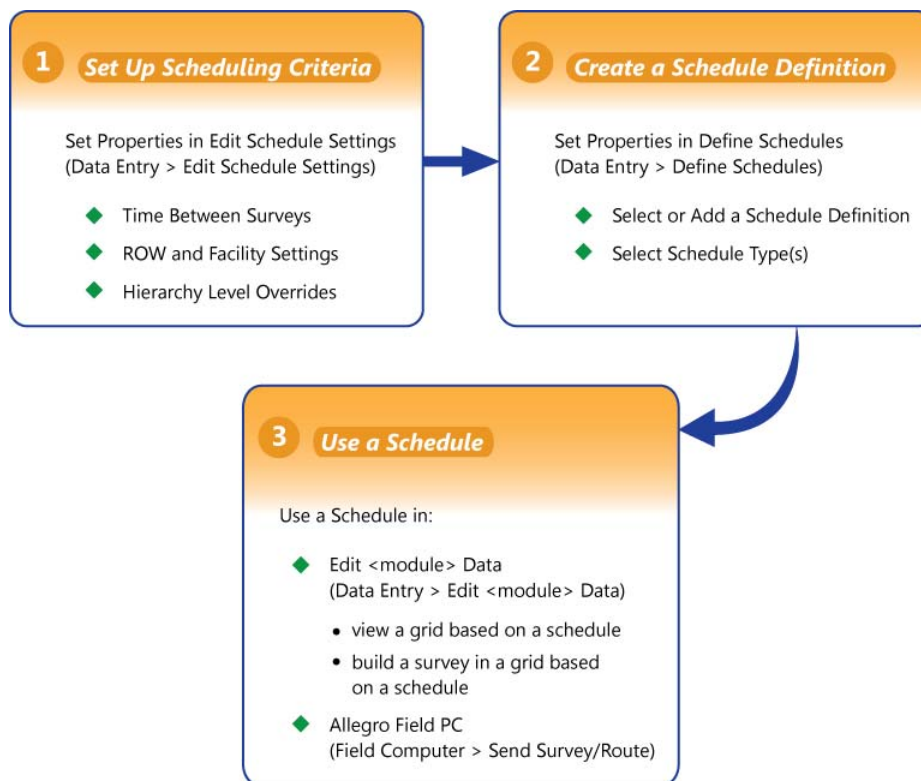
Figure 8-1. Scheduling Workflow

Setting Up Scheduling Criteria

Setting up scheduling criteria begins with setting properties in the *Time Between Survey Settings* tab of *Edit Schedule Settings*. Settings apply system wide but can be overridden based on your company's survey policy. You can set up scheduling overrides by facility type, at the hierarchy level, or at the facility level.

Topics in this section explain how to set up scheduling properties using the following three tabs in *Edit Schedule Settings*:

- *Time Between Survey Settings*

- *Schedule Type Settings* (page 357)

- *Hierarchy Level Overrides* (page 368)

NOTE: Certain conventions are used in *Edit Schedule Settings* to indicate whether or not a scheduling property is set up with a baseline setting or an override. Bold text indicates an override. A setting inside parentheses indicates a baseline setting. Those with N/A (not applicable) indicate the setting does not apply to the scheduling property.

Time Between Survey Settings

Time Between Survey Settings allows you to set up scheduling properties for a survey, such as an annual, periodic, 5 year, or 10 year survey. Setting up survey scheduling properties includes identifying the survey start month and year; grace period; delinquent time period; and the number of inspections required in a calendar year.

PCS Axis provides baseline settings based on government compliance regulations and industry standards. Baseline settings can be changed so that they match your company's survey policy.

To set up survey scheduling properties, follow these steps:

1   Click the **Select ROWs** button 🔍 to open the *Select ROWs* window (Figure 8-2, page 352). Select one or more pipeline segments by clicking the check box for each pipeline segment. Click 💾 **Save** to close the *Select ROWs* window.

NOTE: A check mark inside a check box indicates a selection. To clear a selection, click the check box again to remove the check mark. A shaded check box indicates selection of some, not all, child folders, ROWs, and pipelines.
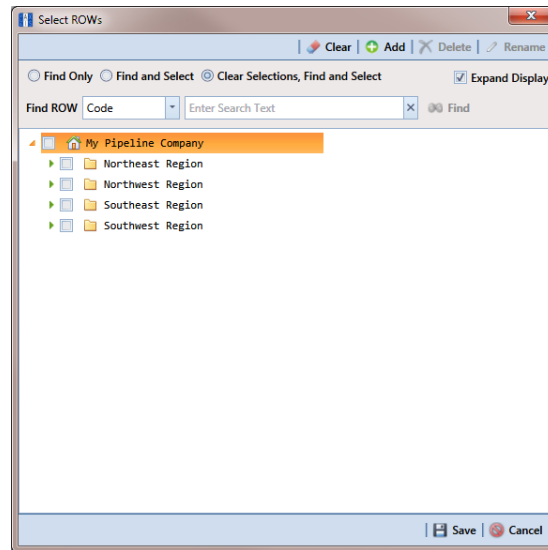
Figure 8-2. Select ROWs

2   Click **Data Entry** > **Edit Schedule Settings** > **Time Between Survey Settings** tab (Figure 8-3).

Figure 8-3. Time Between Survey Settings

3 Refer to the following table (Table 8-1, page 353) for a description of survey property settings and how to set up each of these.

Table 8-1. Setting Up Time Between Survey Settings

Property Name	Property Description
Time Between Survey	A list of surveys indicating the number of months or years between inspections. These fields cannot be changed. An arrow ▶ or edit icon displays beside the survey indicating a selection.
Target Month	*Target Month* is only used when *Targets* is selected as the scheduling method. Otherwise, property settings are ignored and do not need to be set up. *Target Month* refers to the first survey month. Options in the selection list are based on the *Time Between Survey* value. For example, if *Time Between Surveys* is 2 months and the *Target Month* (first survey month) is January, surveys are set at 2 month intervals beginning in January. The next survey is due in March, the next in May, and so on. To select a target month: **1** For a survey listed in *Time Between Surveys*, click the *Target Month* field to display a drop down arrow. **2** Click the down arrow and select a target month in the selection list.

Table 8-1. Setting Up Time Between Survey Settings (continued)

Property Name	Property Description
Target Year	*Target Year* is only used when *Targets* is selected as the scheduling method. Otherwise, property settings are ignored and do not need to be set up.
	Target Year is the year within the survey period when you want the first survey to take place. This field is only used for facilities with more than 12 months between surveys. PCS Axis calculates *Target Year* based on the current year and values in the fields *Time Between Surveys* and *Multi-Year Survey Start*.
	The target year selection list includes a list of valid survey years with corresponding target year dates.
	To select a target year:
	1 For a survey listed in *Time Between Surveys*, click the *Target Year* field to display a drop down arrow.
	2 Click the down arrow and select a target survey year.
	If an appropriate survey year is not listed, type a different year in the field *Multi-Year Survey Start* to update items in the selection list.
Grace Period, Grace Period Unit	A period of time in days or months an inspection can be late without incurring a compliance violation.
	To set a grace period:
	1 Type a value in the *Grace Period* field.
	2 Select the *Grace Period Unit* field. Click the down arrow and select either *Days* or *Months* in the selection list.

Table 8-1. Setting Up Time Between Survey Settings (continued)

Property Name	Property Description
Early Survey Limit Days	*Early Survey Limit Days* is only used when *Targets* is selected as the scheduling method. When the selected scheduling method is *Last Survey* or *X years / Y%*, PCS Axis displays *N/A* (not applicable) indicating *Early Survey Limit Days* does not apply. *Early Survey Limit Days* refers to how early an inspection can occur before the actual due date and still count as an inspection for that survey period. To set the number of days an inspection can occur before the actual due date: • Type a value in the field *Early Survey Limit Days*.
Include Delinquent Within Days	If a facility inspection will become delinquent within a number of days, include the facility in the schedule with those due for inspection. For example, if a facility inspection is delinquent in 5 days, include that facility in the schedule with others due for inspection. To set a delinquent time period in days: • Type a value in the field *Include Delinquent Within Days*.
Required Inspections Per Calendar Year	Number of required inspections per calendar year. To set the number of required inspections: • Type a value in the field *Required Inspections Per Calendar Year*.

Table 8-1. Setting Up Time Between Survey Settings (continued)
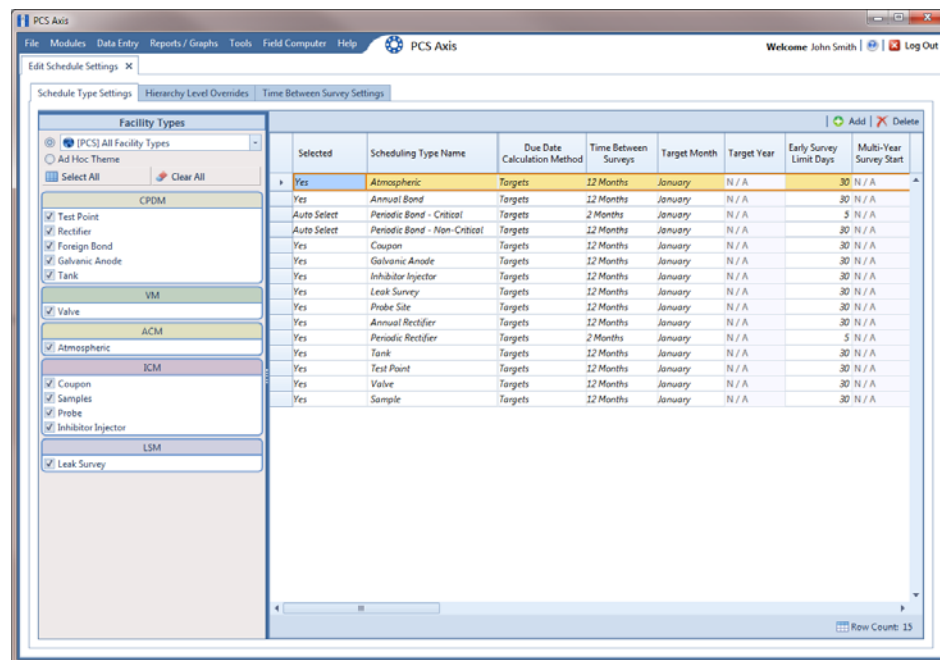
Property Name	Property Description
Multi-Year Survey Start	Refers to the year a multi-year survey starts (starting point). PCS Axis uses the starting year to calculate future survey dates available for selection in the *Target Year* selection list.
	To set a starting year for a multi-year survey:
	• Type a year in the field *Multi-Year Survey Start*.
Minimum Percent Scheduled	Refers to a minimum percentage of facilities that must be inspected. This setting works in conjunction with the due date calculation method *X years/Y%* selected in the *Schedule Type Settings* tab.
	To set a minimum percentage of facilities that must be inspected:
	• Type a value in the field *Minimum Percent Scheduled*. The field supports decimal formatting, such as 30.75.

Schedule Type Settings

Scheduling properties set up in *Schedule Type Settings* apply at the facility type level. Some scheduling properties inherit settings from those previously set up in *Time Between Survey Settings*. Inherited settings changed at the facility type level override and have precedent over those in *Time Between Survey Settings*.

To set up scheduling properties at the facility type level, follow these steps:

1   Click the **Select ROWs** button ![search icon] to open the *Select ROWs* window. Select one or more pipeline segments by clicking the check box for each pipeline segment (Figure 8-2, page 352). Click ![save icon] **Save** to close the *Select ROWs* window.

2   Click **Data Entry** > **Edit Schedule Settings** > **Schedule Type Settings** tab (Figure 8-4).

Figure 8-4. Schedule Type Settings

3 Select the facility type you want to work with using one of the following methods described in step "a" or "b":

a To select a facility type theme, click the themes option button and then click the down arrow and select a theme in list, such as *[PCS] Rectifier Survey* (Figure 8-5).

Facility Type Theme Selection List
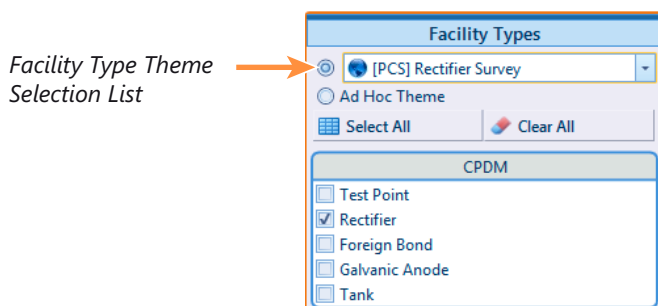
Figure 8-5. Facility Type Theme Option

b To select multiple facility types, click the **Ad Hoc Theme** option and then click the check box for one or more facility types, such as *Test Point*, *Rectifier*, and *Foreign Bond* (Figure 8-6).

NOTE: An *Ad Hoc Theme* only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.

Ad Hoc Theme Option

Facility Type Selection(s)
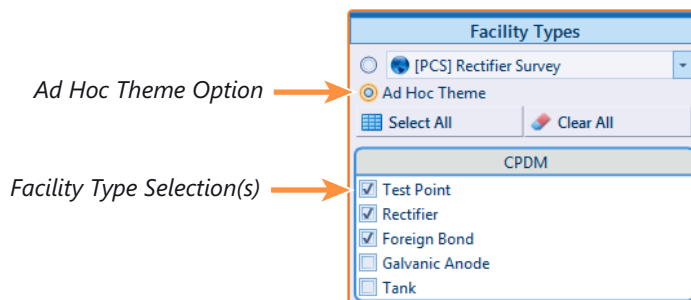
Figure 8-6. Ad Hoc Theme Option

4 Refer to the following table (Table 8-2, page 359) for a description of facility type scheduling properties and how to set up each of these.

IMPORTANT: Certain property names in the following table include an asterisk (*****). The asterisk identifies scheduling properties you can set at the facility type level that will override and take precedent over those in *Time Between Survey Settings*.

Table 8-2. Schedule Type Settings

Property Name	Property Description

Selected	Include or exclude schedule settings at the facility type level when generating a schedule with facilities due for inspection.
	
	To include or exclude schedule settings:
	
	1 Click **Selected** to display a drop down arrow.
	
	2 Click the drop down arrow and select one of the following options in the selection list:
	
	   • **No**: Excludes schedule settings when generating a schedule.
	
	   • **Yes**: Includes schedule settings when generating a schedule.
	
	   • **Auto Select**: If an *Auto Select Expression* has previously been created, select to include the expression with other schedule settings when generating a schedule.
	
	   For information about how to create an expression, see *Auto Select Expression* (page 361).

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
Scheduling Type Name	A named set of schedule settings for a facility type, such as *Periodic Rectifier* and *Annual Rectifier*. To add a new scheduling type: **1** Select a **Facility Types** theme or set up an **Ad Hoc Theme** with a facility type you want to add a new scheduling type. **2** Click **Add** to open the *Add Schedule Type* dialog box. **3** Type a name for the new scheduling type in the field **Scheduling Type Name**. **4** Set up schedule settings as required.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
Auto Select Expression	A database query set up for a scheduling type that defines the criteria for including specific facilities in a survey schedule. The expression is a combination of an operator, PCS Axis field, condition, and user-selected criteria. To create an expression for a scheduling type: **1** Click **Create Expression** to display an ellipsis button (**...**). Click the button to open the *Auto Select Expression* dialog box. **2** Choose an expression operator by selecting either **New 'And' Group** or **New 'Or' Group**. **3** Type a name for the expression and then click the add button ⊕. **3** Set up expression fields in the following manner: • Click the down arrow and select a PCS Axis field. • Click the down arrow and select a condition, such as *Is equal to* or *Is missing*. • Type criteria in the last expression field if the field is present. This field is present based on selections in the previous two expression fields. **4** Click **Save**.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
Scheduling Priority	Facilities due for inspection are scheduled for survey at the facility type level based on the priority level of the scheduling type. Priority level is any value from 1 to 99 with 1 being the highest priority. To set a priority level at the facility type level for a scheduling type: 1 Verify **Yes** is set for the scheduling property *Only Highest Priority Due Is Scheduled*. 2 Type a value for **Scheduling Priority** using any number from 1 to 99. NOTE: A priority level set at the facility type level can be overridden at the ROW level in *Hierarchy Level Overrides*.
Due Date Calculation Method	Facilities due for inspection are scheduled for survey at the facility type level based on the due date calculation method of the scheduling type. To set a due date calculation method for a scheduling type: 1 Click **Due Date Calculation Method** to display a drop down arrow. 2 Select one of the following options in the selection list: • **Targets**: Facilities due for inspection are scheduled for survey based on the *Last Inspection Date*, *Target Month* and *Target Year*. • **Last Survey**: Facilities due for inspection are scheduled for survey based on the *Last Inspection Date* and setting for the scheduling property *Time Between Surveys*. • **X years/Y%**: Facilities due for inspection are scheduled for survey based on the *Last Inspection Date* and settings for the scheduling properties *Time Between Surveys*, *Multi-Year Survey Start*, and *Minimum Percent Scheduled*.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description

Only Highest Priority Due Is Scheduled	If the scheduling type is set up with a *Scheduling Priority* level, include only those facilities with the highest priority level that are due for inspection in the survey schedule.
	
	Complete the following steps:
	
	1 For a scheduling type listed in *Scheduling Type Name*, click the field **Only Highest Priority Due Is Scheduled** to display a drop down arrow.
	
	2 Click the down arrow and select one of the following options in the selection list:
	
	  • **Yes**: Only those facilities due for inspection with the highest priority level are scheduled for survey.
	
	  • **No**: Any facility due for inspection is scheduled for survey.

Percent Needed to Complete Survey	A value from 0 to 100 indicating the percentage of facilities that must be surveyed before the survey (annual or multi-year) is considered complete. To set a percentage: • Type a value in the field **Percent Needed To Complete Survey** for a scheduling type listed in *Scheduling Type Name*.
*Time Between Surveys	Number of months or years between inspections. (See note about overrides in step 4 on page 359.) To set the time between surveys: **1** For a scheduling type listed in *Scheduling Type Name*, click the field **Time Between Surveys** to display a drop down arrow. **2** Click the down arrow and select the number of months or years in the selection list.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
*Target Month	Used only when *Targets* is selected as the scheduling method. Refers to the first survey month. Options in the selection list are based on the *Time Between Survey* value. (See note about overrides in step 4 on page 359.)
	As an example, if *Time Between Surveys* is 2 months and the *Target Month* (first survey month) is January, surveys are set at 2 month intervals beginning in January. The next survey is due in March, the next in May, and so on.
	To set the target month:
	1 For a scheduling type listed in *Scheduling Type Name*, click the field **Target Month** to display a drop down arrow.
	2 Click the down arrow and select a month in the selection list.
*Target Year	Used only when *Targets* is selected as the scheduling method. Refers to the first survey year when *Time Between Surveys* is more than 12 months. (See note about overrides in step 4 on page 359.)
	To set the target year:
	1 For a scheduling type listed in *Scheduling Type Name*, click the field **Target Year** to display a drop down arrow.
	2 Click the down arrow and select a year in the selection list.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
*Grace Period / *Grace Period Unit	Refers to a period of time in days or months an inspection can be late without incurring a compliance violation. (See note about overrides in step 4 on page 359.) To set a grace period for a scheduling type listed in *Scheduling Type Name*: **1** Type a value in the *Grace Period* field. **2** Click the **Grace Period Unit** field to display a drop down arrow. Click the drop down arrow and select either **Days** or **Months** in the selection list.
*Early Survey Limit Days	Refers to how early an inspection can occur before the actual due date and still count as an inspection for the survey period. (See note about overrides in step 4 on page 359.) To set an early survey limit for a scheduling type listed in *Scheduling Type Name*: • Type the number of days in the field *Early Survey Limit Days*.
*Include Delinquent Within Days	If an inspection will become delinquent within a number of days, include the facility in the schedule with facilities due for inspection. (See note about overrides in step 4 on page 359.) To set a delinquent time period in days for a scheduling type listed in Scheduling Type Name: • Type the number of days in the field *Include Delinquent Within Days*.
*Required Inspections Per Calendar Year	Number of required inspections per calendar year. (See note about overrides in step 4 on page 359.) To set the number of required inspections for a scheduling type listed in *Scheduling Type Name*: • Type a value in the field *Required Inspections Per Calendar Year*.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
*Multi-Year Survey Start	Refers to the year a multi-year survey starts. PCS Axis uses the starting year to calculate future survey dates available for selection in the *Target Year* selection list. (See note about overrides in step 4 on page 359.) To set the starting year of a multi-year survey for a scheduling type listed in *Scheduling Type Name*: • Type a year in the field *Multi-Year Survey Start*.
*Minimum Percent Scheduled	Refers to a minimum percentage of facilities that must be inspected in a multi-year survey. This setting works in conjunction with the due date calculation method *X years/Y%*. (See note about overrides in step 4 on page 359.) To set a minimum percentage of facilities that must be inspected for a scheduling type listed in *Scheduling Type Name*: • Type a value in the field *Minimum Percent Scheduled*. The field supports decimal formatting, such as 30.75.
*Survey Season Start Month	Refers to the starting month in the survey season for a multi-year survey. (See note about overrides in step 4 on page 359.) To set the starting month in the survey season for a scheduling type listed in *Scheduling Type Name*: **1** Click the field Survey Season Start Month to display a drop down arrow. **2** Click the drop down arrow and select a starting month in the selection list.

Table 8-2. Schedule Type Settings (continued)

Property Name	Property Description
*Survey Season End Month	Refers to the ending month in the survey season for a multi-year survey. (See note about overrides in step 4 on page 359.) To set the ending month in the survey season for a scheduling type listed in *Scheduling Type Name*: **1** Click the field Survey Season Start Month to display a drop down arrow. **2** Click the drop down arrow and select a starting month in the selection list.
Level Work Load	Refers to PCS Axis balancing the work load for facilities that are due for inspection in a multi-year survey. The property setting applies at the facility type level. To enable this scheduling option: • Click the check box **Level Work Load** for a scheduling type listed in *Scheduling Type Name*. To disable the option, clear the check mark by clicking the check box again.
Hide	Refers to hiding a scheduling type in the *Facility Level Override* mini-grid of the data entry grid. Hiding the mini-grid prevents scheduling changes at the facility level when working with the data entry grid based on a schedule. To enable this scheduling option: • Click the **Hide** check box for a scheduling type listed in *Scheduling Type Name*. To disable the option, clear the check mark by clicking the check box again.

Hierarchy Level Overrides

Scheduling properties set up in *Hierarchy Level Overrides* apply at the ROW (pipeline) level. Some scheduling properties inherit settings from those previously set up in *Time Between Survey Settings* and *ROW and Facility Settings*. Inherited settings changed at the ROW level override and have precedent over those in the *Time Between Survey Settings* and *ROW and Facility Settings*.

To set up scheduling properties at the ROW level, follow these steps:

1   Click the **Select ROWs** button to open the *Select ROWs* window. Select one or more pipeline segments by clicking the check box for each pipeline segment (Figure 8-2, page 352). Click **Save** to close the *Select ROWs* window.

2   Click **Data Entry** > **Edit Schedule Settings** > **Hierarchy Level Overrides** tab (Figure 8-7).
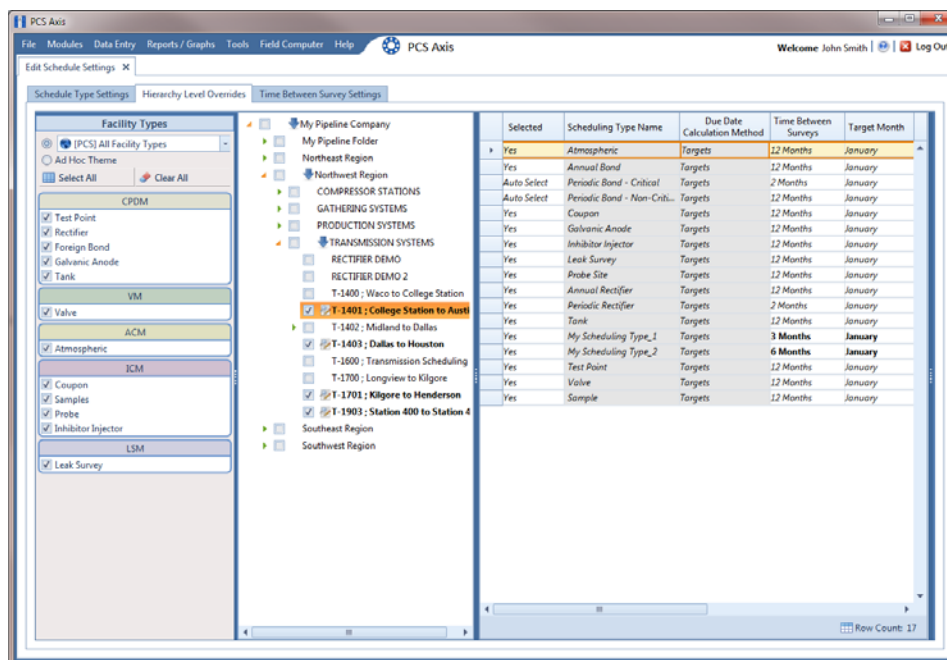
Figure 8-7. Hierarchy Level Overrides

3 Choose the facility type(s) you want to work with by selecting a *facility type theme* or setting up an *Ad Hoc Theme* in *Facility Types*. See Figure 8-5 or Figure 8-6 on page 358.

4 Select the ROW(s) you want to work with by clicking the check box for each ROW in the middle pane of the *Hierarchy Level Overrides* window (Figure 8-8).
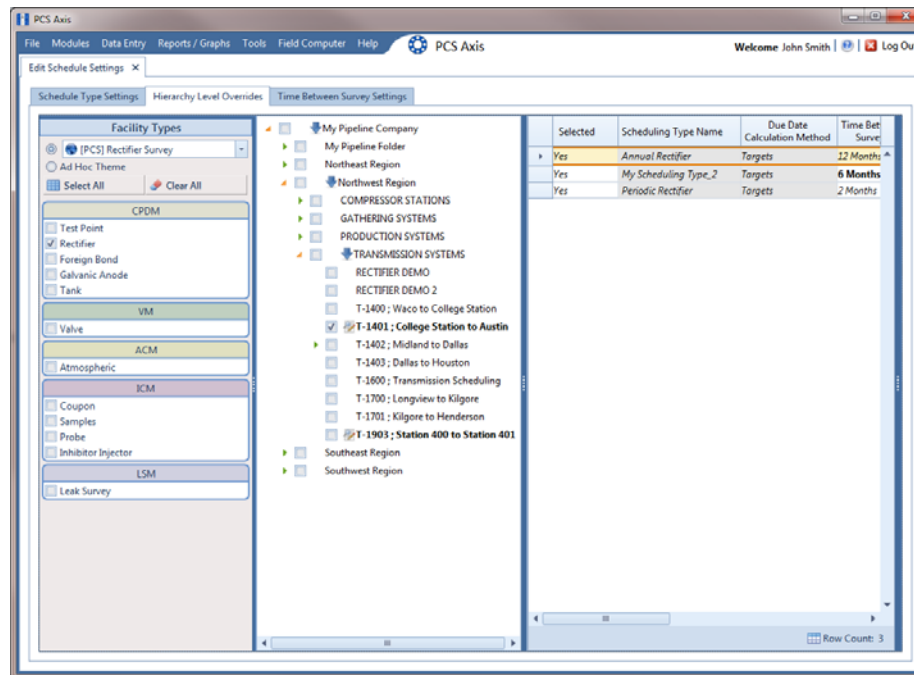
Figure 8-8. ROW Selection(s)

5 Refer to the following table (Table 8-3, page 370) for a description of scheduling properties that apply at the ROW level and how to set up each of these.

IMPORTANT: Certain property names in the following table include an asterisk (*****). The asterisk identifies scheduling properties you can set at the ROW level that will override and take precedent over those in *ROW and Facility Settings* and *Time Between Survey Setting*

Table 8-3. Hierarchy Level Overrides

Property Name	Property Description
Selected	Include or exclude schedule settings at the ROW level when generating a schedule with facilities due for inspection.
	To include or exclude schedule settings:
	1 Click **Selected** to display a drop down arrow.
	2 Click the drop down arrow and select one of the following options in the selection list:
	• **No**: Excludes schedule settings when generating a schedule.
	• **Yes**: Includes schedule settings when generating a schedule.
	• **Auto Select**: If an *Auto Select Expression* has previously been created in the *Schedule Type Settings* tab, select to include the expression with other schedule settings when generating a schedule.
	For information about how to create an expression, see *Auto Select Expression* (page 361).
Scheduling Type Name	A named set of schedule settings for a facility type created in the *Schedule Type Settings* tab.
	For information about how to create a *Scheduling Type Name*, see page 360.
Due Date Calculation Method	Shows the property setting inherited from *Due Date Calculation Method* in the *Schedule Type Settings* tab.

Table 8-3. Hierarchy Level Overrides (continued)

Property Name	Property Description
*Time Between Surveys	Number of months or years between inspections. (See note about overrides in step 5 on page 369.) To set the time between surveys: **1** For a scheduling type listed in *Scheduling Type Name*, click the field **Time Between Surveys** to display a drop down arrow. **2** Click the down arrow and select the number of months or years in the selection list.
*Target Month	Refers to the first survey month. Options in the selection list are based on the *Time Between Survey* value. (See note about overrides in step 5 on page 369.) As an example, if *Time Between Surveys* is 2 months and the *Target Month* (first survey month) is January, surveys are set at 2 month intervals beginning in January. The next survey is due in March, the next in May, and so on. To set the target month: **1** For a scheduling type listed in *Scheduling Type Name*, click the field **Target Month** to display a drop down arrow. **2** Click the down arrow and select a month in the selection list.
*Target Year	Refers to the first survey year when *Time Between Surveys* is more than 12 months. (See note about overrides in step 5 on page 369.) To set the target year: **1** For a scheduling type listed in *Scheduling Type Name*, click the field **Target Year** to display a drop down arrow. **2** Click the down arrow and select a year in the selection list.

Table 8-3. Hierarchy Level Overrides (continued)

Property Name	Property Description
*Grace Period / *Grace Period Unit	Refers to a period of time in days or months an inspection can be late without incurring a compliance violation. (See note about overrides in step 5 on page 369.)
	To set a grace period for a scheduling type listed in *Scheduling Type Name*:
	1 Type a value in the *Grace Period* field.
	2 Click the **Grace Period Unit** field to display a drop down arrow. Click the drop down arrow and select either **Days** or **Months** in the selection list.
*Early Survey Limit Days	Refers to how early an inspection can occur before the actual due date and still count as an inspection for the survey period. (See note about overrides in step 5 on page 369.)
	To set an early survey limit for a scheduling type listed in *Scheduling Type Name*:
	• Type the number of days in the field *Early Survey Limit Days*.

Creating a Schedule

Information in this section explains how to create a schedule based on a scheduling method. Scheduling methods include *Targets*, *Last Survey*, and *X years/Y%*. The scheduling method in conjunction with other schedule settings determines when facilities are due for inspection.

Topics in this section include those in the following list:

- *Creating a Schedule Based on Targets*

- *Creating a Schedule Based on Last Survey* (page 375)

- *Creating a Schedule Based on X years/Y%* (page 376)

Creating a Schedule Based on Targets

If you want to schedule facilities for survey using a recurring time period, such as every January of each year, create a schedule based on the Targets scheduling method. With this method, facilities due for inspection are scheduled for survey based on the *Last Inspection Date*, *Target Month*, and *Target Year*.

To create a schedule based on the *Targets* scheduling method, follow these steps:

1   Select a pipeline segment in the *Select ROWs* window. Click ⊟ **Save** to close the window.

2   Click **Data Entry** > **Edit Schedule Settings** > **Time Between Survey Settings** tab.

3   Set up all related scheduling properties for a survey selected in *Time Between Surveys*. Scheduling properties marked with *N/A* (not applicable) are not required, such as *Target Year* for a survey with *Time Between Surveys* of 12 months or less. If needed, refer to Table 8-1 on page 353 for field descriptions.

NOTE: Scheduling properties set up in *Time Between Surveys* apply system wide. Settings can however be overridden at the facility type level in *ROW and Facility Settings*; at the hierarchy level in *Hierarchy Level Overrides*; and at the facility level in the *Facility Level Override* mini-grid of the *Information* grid.

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4   To select the *Targets* due date method:

a   Click the **Schedule Type Settings** tab.

    b   Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.

    c   For a scheduling type listed in *Scheduling Type Name*, click the field **Due Date Calculation Method** to display a drop down arrow. Click the arrow and select **Targets** in the selection list.

    d   Set up remaining scheduling properties as required. Scheduling properties inherit values from those in the *Time Between Survey Settings* tab and can be overridden at the facility type level as needed. Property settings marked *N/A* (not applicable) are not required. Refer to Table 8-2 on page 359 for field descriptions.

5   If you want to override one or more scheduling properties at the ROW level, complete the following steps:

    a   Click the **Hierarchy Level Overrides** tab.

    b   Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.

    c   Select the ROW(s) you want to set up a survey schedule. Select one or more ROWs (pipeline segments) listed in the middle pane of the window.

    d   For a scheduling type listed in *Scheduling Type Name*, set up scheduling properties as required. Scheduling properties inherit values from those in the *Schedule Type Settings* tab and can be overridden at the ROW level as needed. Refer to Table 8-3 on page 370 for field descriptions.

    The schedule is now set up with the *Targets* scheduling method.

Creating a Schedule Based on Last Survey

If you want to schedule facilities for survey based on the last time facilities were inspected, create a schedule based on the *Last Survey* scheduling method. With this method, facilities due for inspection are scheduled for survey based on *Last Inspection Date* and settings for the scheduling property *Time Between Surveys*.

To create a schedule based on the *Last Survey* scheduling method, follow these steps:

1 Select a pipeline segment in the *Select ROWs* window. Then click 💾 **Save** to close the window.

2 Click **Data Entry** > **Edit Schedule Settings** > **Time Between Survey Settings** tab.

3 Set up all related scheduling properties for a survey selected in *Time Between Surveys*. Scheduling properties marked with *N/A* (not applicable) are not required, such as *Target Year* for a survey with *Time Between Surveys* of 12 months or less. If needed, refer to Table 8-1 on page 353 for field descriptions.

NOTE: Scheduling properties set up in *Time Between Surveys* apply system wide. Settings can however be overridden at the facility type level in *ROW and Facility Settings*; at the hierarchy level in *Hierarchy Level Overrides*; and at the facility level in the *Facility Level Override* mini-grid of the *Information* grid.

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4 To select the *Last Survey* due date method:

a Click the **Schedule Type Settings** tab.

b Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.

c For a scheduling type listed in *Scheduling Type Name*, click the field **Due Date Calculation Method** to display a drop down arrow. Click the arrow and select **Last Survey** in the selection list.

d Set up remaining scheduling properties as required. Scheduling properties inherit values from those in the *Time Between Survey Settings* tab and can be overridden at the facility type level as needed. Property settings marked *N/A* (not applicable) are not required. Refer to Table 8-2 on page 359 for field descriptions.

5 If you want to override one or more scheduling properties at the ROW level, complete the following steps:

a Click the **Hierarchy Level Overrides** tab.

b Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.

c Select the ROW(s) you want to set up a survey schedule. Select one or more ROWs (pipeline segments) listed in the middle pane of the window.

d For a scheduling type listed in *Scheduling Type Name*, set up scheduling properties as required. Scheduling properties inherit values from those in the *Schedule Type Settings* tab and can be overridden at the ROW level as needed. Refer to Table 8-3 on page 370 for field descriptions.

The schedule is now set up with the *Last Survey* scheduling method.

Creating a Schedule Based on X years/Y%

If facilities require inspection based on a multi-year cycle, use the *X years/Y%* scheduling method. With this method, facilities due for inspection are scheduled for survey based on the *Last Inspection Date* and settings for the scheduling properties *Time Between Surveys*, *Multi-Year Survey Start*, and *Minimum Percent Scheduled*.

To create a schedule for a multi-year survey based on the *X years/Y%* method, follow these steps:

1 Select a pipeline segment in the *Select ROWs* window. Click ![Save icon] **Save** to close the window.

2 Click **Data Entry** > **Edit Schedule Settings** > **Time Between Survey Settings** tab.

3 Set up all related scheduling properties for a survey selected in *Time Between Surveys*. Scheduling properties marked with *N/A* (not applicable) are not required, such as *Required Inspections Per Calendar Year* for a survey with *Time Between Surveys* of 2 Years or more. If needed, refer to Table 8-1 on page 353 for field descriptions.

NOTE: Scheduling properties set up in *Time Between Surveys* apply system wide. Settings can however be overridden at the facility type level in *ROW and Facility Settings*; at the hierarchy level in *Hierarchy Level Overrides*; and at the facility level in the *Facility Level Override* mini-grid of the *Information* grid.

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4 To select the *X years/Y%* due date method:

a Click the **Schedule Type Settings** tab.

b Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.

c For a scheduling type listed in *Scheduling Type Name*, click the field **Due Date Calculation Method** to display a drop down arrow. Click the arrow and select **X years/Y%** in the selection list.

d Set up remaining scheduling properties as required. Scheduling properties inherit values from those in the *Time Between Survey Settings* tab and can be overridden at the facility type level as needed. Property settings marked *N/A* (not applicable) are not required. Refer to Table 8-2 on page 359 for field descriptions.

5 If you want to override one or more scheduling properties at the ROW level, complete the following steps:

a Click the **Hierarchy Level Overrides** tab.

b Select one or more facility types in the *Facility Types* pane using either an installed facility type theme or an *Ad Hoc Theme*.

c Select the ROW(s) you want to set up a survey schedule. Select one or more ROWs (pipeline segments) listed in the middle pane of the window.

d For a scheduling type listed in *Scheduling Type Name*, set up scheduling properties as required. Scheduling properties inherit values from those in the *Schedule Type Settings* tab and can be overridden at the ROW level as needed. Refer to Table 8-3 on page 370 for field descriptions.

The schedule is now set up with the *X years/Y%* scheduling method.

Working with a Schedule Definition

A schedule definition is a named set of one or more scheduling types to be included in a schedule. For example, a schedule definition can include test point, rectifier, and bond scheduling types – each with different scheduling properties set up in *Edit Schedule Settings* (page 357). A schedule definition is used when performing any of the following tasks in PCS Axis:

- viewing facilities in a data entry grid based on a schedule

- building a survey in a data entry grid based on a schedule

- transferring a survey that is based on a schedule to the Allegro Field PC

- printing a data collection form that is based on a schedule for manually recording survey data

NOTE: A scheduling type is a named set of scheduling properties for a facility type set up in *Edit Schedule Settings*. For more information, see *Schedule Type Settings* (page 357).

Two types of schedule definitions are available for use. They include *installed* and *addition* schedule definitions. An *installed* schedule definition is one that has been installed during the PCS Axis software installation. An *addition* schedule definition is one that you create.

Topics in this section explain how to work with a schedule definition and include those in the following list:

- *Editing an Installed Schedule Definition* (page 379)

- *Adding a Schedule Definition Addition* (page 382)

- *Editing a Schedule Definition Addition* (page 383)

Editing an Installed Schedule Definition

An installed schedule definition includes [PCS] in the title of the schedule definition name, such as *[PCS] Installed Schedule Definition*. The procedure in this section explains how to complete the following tasks to edit an installed schedule definition:

- add a schedule type

- remove a schedule type

- revert an installed schedule definition

To edit an installed schedule definition, follow these steps:

1   Click **Data Entry** > **Define Schedules** to open the *Define Schedules* window (Figure 8-9).

2   Click the down arrow in the **Select Schedule Definition** field and select an installed schedule definition, such as *[PCS] Installed Schedule Definition*.
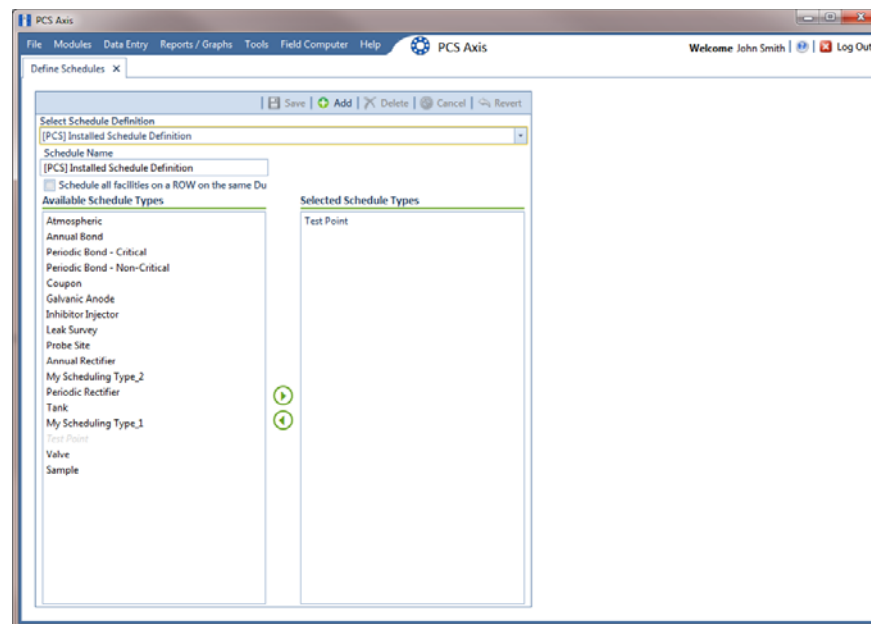
Figure 8-9. Define Schedules

3 To add one or more schedule types to an installed schedule definition:

a Select a schedule type listed in the *Available Schedule Types* pane, such as *Periodic Rectifier*. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.

b Click the top arrow button ![button] to move the schedule type(s) to the *Selected Schedule Types* pane (Figure 8-10). Click ![icon] **Save**.

NOTE: Double-clicking a schedule type in the *Available Schedule Types* pane also moves it to the *Selected Schedule Types* pane.
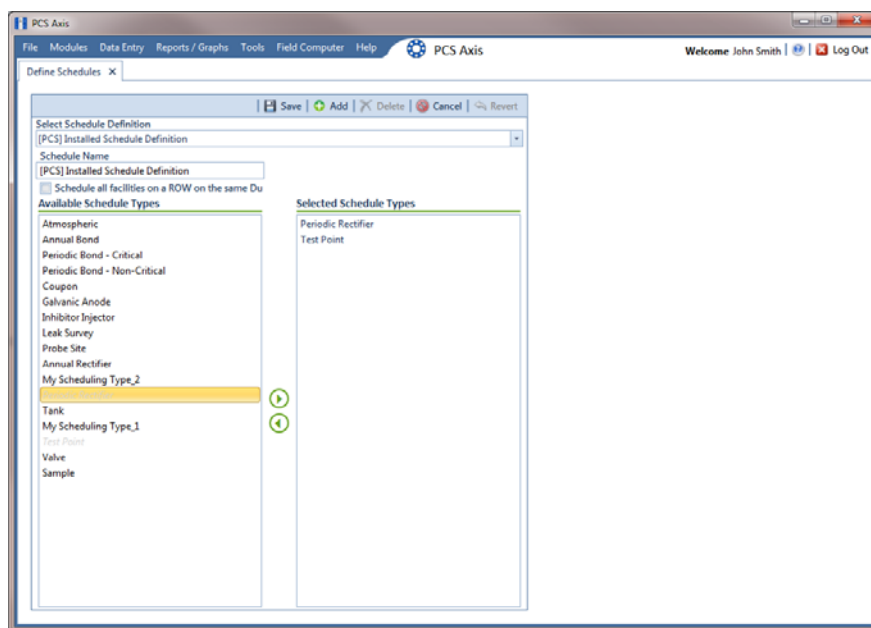
Figure 8-10. Adding a Schedule Type

4 To remove one or more schedule types from an installed schedule definition:

a Select a schedule type listed in the *Selected Schedule Types* pane (Figure 8-10). To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.

b Click the bottom arrow button ![button] to move the schedule type to the *Available Schedule Types* pane. Click ![icon] **Save**.

NOTE: Double-clicking a schedule type in the *Selected Schedule Types* pane also moves it to the *Available Schedule Types* pane.

5 After saving changes to an installed schedule definition, complete the following step to revert to installed values:

- Click **Revert** then click ✔ **Yes** when the *Revert* message displays (Figure 8-11).
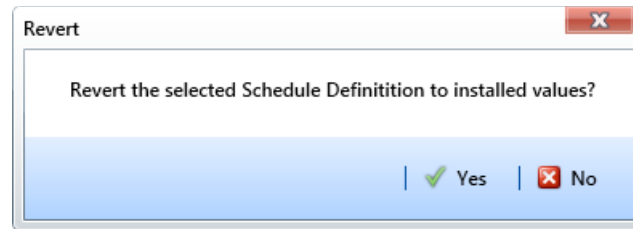
Figure 8-11. Revert Message

Adding a Schedule Definition Addition

To add a schedule definition addition, follow these steps:

1 Click **Data Entry** > **Define Schedules** to open the *Define Schedules* window (Figure 8-12).

2 Click **Add** and then type a name for the addition in the *Schedule Name* field. The field supports up to 120 characters including spaces.

3 Select a schedule type listed in the *Available Schedule Types* pane, such as *Periodic Bond-Critical*. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.

4 Click the top arrow button ⬆ to move the schedule type(s) to the *Selected Schedule Types* pane (Figure 8-12). Click 💾 **Save**. The addition is now available in the *Select Schedule Definition* selection list.

NOTE: Double-clicking a schedule type in the *Available Schedule Types* pane also moves it to the *Selected Schedule Types* pane.
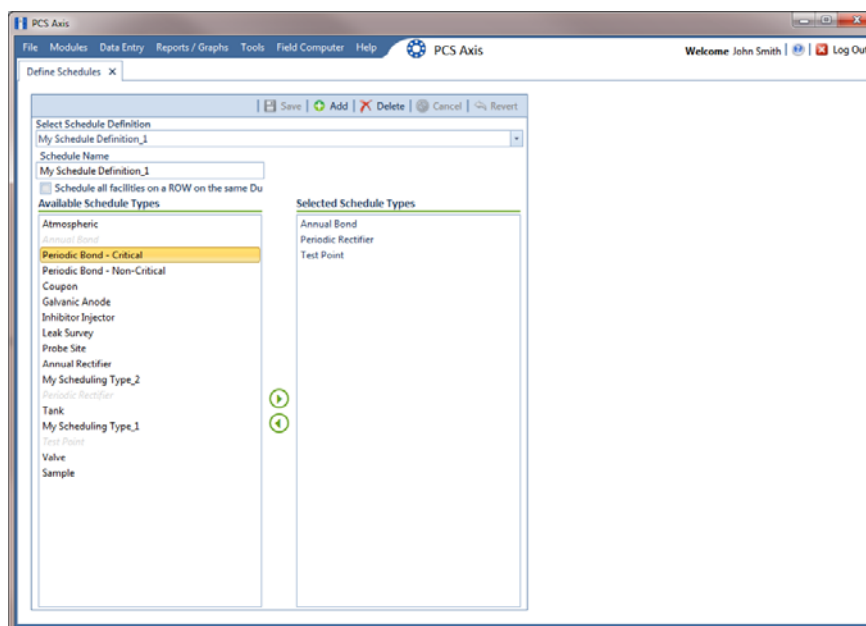
Figure 8-12. Adding a Schedule Definition Addition

Editing a Schedule Definition Addition

The following procedure explains how to delete, rename, or edit a schedule definition addition.

Complete the following steps:

1 Click **Data Entry** > **Define Schedules** to open the *Define Schedules* window (Figure 8-12, page 382).

2 Click the down arrow in the *Select Schedule Definition* field and select an addition in the selection list.

3 If you want to delete the addition, click ✖ **Delete**, then click ✔ **Yes** when the *Delete* message displays (Figure 8-13).
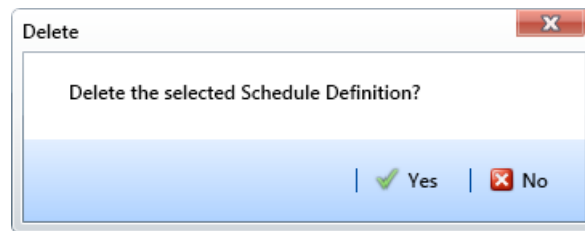
Figure 8-13. Delete Message

4 If you want to rename an addition, type a new name in the *Schedule Name* field and then click 💾 **Save**.

5 If you want to edit the addition by adding one or more schedule types, follow these steps:

    a Select a schedule type listed in the *Available Schedule Types* pane. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.

    b Click the top arrow button ▶ to move the schedule type(s) to the *Selected Schedule Types* pane, then click 💾 **Save**.

6 If you want to edit the addition by removing one or more schedule types, follow these steps:

    a Select a schedule type listed in the *Selected Schedule Types* pane. To select multiple schedule types, press the **Ctrl** key on the computer keyboard while selecting each schedule type.

    b Click the bottom arrow button ◀ to move the schedule type to the *Available Schedule Types* pane, then click 💾 **Save**.

Using a Schedule in PCS Axis

After setting up scheduling criteria in *Edit Schedule Settings* and creating a schedule definition in *Define Schedules*, you can use a schedule in any of the following ways:

- View records in a grid based on a schedule. For instructions, see *Viewing Records Based on a Schedule* (page 189).

- Build a survey in an inspection grid based on a schedule. For instructions, see *Building a Survey in the Inspection Grid* (page 202).

- Transfer a survey to the Allegro Field PC based on a schedule. For instructions, see *Using Field Computer* (page 473).

Notes

9

Using Bridge

Bridge is an optional add-on feature that allows you to transfer data between PCS Axis and an external system, such as a GIS (geographic information system) or work management system. If you have an account on American Innovations' Bullhorn® Asset Tracker (BAT™) website, you can transfer facility survey data to PCS Axis, such as rectifier, bond, or test point inspection readings.

If your company purchased the optional Bridge add-on or you plan to transfer data from BAT in PCS Axis, running Bridge for the first time requires you to enter a Bridge activation key. If you are unable to locate your Bridge activation key, contact PCS Technical services for assistance at pcstechservices@aiworldwide.com. For more information, refer to *Activating Bridge Import for Operation* (page 5).

Topics in this chapter include those in the following list:

- *Understanding the Bridge Transition File*

- *Using a Facility Key in Bridge* (page 388)

- *Adding a Bridge Definition* (page 390)

- *Viewing Bridge Job Status and Log* (page 441)

Understanding the Bridge Transition File

Bridge uses a transition file to import and export data. The import file is in a format that both Bridge and the external system can read and write. File formats supported by Bridge include those in the following list:

- Excel Spreadsheet 2007 or higher (.xlsx)

- ASCII, comma-delimited (.txt or .csv)

- Extensible Markup Language (.xml)

Using a Facility Key in Bridge

Bridge provides the option of associating a facility key in PCS Axis with an external system ID when setting up a Bridge import definition. The facility key must be unique for each facility. It is used to update mileposts, ROWs, or facility IDs for existing facilities.

A facility key is a user-defined field set up in PCS Axis. An external system ID is typically a unique identifier generated by an external system, such as a GIS or work management system. The facility key is used in place of the PCS Axis fields labeled *ROW Code* or *Milepost* when setting up the Bridge import definition. The facility key allows you to map (or link) facilities between PCS Axis and the external system.

NOTE: Bridge currently supports use of a facility key only in a Bridge import file. Future enhancements will include use of a facility key in a Bridge export file.

To add a facility key for an external system ID, follow these steps:

1 Click **Tools** > **Field and UDF Customizations** to open the *Field and UDF Customizations* window (Figure 9-1, page 389).

2 Open the folders labeled **Facility Surveys** and **Common to All Facilities** in the selection tree. Then click **ROW and Pipeline** to display related fields in the grid.

NOTE: Clicking the *Properties* bar collapses the *Properties* panel allowing you to view more of the grid. Clicking the bar again expands the panel.
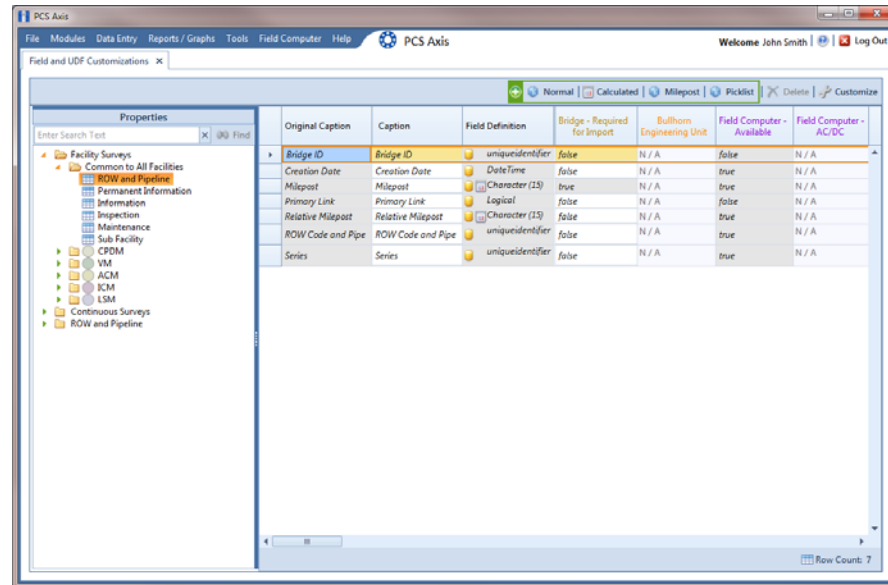
Figure 9-1. Field and UDF Customizations

3   Click 🔷 **Normal** in the toolbar to open the *Add Normal Field* dialog box
(Figure 9-2).

4   Type a unique name for the UDF in the **Caption** field. Then click 💾 **Save** to
save changes and close the dialog box.

The UDF is now ready to be used as the *Facility Key* in a Bridge import or export
definition file.
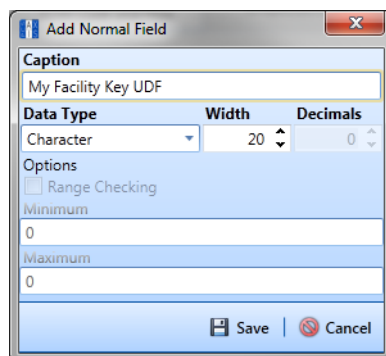
Figure 9-2. Add Normal Field

Adding a Bridge Definition

Information in this section explains how to add a Bridge import, export, import/export, and Bullhorn definition. Topics include those in the following list:

- *Adding a Bridge Import Definition*

- *Adding a Bridge Export Definition* (page 399)

- *Adding a Bridge Import/Export Definition* (page 413)

- *Adding a Bridge Bullhorn Definition* (page 428)

Adding a Bridge Import Definition

A Bridge import definition specifies the property settings and options for importing data in PCS Axis. It defines the data transfer options; location of the import file; and field mappings in PCS Axis and the import file.

To add a Bridge import definition, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the Bridge definition. Click ![save icon] **Save** to close the window (Figure 9-3).
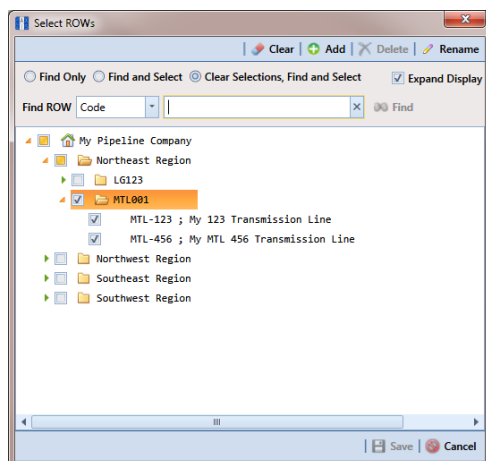
Figure 9-3. Select ROWs

2 Click **Tools** > **Bridge** to open the *Bridge* window (Figure 9-4).
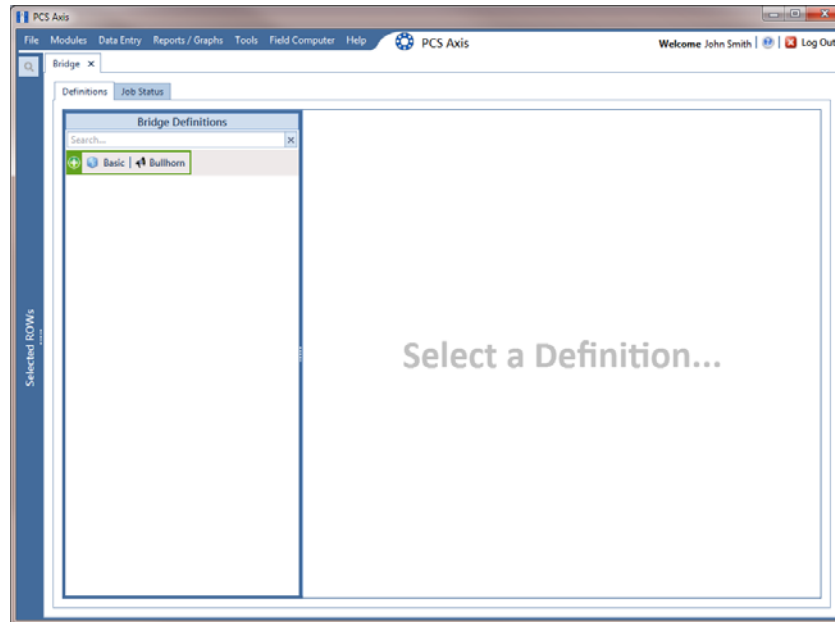
Figure 9-4. Bridge

3 Click ⬛ **Basic** to open the basic definition panel (Figure 9-5).
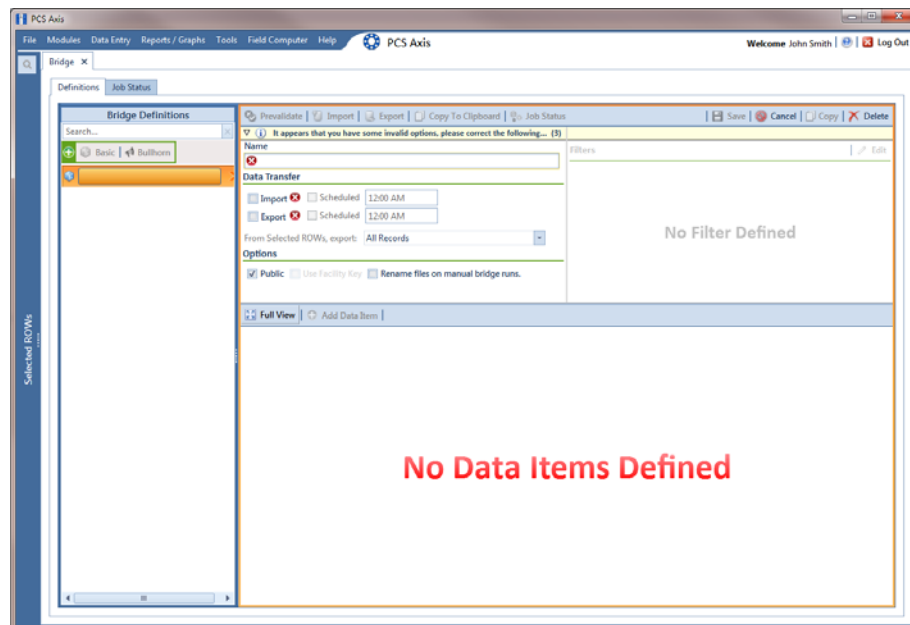
Figure 9-5. Basic Definition Panel

4 Type a unique name for the definition in the **Name** field (Figure 9-6, page 393).

NOTE: Clicking the *Bridge Definitions* bar collapses the panel allowing you to view more of the definition panel. Clicking the bar again expands the panel.

---

5 To set properties in the *Data Transfer* group box, follow these steps (Figure 9-6, page 393):

a Click the **Import** check box.

b If you want PCS Axis to automatically run the import file at a scheduled time, click the **Scheduled** check box and then type a scheduled time in the adjacent field. Enter a scheduled time using 12-hour time format to specify the hour, minute, and AM/PM setting (HH:MM AM or PM).

When the import file is not scheduled to run automatically, you can run it manually by clicking the Import button.

IMPORTANT: When scheduling a time to run *Bridge*, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running *Bridge* at the same time as other scheduled network services.

---

6 To set properties in the *Options* group box, follow these steps (Figure 9-6):

a Click the **Public** check box if you want the import definition file available for use by all PCS Axis users. When the check box is empty, the definition file is available only to the user who creates it.

b Click the check box **Use Facility Key** if you plan to map facilities to a user defined field (UDF) set up previously for an external system ID. See *Using a Facility Key in Bridge* (page 388) for more information if needed.

When facilities are not mapped to a facility key, they are mapped to the following required fields: *ROW Code*, *Milepost*, and *Facility ID*.

c If you plan to run the Bridge definition manually and want Bridge to rename the file after importing data, click the check box **Rename files on manual bridge runs**.
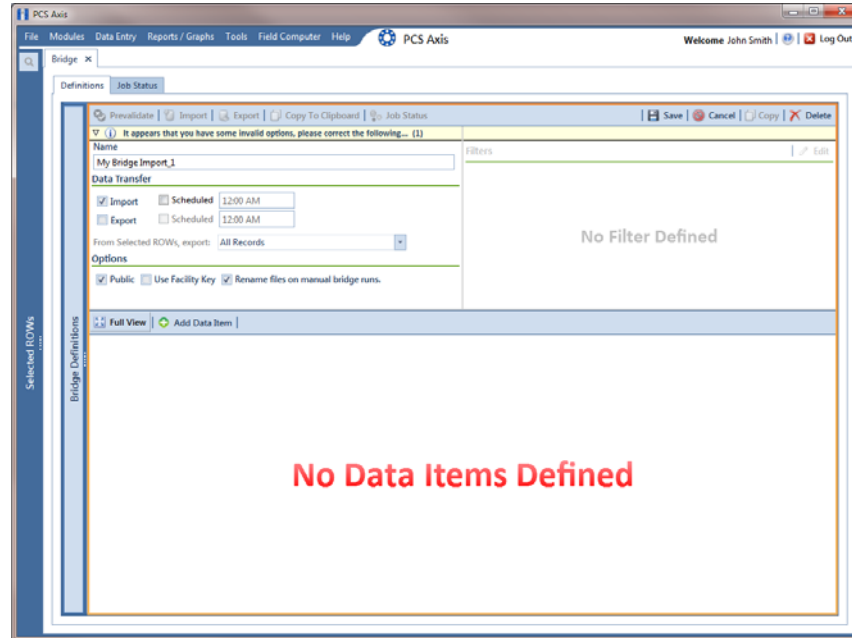
Figure 9-6. Bridge Import Definition

7   Click ![save icon] **Save** and then click ![full view icon] **Full View** to hide the group boxes *Data Transfer* and *Options*. Clicking *Full View* again displays these group boxes.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required property settings.

---

8   Choose the data item(s) you want to import in PCS Axis. Click ![add icon] **Add Data Item** to open the *Data Items* window and then complete the following steps (Figure 9-7, page 394):

a   Open the folder(s) containing the data item(s) you want to import. Repeat this step as needed for other folders. For example, the folders *CPDM* and *Rectifier* are selected in the following figure.

b   Double-click to select a data item and move it to the right pane of the window. Repeat this step as needed for other data items. For example, the data item *Rectifier Inspection* is selected in the next figure.
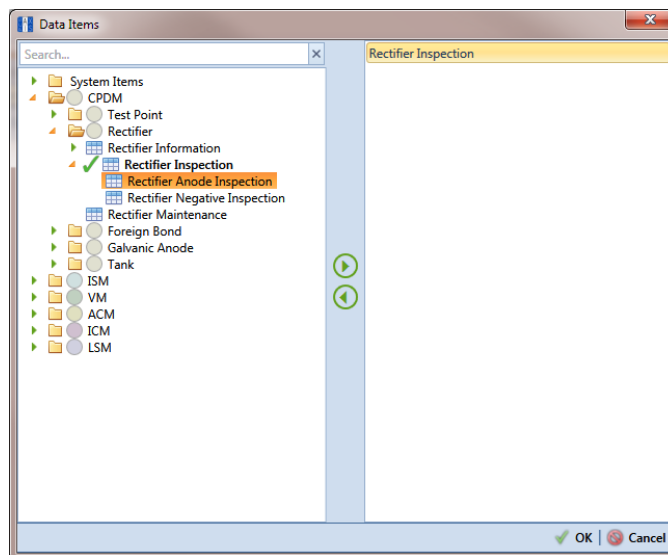
Figure 9-7. Data Items

> **NOTE:** The right pane of the *Data Items* window lists all selected data items for import. To remove a data item for import, double-click the data item in the right pane to move it back to the left pane.

c Click ✔ **OK** to close the dialog box and return to the definition panel. Then click 💾 **Save**.

9 Identify the location of the import file using the following steps (Figure 9-8, page 395):

a Click the ellipsis button **…** in the field **Import File Name** to open the *Import File* dialog box. Navigate to the import file and then select it.

b Click **Open** to close the dialog box and return to the definition panel. The path to the import file displays in the field *Import File Name*.

10 To assign inspections to a survey folder based on the inspection date, complete one or both of the following steps in the *Options* group box as required (Figure 9-8, page 395):

a If you want to assign inspections to an annual survey folder, click the check box **Assign inspections to an Annual Survey**.

b If you want to assign inspections to a periodic survey folder, click the check box **Assign inspections to a Periodic Survey**.
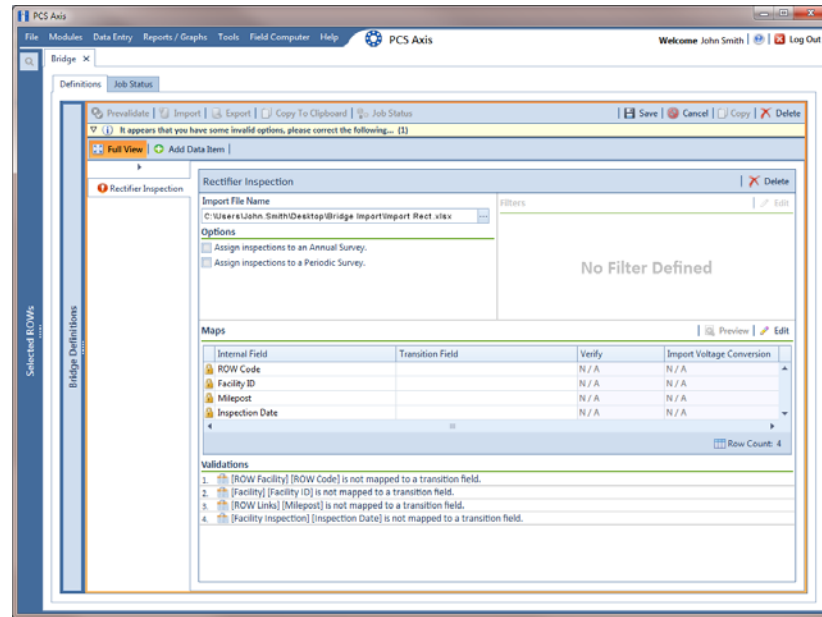
Figure 9-8. Definition

11 To map fields in PCS Axis with fields in the import file, follow these steps:

a Click ✐ **Edit** in the *Maps* group box to open a field mapping window (Figure 9-9, page 396).

> **NOTE:** Fields in the *Mappings* panel with a lock icon 🔒 are required fields for mapping, such as *ROW Code*, *Milepost*, *Facility ID*, and *Inspection Date* shown in the following example (Figure 9-9, page 396).

b Choose PCS Axis fields for mapping. Click the ▶ toggle arrow for a field category in the *Internal Fields* panel to view a list of available fields. For example, *Rectifier Inspection Fields* is selected in the following figure (Figure 9-9, page 396).

c Click the check box for one or more PCS Axis fields listed in the *Internal Fields* panel. Then click the ⊙ top arrow button to move selections to the *Mappings* panel. Double-clicking a field also moves it to the *Mappings* panel.

For example, the PCS Axis fields *Rectifier Output Current Found (Amps)* and *Rectifier Output Volts Found (Volts)* are selected for mapping in the next figure.
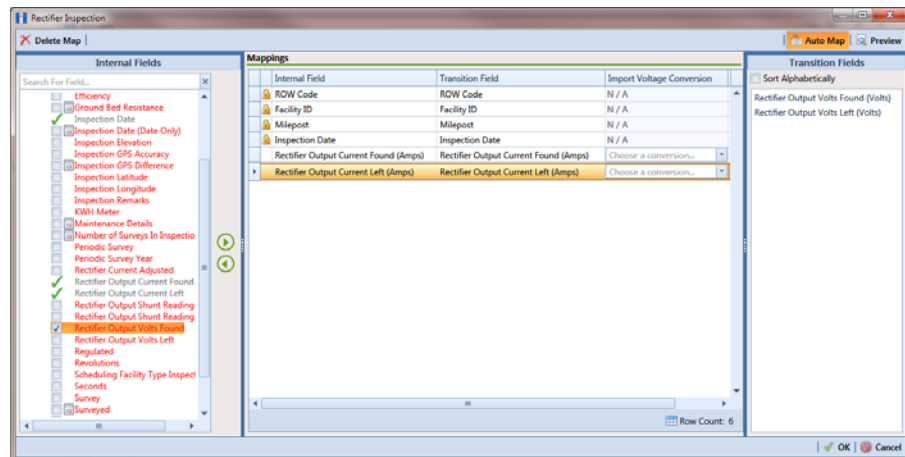
Figure 9-9. Field Mappings

d   If you want to sort import fields listed in the *Transition Fields* panel in alphabetical order, click the check box **Sort Alphabetically**.

e   To map PCS Axis fields with fields in the import file, follow these steps:

- Select a PCS Axis field in the *Mappings* panel. Map the selected field to a field in the import file by double-clicking a field listed in the *Transition Fields* panel. Repeat this step for remaining fields you want to map.

NOTE: When the 📋 **Auto Map** button is enabled and the names of fields in the import file match those in PCS Axis, double-clicking a PCS Axis field in the *Mappings* panel automatically maps to an import field listed in the *Transition Fields* panel.

- If the definition is set up to use a facility key, click the **Facility Key** option button in the *Mappings* panel for the field you want to use as the facility key, such as *ROW Code* or *Milepost*.

- If the field *Choose a conversion...* is present in the *Mappings* panel for a pair of mapped fields and you want to apply a conversion option, click the field **Choose a conversion ..**. and select an option in the selection list.

f   If you want to preview fields for mapping in the import file, click the 🔍 **Preview** button to open the import file in the *Preview Maps* window.

g   To remove a field mapping in the *Mappings* panel, select the field in the *Mappings* panel and then click ✖ **Delete Map**. Double-clicking the field also removes it. Unmapped fields are moved to the *Internal Fields* panel.

12 Click ✔ **OK** to close the mapping window and return to the definition window. Then click 💾 **Save**.

Field mappings display in the *Maps* group box.

13 To validate the definition, click the 🔄 **Prevalidate** button. When the validation process completes and the following message displays (Figure 9-10), click 🔄 **View Job Status** to open the *Job Status* window or 🔙 **Return to Definition** to open the *Definitions window*.

NOTE: The *Prevalidate* process confirms the definition file is set up correctly; it does not post data in the database.
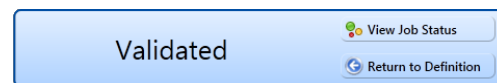
Figure 9-10. Validated Message

14 If you want to manually import data in PCS Axis, complete one of the following steps:

 a If the *Job Status* window is open, click ⏩ **Run** for a selected import file listed in the *Job Status* window. Then click 🔄 **Refresh** to update status information.

 b If the *Definitions window* is open for the import file, click 📥 **Import**.

15 To view the status of a Bridge session, click 🔄 **Job Status** in the *Definitions window* to open the *Job Status* window (Figure 9-11, page 398). Clicking ▦ **Log** for a Bridge session opens the log file for the selected session.

Figure 9-11. Job Status

16 To copy the Bridge definition to a file, such as a Notepad or Microsoft Word file, follow these steps:

    a   Click the **Definitions** tab if the *Definitions window* is not open.

    b   Click **Copy to Clipboard**.

    c   Start the software program, such as Notepad or Microsoft Word.

    d   Open a new file and then **Paste** the definition file. Click **Save**.

Adding a Bridge Export Definition

A Bridge export definition specifies the property settings and options for exporting data from PCS Axis. It defines the data transfer options; file format and location of the export file; and the data to be exported.

NOTE: Bridge currently supports use of a facility key only in a Bridge import file. Future enhancements will include use of a facility key in a Bridge export file.

To add a Bridge export definition, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the Bridge definition. Click ![Save icon] **Save** to close the window (Figure 9-12).
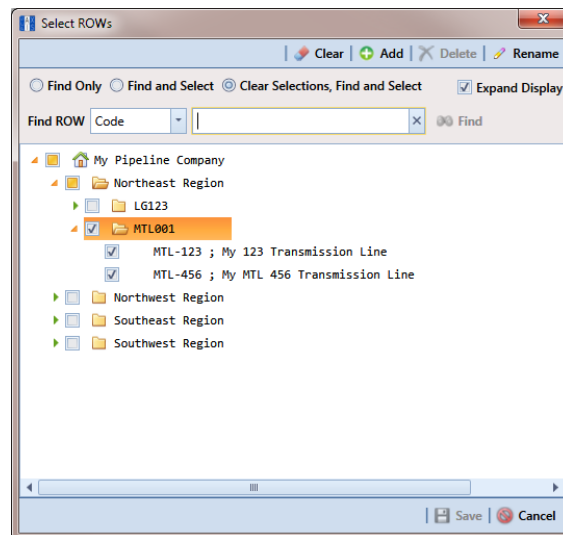
Figure 9-12. Select ROWs

2 Click **Tools** > **Bridge** to open the *Bridge* window (Figure 9-13, page 400)
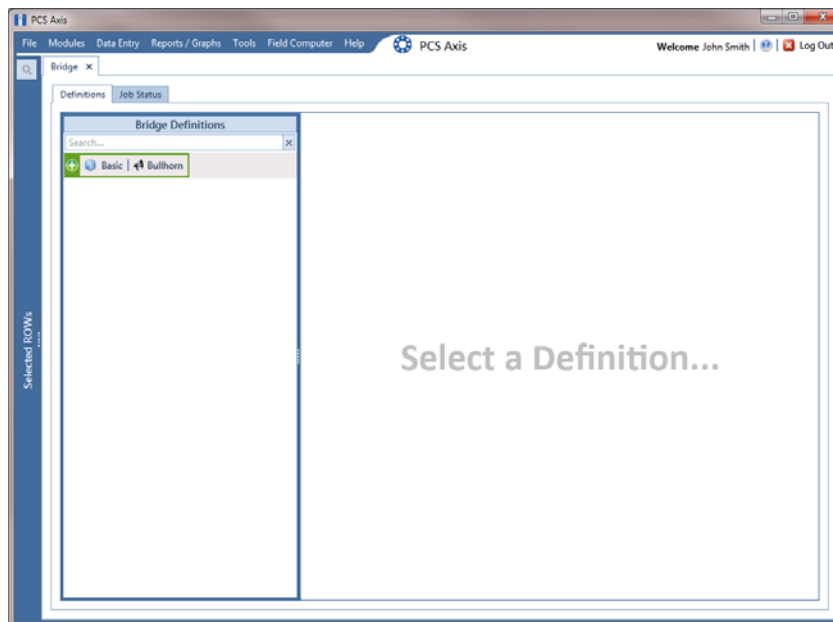
Figure 9-13. Bridge

3 Click ⬛ **Basic** to open the basic definition panel (Figure 9-14).

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required property settings.
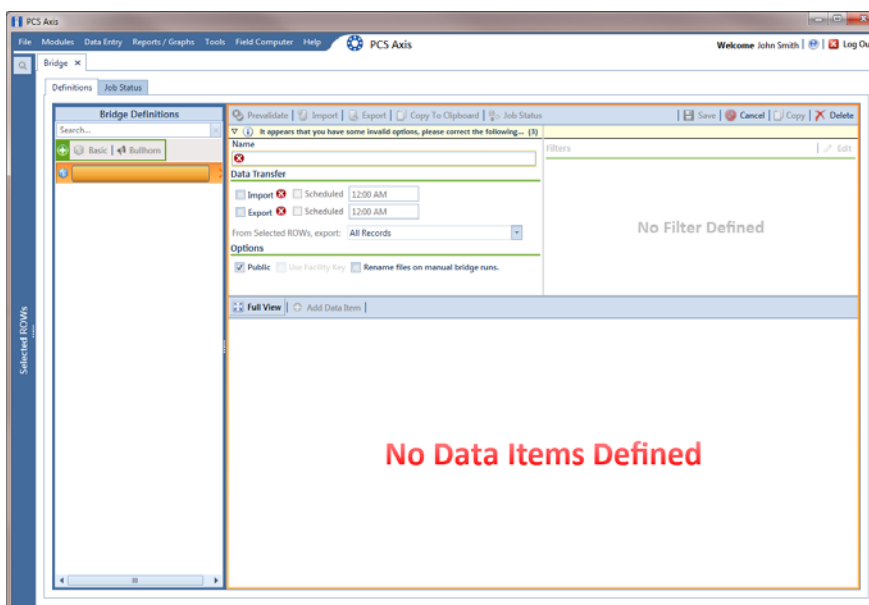
Figure 9-14. Basic Bridge Definition

4   Type a unique name for the definition in the **Name** field (Figure 9-15, page 402).

NOTE: Clicking the *Bridge Definitions* bar collapses the panel allowing you to view more of the definition. Clicking the bar again expands the panel.

---

5   To set properties in the *Data Transfer* group box, follow these steps (Figure 9-15, page 402):

a   Click the **Export** check box.

b   If you want PCS Axis to automatically run the export file at a scheduled time, click the **Scheduled** check box and then type a scheduled time in the adjacent field. Enter a scheduled time using 12-hour time format to specify the hour, minute, and AM/PM setting (HH:MM AM or PM).

IMPORTANT: When scheduling a time to run *Bridge*, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running *Bridge* at the same time as other scheduled network services.

---

c   Select which records to export. Click the down arrow in the field **From Selected ROWs, export** and select an option in the selection list, such as *All Records*.

NOTE: When the export file is not scheduled to run automatically, it is a manual Bridge definition. You can run the export file manually by clicking the 📥 **Export** button in the *Definitions window* or the 🔄 **Run** button in the *Job Status* window after the definition has been validated by clicking the ✅ **Prevalidate** button.

---

6   To set properties in the *Options* group box, follow these steps (Figure 9-15, page 402):

a   Click the **Public** check box if you want the export definition file available for use by all PCS Axis users. When the check box is empty, the definition file is available only to the user who creates it.

IMPORTANT: Do not enable the option *Use Facility Key* in an export definition. Bridge does not currently support this option in the export file.

---

b   If you plan to run the Bridge definition manually and want Bridge to rename the file after exporting data, click the check box **Rename files on manual bridge runs**.

7   Click 💾 **Save**.
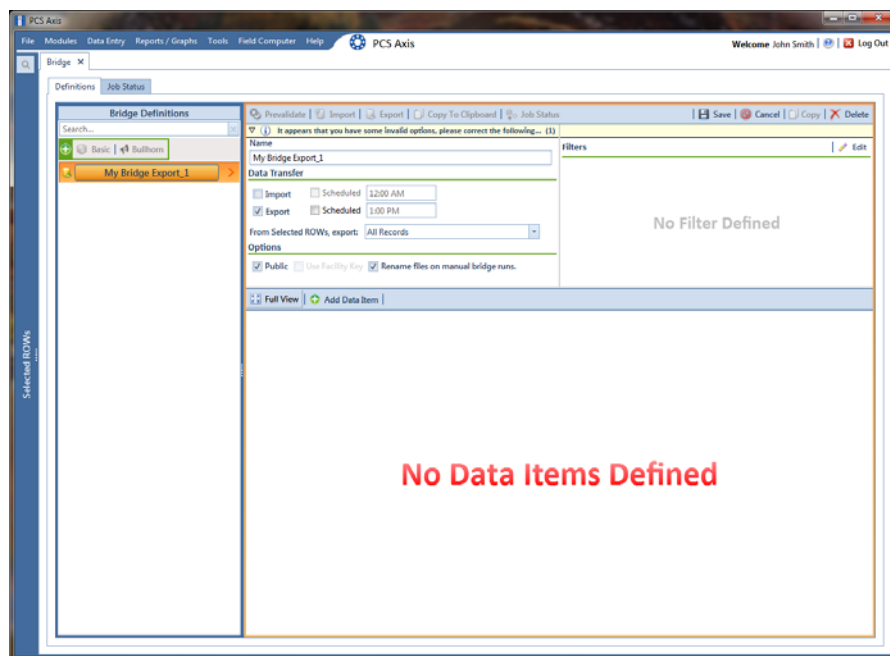
Figure 9-15. Bridge Export Definition

8   If you want to set up one or more filters that apply to *all* data items in the definition file, click 🖊 **Edit** in the *Filters* group box to open the *Edit Filter* dialog box (Figure 9-16).

NOTE: You can also apply filters to a selected data item instead of all data items in the definition. Information is provided later in step 15 on page 407.
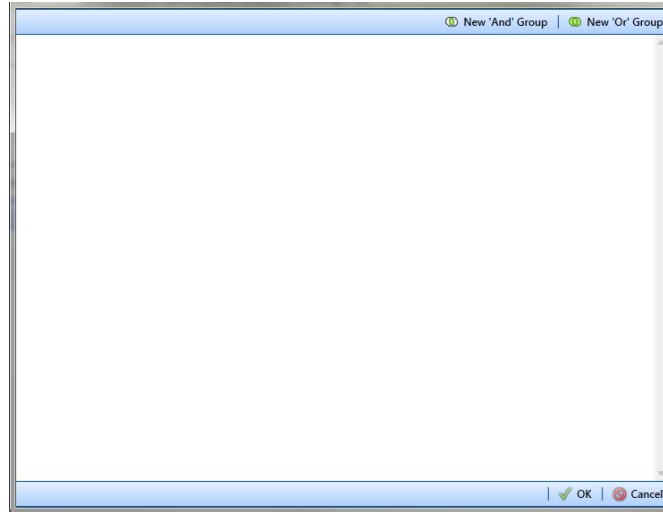
Figure 9-16. Edit Filter

9 If you want to include a subset of records in the export file that meet *all* filter conditions, create an AND filter group using the following steps:

a Click ⚙ **New 'And' Group** to open the filter properties group box (Figure 9-17).

b Type a name for the filter group in the field **Filter Group Caption**.
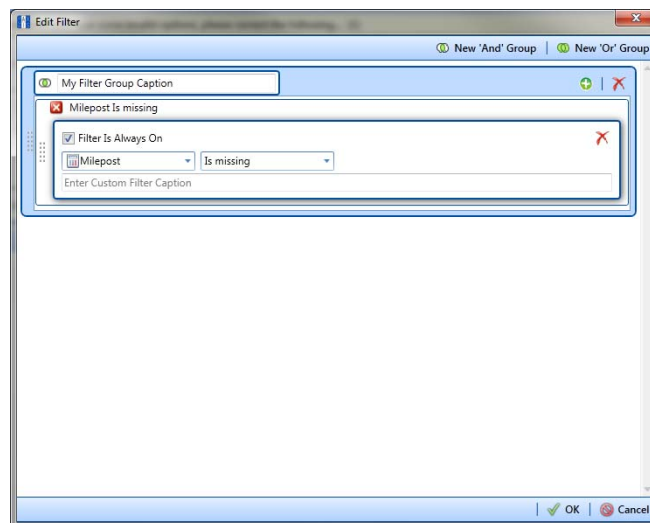
Figure 9-17. New 'And' Filter Group

c Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

d If you want the filter to remain on for all sessions of the Bridge definition, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

e Type a name for the filter in the field **Enter Custom Filter Caption**.

f If you want to set up additional filter criteria for the filter group:

- Click the ➕ **Add** button to open another filter properties group box.

- Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

10 If you want to include a subset of records in the export file that meet *any* filter condition, create an OR filter group using the following steps:

a Click 🔘 **New 'Or' Group** to open a filter properties group box (Figure 9-18, page 404).

b Type a name for the filter group in the field **Include records that match any of these conditions**.

c Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.
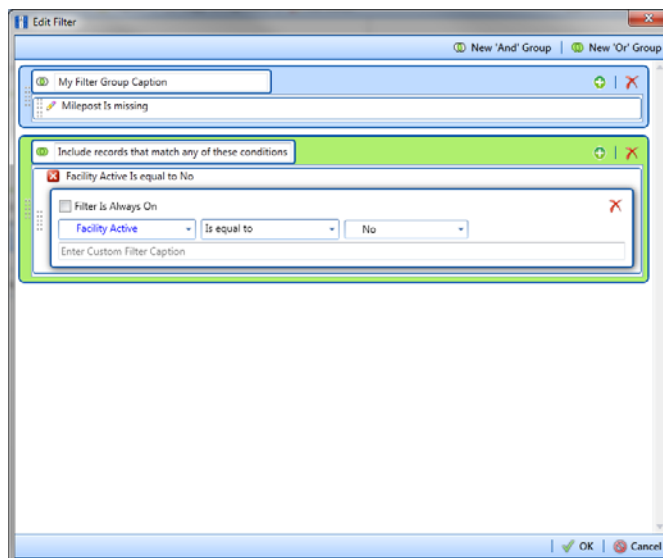
Figure 9-18. New 'Or' Filter Group

d   If you want the filter to remain on for all sessions of the Bridge definition, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

e   Type a name for the filter in the field **Enter Custom Filter Caption**.

f   If you want to set up additional filter criteria for the filter group:

   •   Click the ⊕ **Add** button to open another filter properties group box.

   •   Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

11 Click ✔ **OK** to close the *Edit Filter* dialog box and return to the definition window.

NOTE: Filter settings apply automatically when the export file is set up to run at a scheduled time. When the export file is run manually, a dialog box opens allowing you to choose which filters to apply before running the export file.

---

12 Click 💾 **Save** and then click ⛶ **Full View** to hide the group boxes *Data Transfer*, *Options,* and *Filters*. Clicking *Full View* again displays these group boxes.

13 Choose the data item(s) you want to export from PCS Axis. Click ⊕ **Add Data Item** to open the *Data Items* window and then complete the following steps (Figure 9-19):

a   Open the folder(s) containing the data item(s) you want to export. Repeat this step as needed for other folders. For example, the folders *CPDM* and *Rectifier Inspection* are selected in the next figure.

b   Double-click to select a data item and move it to the right pane of the window. Repeat this step as needed for other data items. For example, the data item *Rectifier Inspection* is selected for exporting in the next figure.
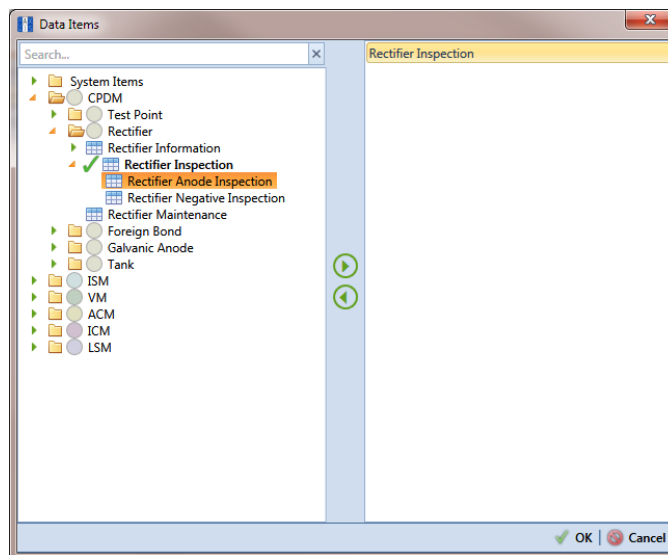
Figure 9-19. Data Items

NOTE: The right pane of the *Data Items* window lists all selected data items for export. To remove a data item for export, double-click the data item in the right pane to move it back to the left pane.

---

c   Click ✔ **OK** to close the dialog box and return to the definition window (Figure 9-20). Then click 🖫 **Save**.
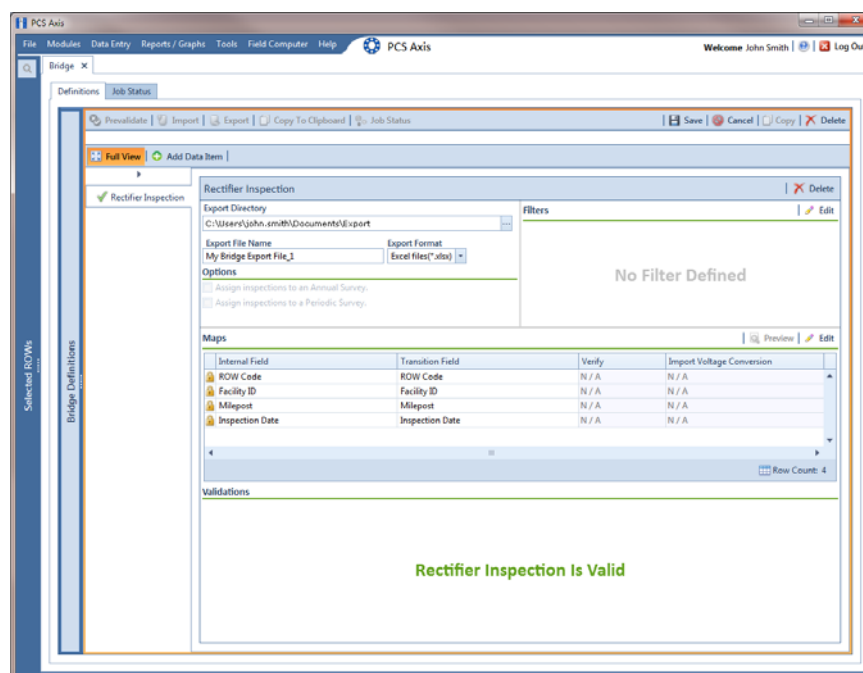
Figure 9-20. Bridge Definition

14 Select a file format and a location to save the export file using the following steps:

    a   Click the ellipsis button **...** in the field **Export Directory** to open the *Browse For Folder* dialog box. Navigate to a folder on your computer where you want to save the export file. Then click **OK** to close the dialog box and return to the definition window.

    b   Type a name for the export file in the field **Export File Name**. Then click the down arrow in the field **Export Format** and select a file format for the export file. Options include *Excel files (*.xlsx)* and *Text files (*.txt, *.csv)*.

    c   Click 💾 **Save**.

15 If you want to set up one or more filters that apply *only* to the currently selected data item, follow these steps:

    a   If more than one data item is included in the export file, select a data item in the menu on the left side of the window.

    b   Click 🖊 **Edit** in the *Filters* group box to open the *Edit Filter* dialog box (Figure 9-21).
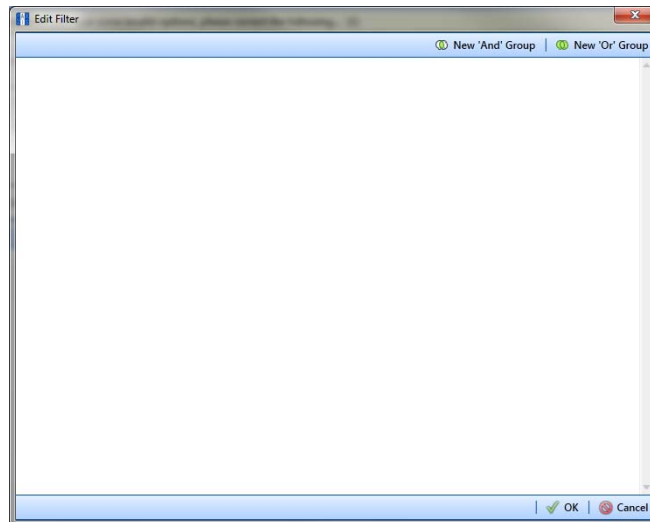
Figure 9-21. Edit Filter

16 If you want to include a subset of records in the export file that meet *all* filter conditions, create an AND filter group using the following steps:

    a   Click 🔘 **New 'And' Group** to open the filter properties group box (Figure 9-22, page 408).

    b   Type a name for the filter group in the field **Filter Group Caption**.
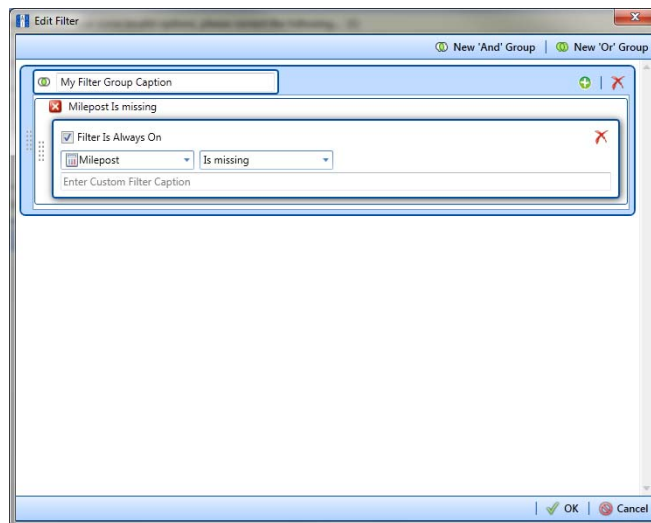
Figure 9-22. New 'And' Filter Group

    c   Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

    d   If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

    e   Type a name for the filter in the field **Enter Custom Filter Caption**.

    f   If you want to set up additional filter criteria for the filter group:

        •   Click the ⊕ **Add** button to open another filter properties group box.

        •   Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

17 If you want to include a subset of records in the export file that meet *any* filter condition, create an OR filter group using the following steps:

    a   Click 🔘 **New 'Or' Group** to open a filter properties group box (Figure 9-23, page 409).

    b   Type a name for the filter group in the field **Include records that match any of these conditions**.

    c   Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.
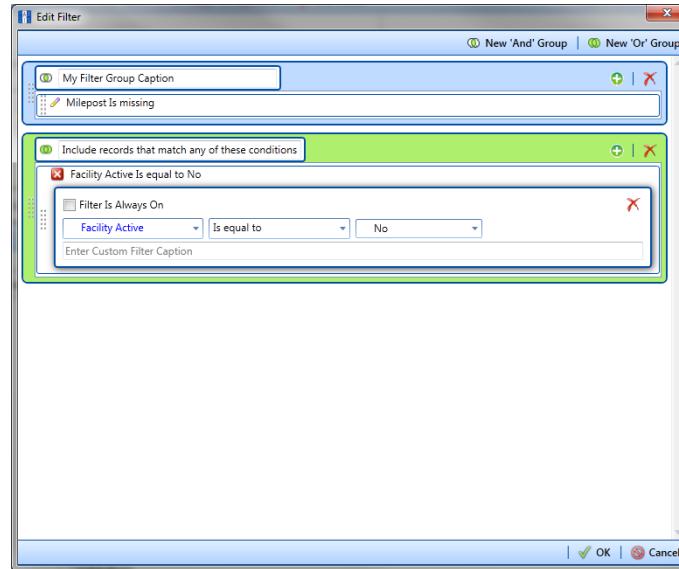
Figure 9-23. New 'Or' Filter Group

d   If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

e   Type a name for the filter in the field **Enter Custom Filter Caption**.

f   If you want to set up additional filter criteria for the filter group:

- Click the ⊕ **Add** button to open another filter properties group box.

- Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

18 Click ✓ **OK** to close the *Edit Filter* dialog box and return to the definition window.

NOTE: Filter settings apply automatically when the export file is set up to run at a scheduled time. When the export file is run manually, a dialog box opens allowing you to choose which filters to apply before running the export file.

---

19 Click 💾 **Save**.

20 To select the data you want to export from PCS Axis, complete the following steps:

a   Click 🖊 **Edit** in the *Maps* group box to open a field selection dialog box.

b Click the toggle arrow ▶ for a field category listed in the *Internal Fields* panel to view a list of available fields. In the following example, *Rectifier Inspection Fields* is selected (Figure 9-24).

c Select one or more fields and then click the top arrow button ⊙ to move fields to the *Mappings* panel. Double-clicking a field also moves it to the *Mappings* panel.

d If the definition is set up to use a facility key, click the **Facility Key** option button in the *Mappings* panel for the field you want to use as the facility key, such as *ROW Code* or *Milepost*.

e If the field *Choose a conversion...* is present in the *Mappings* panel for one or more mapped fields and you want to apply a conversion option, click the field **Choose a conversion ...** and select an option in the selection list.

21 If you want to rename a field listed in the *Transition Field* column, select the field and then type a description.

22 If you want to remove a field in the *Mappings* panel, double-click the field and then click **Yes** when a message displays to verify you want to remove the field.

Fields with a 🔒 lock icon are required and cannot be removed, such as *ROW Code*, *Milepost*, *Facility ID*, and *Inspection Date*.
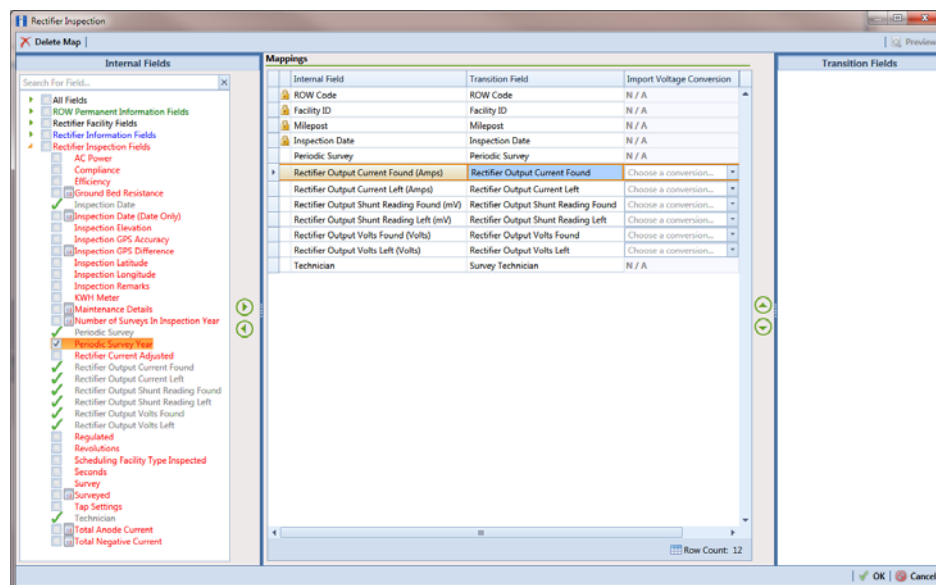
Figure 9-24. Export Field Selections

23 Click ✓ **OK** to close the field selection dialog box and return to the definition window. Then click 💾 **Save**.

24 To manually export data from PCS Axis, click 🔖 **Export** and then complete the following steps to choose which filters to apply if the export file is set up with filters:

a Click the tab **All Data Items**. Click the check box for each filter you want to apply to *all* data items in the export file (Figure 9-25).

b Click a data item tab. For example, the data item tab labeled *Rectifier Inspection* is selected in the following figure. Click the check box for each filter you want to apply to the selected data item.
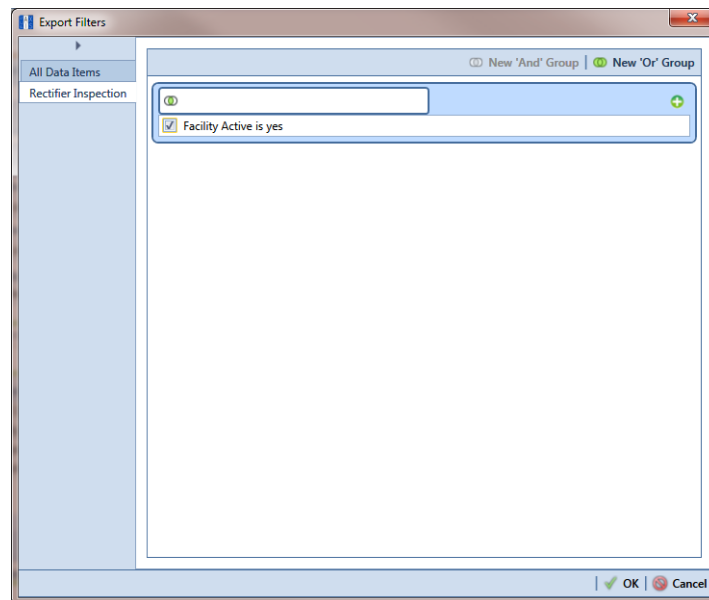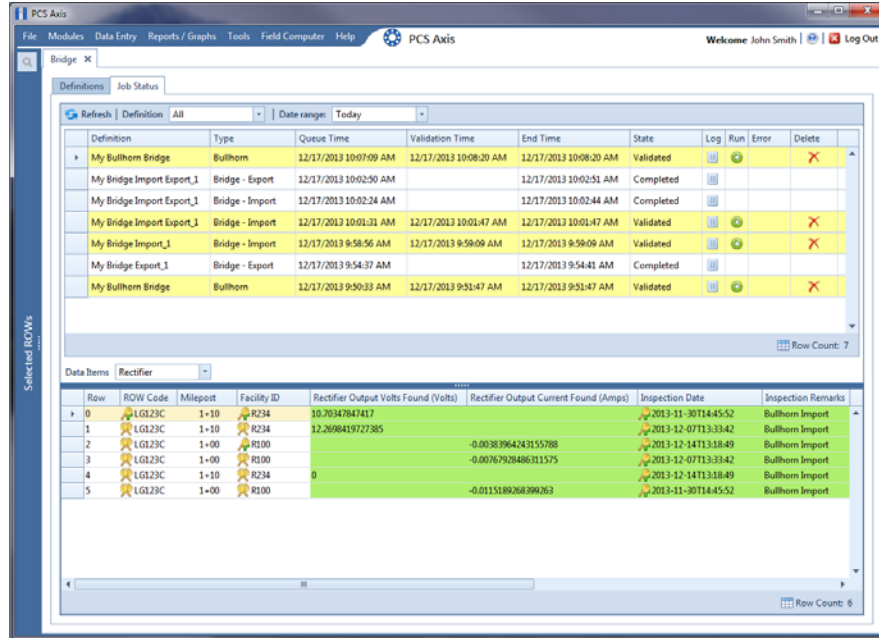
Figure 9-25. Export Filters

c Click **OK** to close the *Export Filters* dialog box and run the Bridge export file.

d When the message *Completed* displays, click 🔵 **View Job Status** to open the *Job Status* window or 🔙 **Return to Definition** to open the *Definitions window*.

25 To view the status of a Bridge session, click **Job Status** in the *Definitions window* to open the *Job Status* window (Figure 9-26). Clicking **Log** for a Bridge session opens the log file for the selected session.

Figure 9-26. Job Status

26 To copy the Bridge definition to a file, such as a Notepad or Microsoft Word file, follow these steps:

    a   Click the **Definitions** tab if the *Definitions window* is not open.

    b   Click **Copy to Clipboard**.

    c   Start the software program, such as Notepad or Microsoft Word.

    d   Open a new file and then **Paste** the definition file. Click **Save**.

Adding a Bridge Import/Export Definition

A Bridge import/export definition specifies the property settings and options for importing and exporting data in PCS Axis. It defines the data transfer options; location of the import file; location for the export file; and mappings for data items in PCS Axis and the import file.

NOTE: Bridge currently supports use of a facility key only in a Bridge import file. Future enhancements will include use of a facility key in a Bridge export file.

To add a Bridge import/export definition, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the Bridge definition. Click ![save] **Save** to close the window (Figure 9-27).
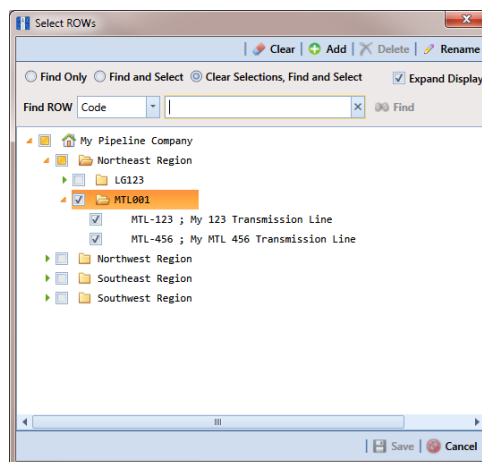
Figure 9-27. Select ROWs

2   Click **Tools** > **Bridge** to open the *Bridge* window (Figure 9-28, page 414)
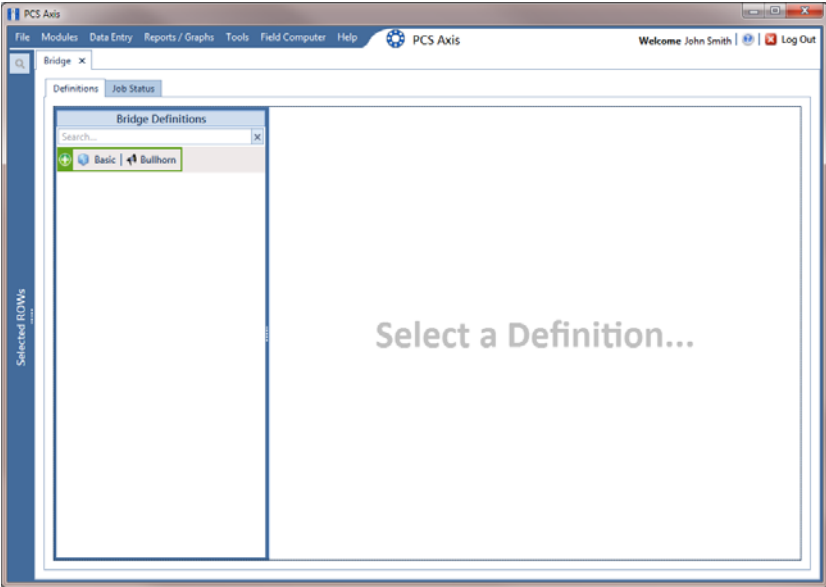
Figure 9-28. Bridge

3 Click 🧊 **Basic** to open the definition panel (Figure 9-29).

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required property settings.
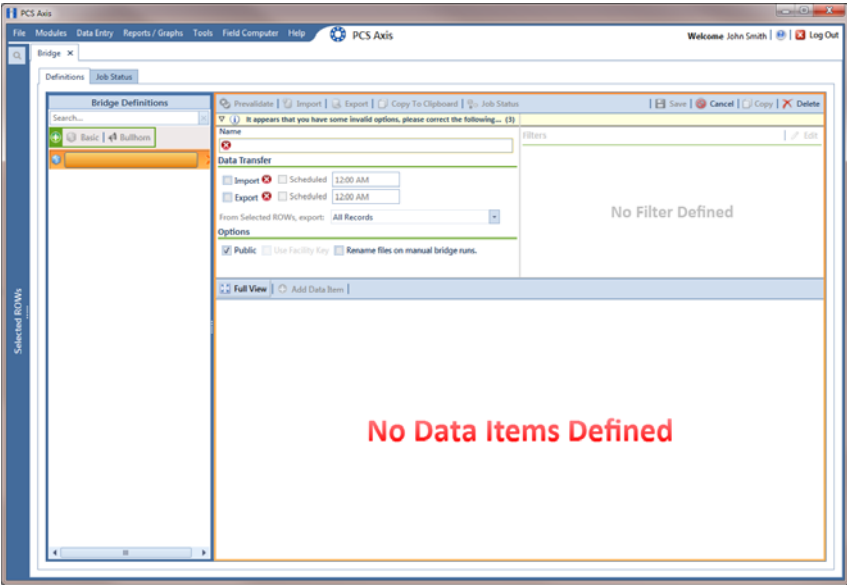
Figure 9-29. Basic Bridge Definition

4 Type a unique name for the definition in the **Name** field (Figure 9-30, page 416).

> **NOTE:** Clicking the *Bridge Definitions* bar collapses the panel allowing you to view more of the Bridge definition. Clicking the bar again expands the panel.

5 To set properties in the *Data Transfer* group box, follow these steps (Figure 9-30, page 416):

   a Click the **Import** and **Export** check boxes.

   b If you want PCS Axis to automatically run the import file at a scheduled time, click the **Scheduled** check box and then type a scheduled time in the adjacent field. Enter a scheduled time using 12-hour time format to specify the hour, minute, and AM/PM setting (HH:MM AM or PM).

> **IMPORTANT:** When scheduling a time to run *Bridge*, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running *Bridge* at the same time as other scheduled network services.

   c Select which records to export. Click the down arrow in the field **From Selected ROWs, export** and select an option in the selection list, such as *All Records*.

6 To set properties in the *Options* group box, follow these steps (Figure 9-30, page 416):

   a Click the **Public** check box if you want the import/export definition file available for use by all PCS Axis users. When the check box is empty, the definition file is available only to the user who creates it.

   b If you want to use a facility key for facilities in the import file, click the check box **Use Facility Key**. This option is not currently available for facilities in the export file. For more information about facility keys, see *Using a Facility Key in Bridge* (page 388).

      When facilities are not mapped to a facility key, they are mapped to the following required fields: *ROW Code*, *Milepost*, and *Facility ID*.

   c If you plan to run the import/export file manually and want Bridge to rename the file, click the check box **Rename files on manual bridge runs**.
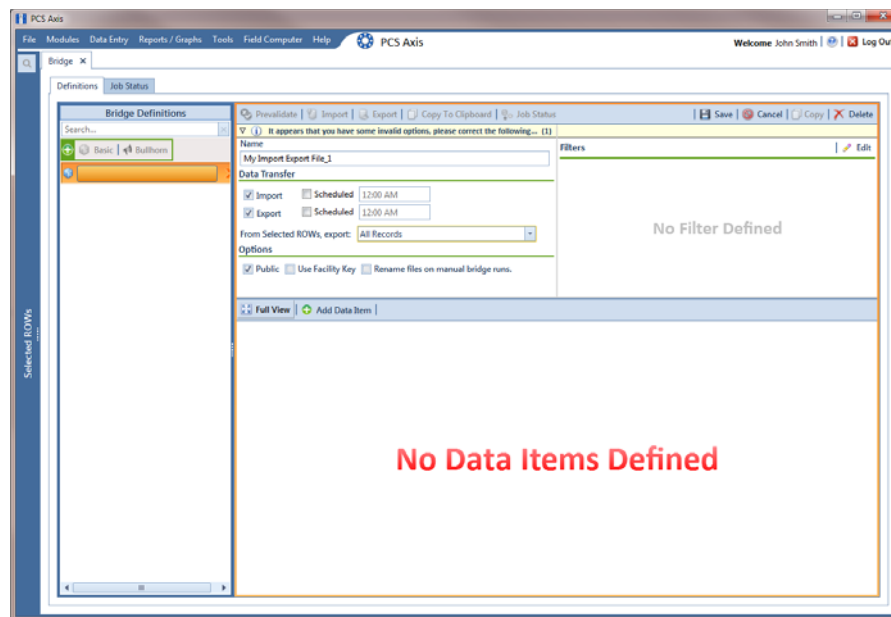
Figure 9-30. Bridge Import Export Definition

7 If you want to set up one or more filters that apply to *all* data items in the definition file, click 🖊 **Edit** in the *Filters* group box to open the *Edit Filter* dialog box (Figure 9-31).

NOTE: You can also set up one or more filters that *only* apply to a selected data item instead of all data items in the definition file. Information is provided later in step 16 on page 421.
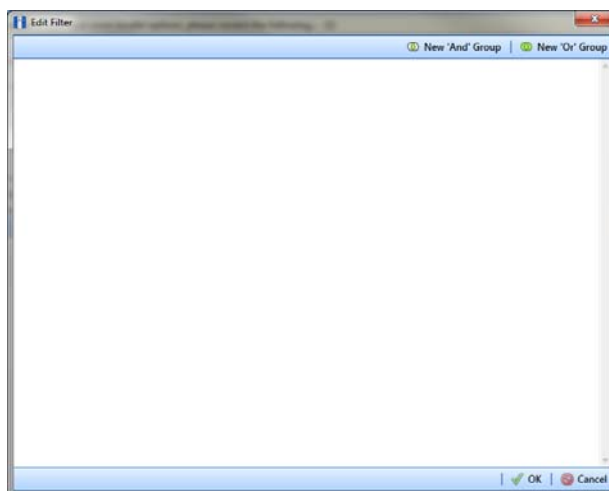
Figure 9-31. Edit Filter

8 If you want to include a subset of records in the export file that meet *all* filter conditions, create an AND filter group using the following steps:

a Click **New 'And' Group** to open the filter properties group box (Figure 9-32).

b Type a name for the filter group in the field **Filter Group Caption**.
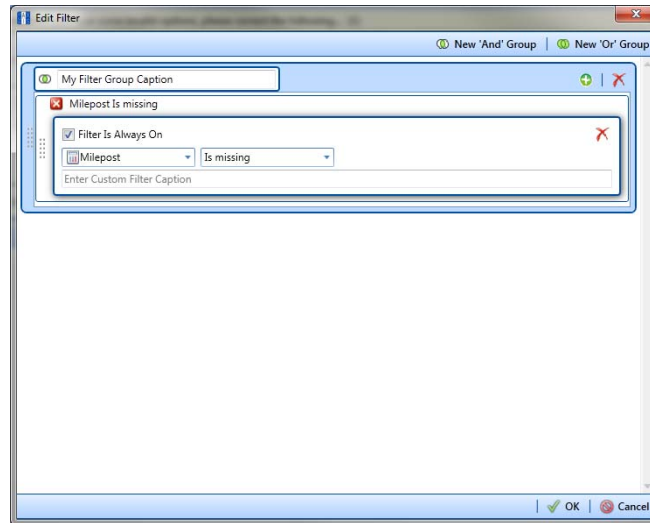
Figure 9-32. New 'And' Filter Group

c Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

d If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

e Type a name for the filter in the field **Enter Custom Filter Caption**.

f If you want to set up additional filter criteria for the filter group:

• Click the **Add** button to open another filter properties group box.

• Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

10 Click ✔ **OK** to close the *Edit Filter* dialog box and return to the definition window.

NOTE: Filter settings apply automatically when the Bridge definition is set to run at a scheduled time. When the Bridge definition is run manually, a dialog box opens allowing you to choose which filters to apply before running the definition.

---

11 Click 💾 **Save** and then click ⛶ **Full View** to hide the group boxes *Data Transfer*, *Options*, and *Filters*. Clicking *Full View* again displays these group boxes.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required property settings.

---

12 Choose data item(s) you want to import and export. Click ⊕ **Add Data Item** to open the *Data Items* window and then complete the following steps (Figure 9-34):

a Open the folder(s) containing the data item(s) you want to import and export. Repeat this step as needed for other folders. For example, the folders *CPDM* and *Rectifier* are selected in the next figure.

b Double-click to select a data item and move it to the right pane of the window. Repeat this step as needed for other data items. For example, the data item *Rectifier Inspection* is selected in the next figure.
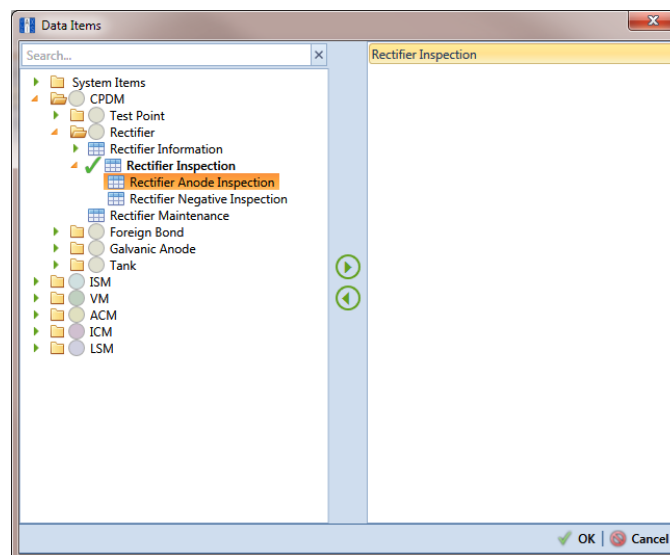
Figure 9-34. Data Items

> **NOTE:** The right pane of the *Data Items* window lists all selected data items for import. To remove a data item for import, double-click the data item in the right pane to move it back to the left pane.

    c   Click ✅ **OK** to close the dialog box and return to the definition window. Then click 💾 **Save**.

13 Identify the location of the import file using the following steps:

    a   Click the ellipsis button **...** in the field **Import File Name** to open the *Import File* dialog box. Navigate to the import file and then select it.

    b   Click **Open** to close the dialog box and return to the definition panel. The path to the import file displays in the field *Import File Name*.

14 Select a file format and a location to save the export file using the following steps (Figure 9-35, page 421):

    a   Click the ellipsis button **...** in the field **Export Directory** to open the *Browse For Folder* dialog box. Navigate to a folder on your computer where you want to save the export file. Then click **OK** to close the dialog box and return to the definition window.

    b   Type a name for the export file in the field **Export File Name**. Then click the down arrow in the field **Export Format** and select a file format for the export file. Options include *Excel files (*.xlsx)* and *Text files (*.txt, *.csv)*.

    c   Click 💾 **Save**.

15 If you want to assign inspections in the import file to a survey folder based on the inspection date, complete one or both of the following steps in the *Options* group box as required (Figure 9-35, page 421).

    a   If you want to assign inspections to an annual survey folder, click the check box **Assign inspections to an Annual Survey**.

    b   If you want to assign inspections to a periodic survey folder, click the check box **Assign inspections to a Periodic Survey**.
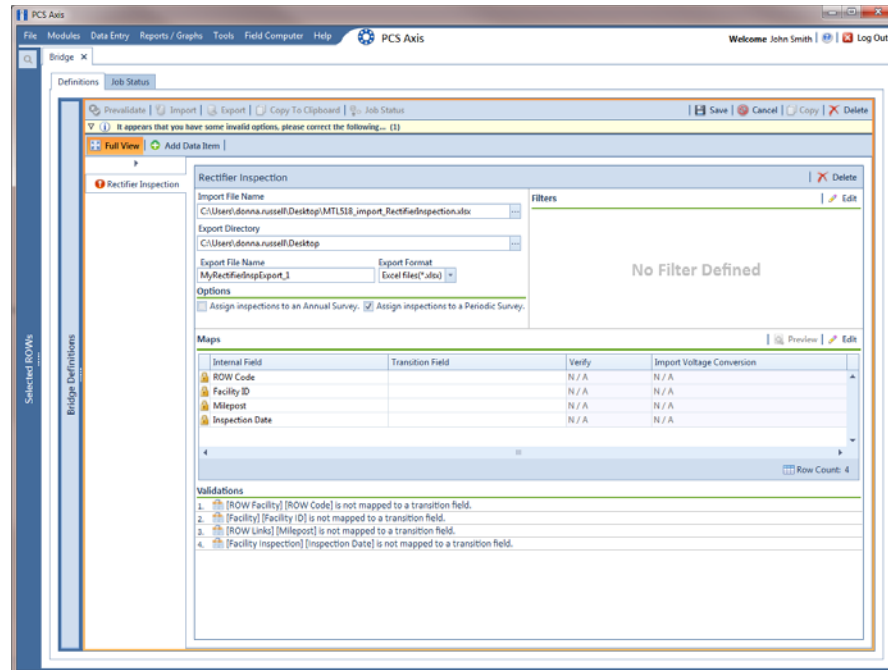
Figure 9-35. Bridge Import Export

16 If you want to set up one or more filters for the export file that apply *only* to the currently selected data item, follow these steps:

a If more than one data item is included in the export file, select a data item in the menu on the left side of the window.

b Click [icon] **Edit** in the *Filters* group box to open the *Edit Filter* dialog box (Figure 9-36).
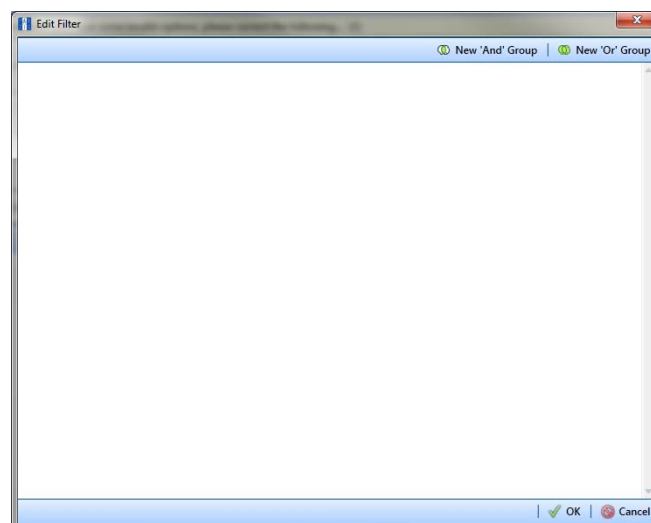
Figure 9-36. Edit Filter

17 If you want to include a subset of records in the export file that meet *all* filter conditions, create an AND filter group using the following steps:

a Click ⊙ **New 'And' Group** to open the filter properties group box (Figure 9-37).

b Type a name for the filter group in the field **Filter Group Caption**.
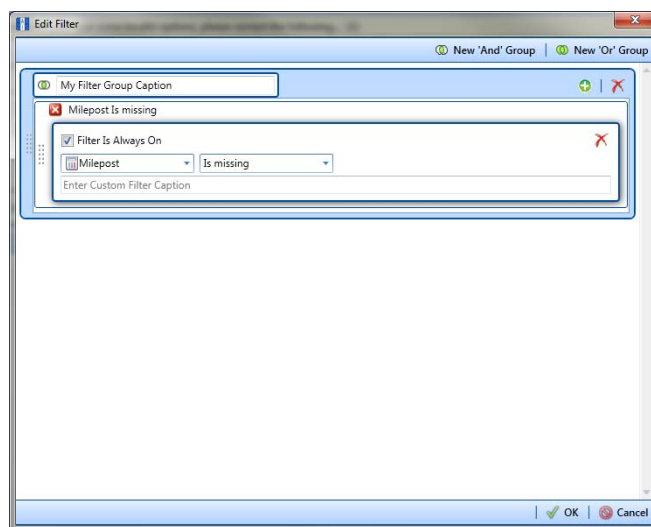
Figure 9-37. New 'And' Filter Group

c Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

d If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

e Type a name for the filter in the field **Enter Custom Filter Caption**.

f If you want to set up additional filter criteria for the filter group:

• Click the ⊕ **Add** button to open another filter properties group box.

• Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

18 If you want to include a subset of records in the export file that meet *any* filter condition, create an OR filter group using the following steps:

a Click ![icon] **New 'Or' Group** to open a filter properties group box (Figure 9-38).

b Type a name for the filter group in the field **Include records that match any of these conditions**.

c Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.
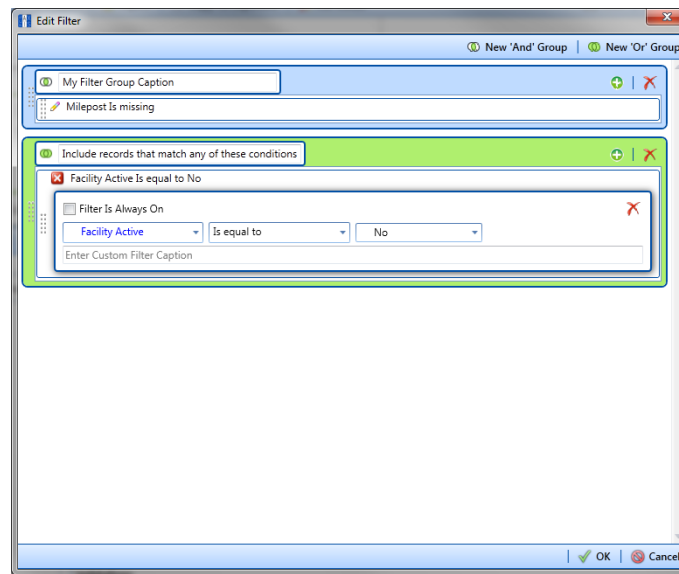
Figure 9-38. New 'Or' Filter Group

d If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

e Type a name for the filter in the field **Enter Custom Filter Caption**.

f If you want to set up additional filter criteria for the filter group:

• Click the ![icon] **Add** button to open another filter properties group box.

• Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps "c" through "e" to set up filter criteria.

19 Click ✔ **OK** to close the *Edit Filter* dialog box and return to the definition window.

> **NOTE:** Filter settings apply automatically when the Bridge definition is set to run at a scheduled time. When the Bridge definition is run manually, a dialog box opens allowing you to choose which filters to apply before running the definition.

20 Click 💾 **Save**.

21 To map fields in PCS Axis with fields in the import file, follow these steps:

a Click 🖉 **Edit** in the *Maps* group box to open a field mapping window (Figure 9-39).

> **NOTE:** Fields in the *Mappings* panel with a lock icon 🔒 are required fields for mapping, such as *ROW Code*, *Milepost*, *Facility ID*, and *Inspection Date* shown in the following example (Figure 9-39, page 424).

b Choose PCS Axis fields for mapping. Click the ▶ toggle arrow for a field category in the *Internal Fields* panel to view a list of available fields. For example, *Rectifier Inspection Fields* is selected in the next figure.

c Click the check box for one or more PCS Axis fields listed in the *Internal Fields* panel. Then click the ▶ top arrow button to move selections to the *Mappings* panel. Double-clicking a field also moves it to the *Mappings* panel.

For example, the PCS Axis fields *Rectifier Output Current Found (Amps)* and *Rectifier Output Volts Found (Volts)* are selected for mapping in the next figure.
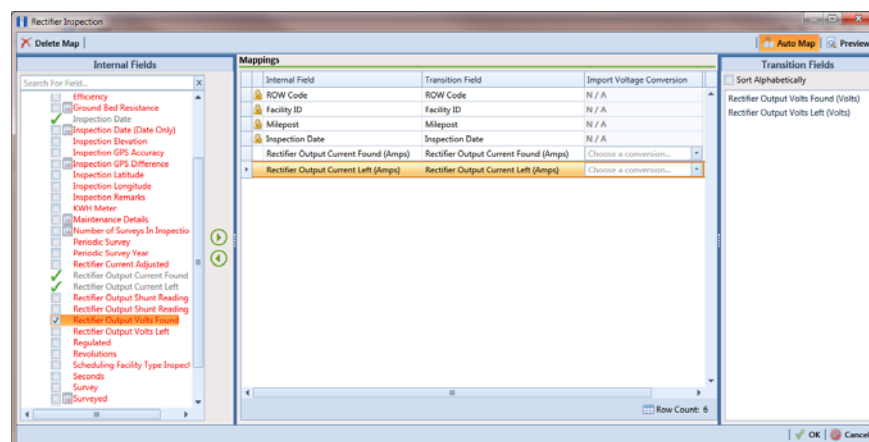
Figure 9-39. Field Mappings

d If you want to sort import fields listed in the *Transition Fields* panel in alphabetical order, click the check box **Sort Alphabetically**.

e To map PCS Axis fields with fields in the import file, follow these steps:

- Select a PCS Axis field in the *Mappings* panel. Map the selected field to a field in the import file by double-clicking a field listed in the *Transition Fields* panel. Repeat this step for remaining fields you want to map.

NOTE: When the 🏠 **Auto Map** button is enabled and the names of fields in the import file match those in PCS Axis, double-clicking a PCS Axis field in the *Mappings* panel automatically maps to an import field listed in the *Transition Fields* panel.

- If the definition is set up to use a facility key, click the **Facility Key** option button in the *Mappings* panel for the field you want to use as the facility key, such as *ROW Code* or *Milepost*.

- If the field *Choose a conversion...* is present in the *Mappings* panel for a pair of mapped fields and you want to apply a conversion option, click the field **Choose a conversion ...** and select an option in the selection list.

f If you want to preview fields for mapping in the import file, click the 🔍 **Preview** button to open the import file in the *Preview Maps* window.

22 Click ✔ **OK** to close the mapping window and return to the definition window. Then click 💾 **Save**.

Field mappings display in the *Maps* group box.

23 To validate the definition, click the 🔾 **Prevalidate** button. When the validation process completes and the following message displays, click 🔾 **View Job Status** or 🔵 **Return to Definition** (Figure 9-40).

NOTE: The *Prevalidate* process confirms the definition file is set up correctly; it does not post data in the database.
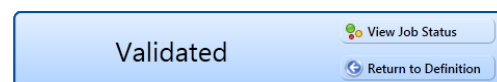
Figure 9-40. Validated Message

24 If you want to manually import data in PCS Axis, complete one of the following steps:

    a If the *Job Status* window is open, click ![icon] **Run** for a selected import file listed in the *Job Status* window. Then click ![icon] **Refresh** to update status information.

    b If the *Definitions window* is open for the import file, click ![icon] **Import**.

25 To manually export data from PCS Axis, click ![icon] **Export** in the *Definitions* window and then complete the following steps to choose which filters to apply if the Bridge definition is set up with filters:

    a Click the tab **All Data Items**. Click the check box for each filter you want to apply to *all* data items in the Bridge definition (Figure 9-41).

    b Click a data item tab. For example, the data item tab labeled *Rectifier Inspection* is selected in the following figure. Click the check box for each filter you want to apply to the selected data item.
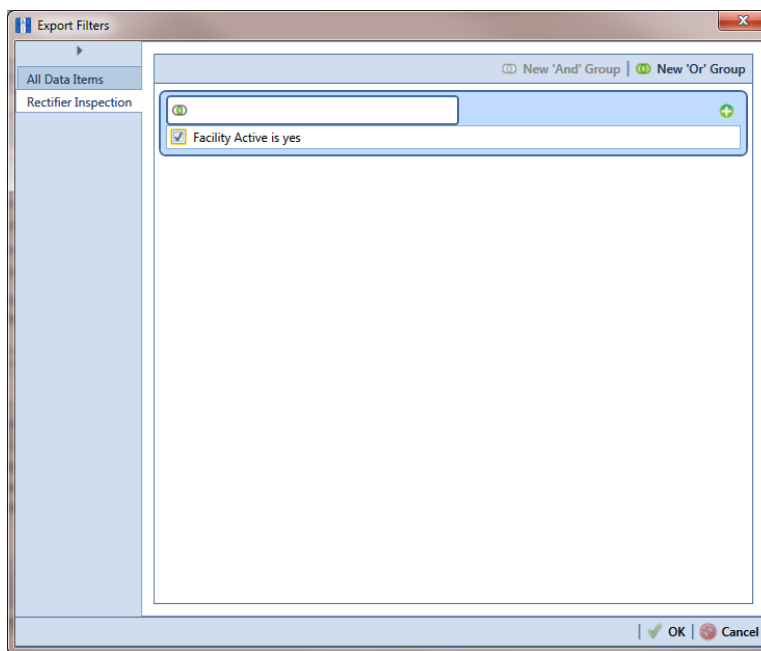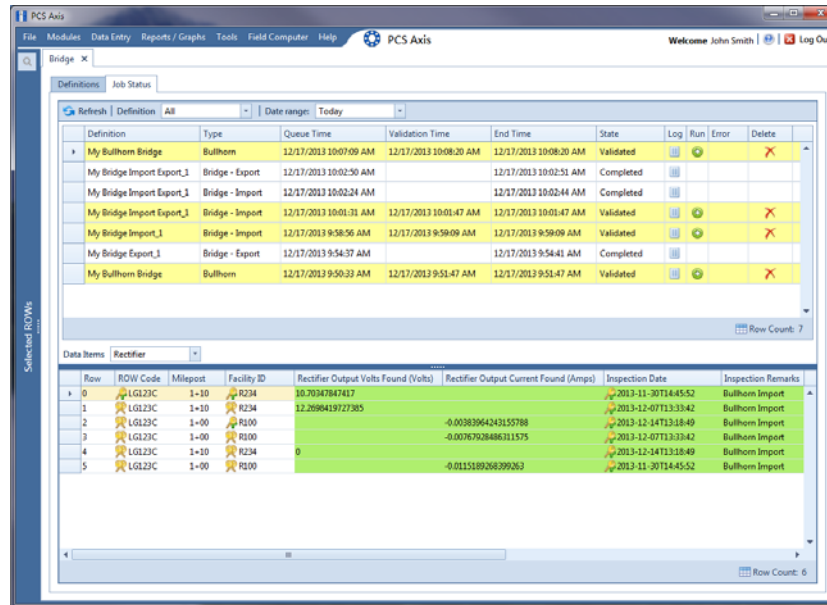
Figure 9-41. Export Filters

    c Click **OK** to close the *Export Filters* dialog box and run the Bridge export file.

    d When the message *Completed* displays, click ![icon] **View Job Status** to open the *Job Status* window or ![icon] **Return to Definition** to open the *Definitions window*.

26 To view the status of a Bridge session, click 🔵 **Job Status** in the *Definitions window* to open the *Job Status* window (Figure 9-42). Clicking 📊 **Log** for a Bridge session opens the log file for the selected session.

Figure 9-42. Job Status

27 To copy the Bridge definition to a file, such as a Notepad or Microsoft Word file, follow these steps:

a Click the **Definitions** tab if the *Definitions window* is not open.

b Click 📋 **Copy to Clipboard**.

c Start the software program, such as Notepad or Microsoft Word.

d Open a new file and then **Paste** the definition file. Click **Save**.

Adding a Bridge Bullhorn Definition

A Bridge Bullhorn definition specifies the property settings and options for importing data in PCS Axis from a user account on the Bullhorn Asset Tracker (BAT) website. It defines how often to run the definition; the unique *Key* assigned by BAT to the Extract; and field mappings for PCS Axis and data imported from BAT.

After running a Bridge Bullhorn definition, PCS Axis automatically adds the phrase *Bullhorn Import* in the *Inspection Remarks* field of the facility data entry grid.

To add a Bridge Bullhorn definition, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the Bridge Bullhorn definition. Click ![Save icon] **Save** to close the window (Figure 9-43).
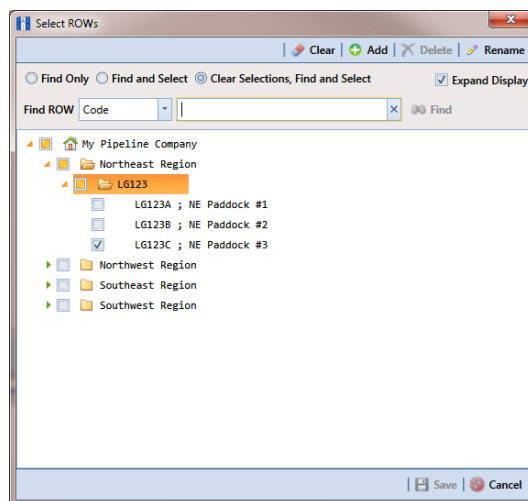
Figure 9-43. Select ROWs

2   Click **Tools** > **Bridge** to open the *Bridge* window (Figure 9-44).
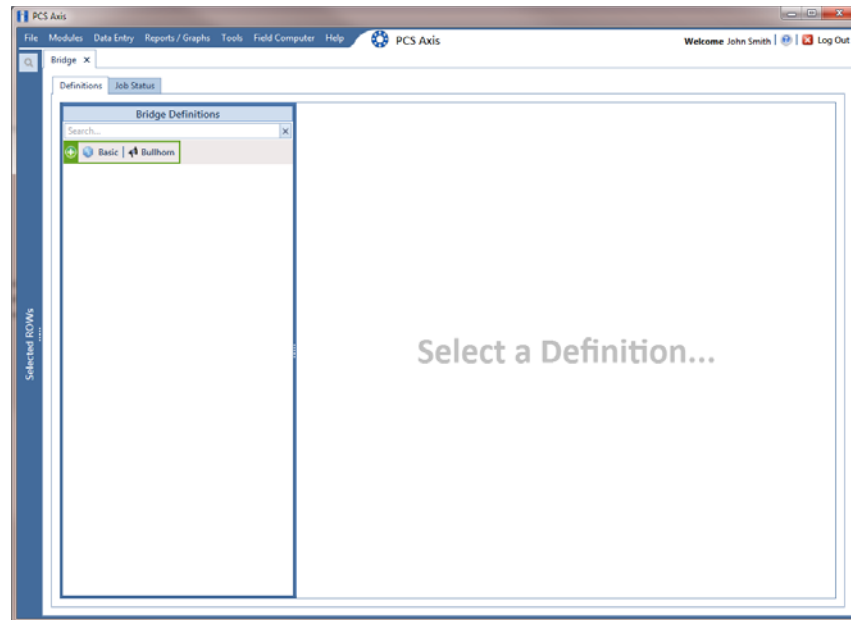
Figure 9-44. Bridge

3   Click 📢 **Bullhorn** to open the Bullhorn definition panel (Figure 9-45).
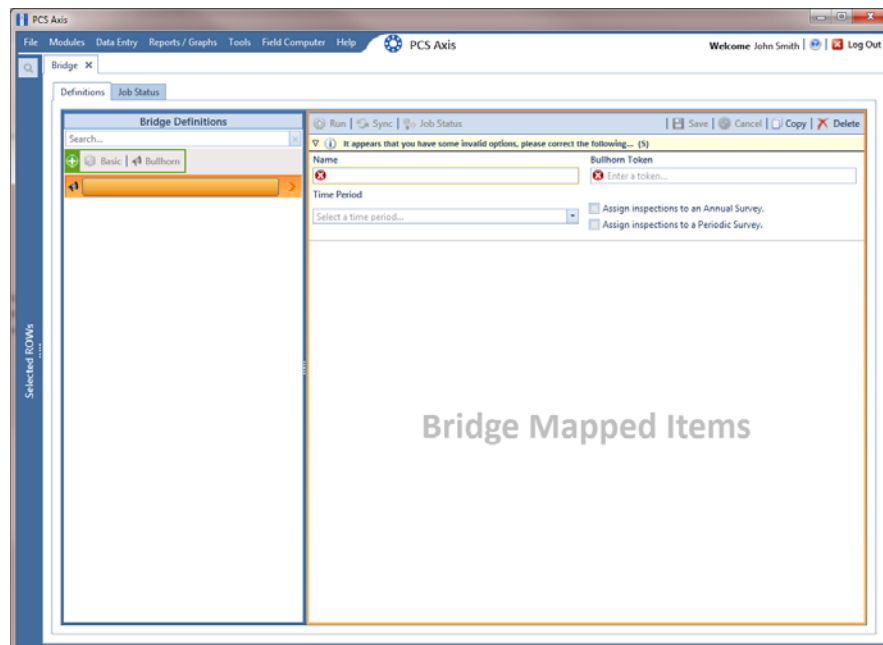
Figure 9-45. Bullhorn Definition Panel

4   Type a unique name for the definition in the **Name** field.

> **NOTE:** Clicking the *Bridge Definitions* bar collapses the panel allowing you to view more of the definition panel. Clicking the bar again expands the panel.

5   Click the down arrow in the **Time Period** field and select how often you want to run the Bridge Bullhorn definition.

> **IMPORTANT:** When choosing an option in the *Time Period* field, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running *Bridge* at the same time as other scheduled network services.

6   Log in to your account on the BAT website and then copy the unique key generated by BAT for the Extract. Paste the unique key in the **Bullhorn Token** field of the Bullhorn Bridge definition.

7   To assign survey readings to a survey folder based on the inspection date, complete one or both of the following steps as required:

a   If you want to assign inspections to an annual survey folder, click the check box **Assign inspections to an Annual Survey**.

b   If you want to assign inspections to a periodic survey folder, click the check box **Assign inspections to a Periodic Survey**.

> **NOTE:** Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required property settings.

8   Click 🖫 **Save** and then click ⛶ **Full View** to hide the *Name*, *Bullhorn Token*, *Time Period*, and survey folder fields. Clicking *Full View* again displays these fields (Figure 9-46, page 432).

9   Choose the PCS Axis module that will receive imported data. Click the down arrow in the module selection list and select a module, such as *CPDM*.

10 Choose the type of facility data you plan to import. Click a facility type button, such as *Rectifier* (Figure 9-46, page 432).

11 To map PCS Axis fields with a Bullhorn data point, follow these steps:

a In the center *Mappings* panel, click the check box **Do Not Map** for each Bullhorn data point you do not plan to map, such as *Battery Voltage*.

A check mark inside the check box indicates a selection. To clear a selection, click the check box again to remove the check mark.

> **NOTE:** Clicking any of the following options allows you to filter records in the *Mappings* panel based on the selected option: *Un-mapped*, *Marked as Do Not Map*, *Mapped*, and *All*. For example, clicking *Mapped* allows you to view only mapped data points in the *Mappings* panel.

b Select a row in the *Mappings* panel that includes the Bullhorn data point and engineering units you want to map.

> **NOTE:** To rearrange grid columns in the *Facilities*, *Mappings*, or *Fields* panel, drag and drop the name of a grid column to a new position. To resize a grid column, place the mouse over a column boundary to change the cursor to a horizontal resize cursor ⟺. Then click and drag the column boundary to resize the grid column.

c In the left *Facilities* panel, map a PCS Axis milepost to the Bullhorn data point selected in the *Mappings* panel. Double-click the milepost in the *Facilities* panel to move it to the *Milepost* field in the *Mappings* panel.

> **NOTE:** Double-clicking a mapped field in the *Mappings* panel allows you to unmap the selected field. When a message displays, click ✔ **Yes** to unmap the selected field, or ✖ **No** to cancel the operation.

d In the right *Fields* panel, map a PCS Axis field to the Bullhorn *Engineering Units* field in the *Mappings* panel. Double-click a PCS Axis field in the *Fields* panel to move it to the *Field* column in the *Mappings* panel.

e Repeat steps "a" through "d" as needed and then click 💾 **Save**.
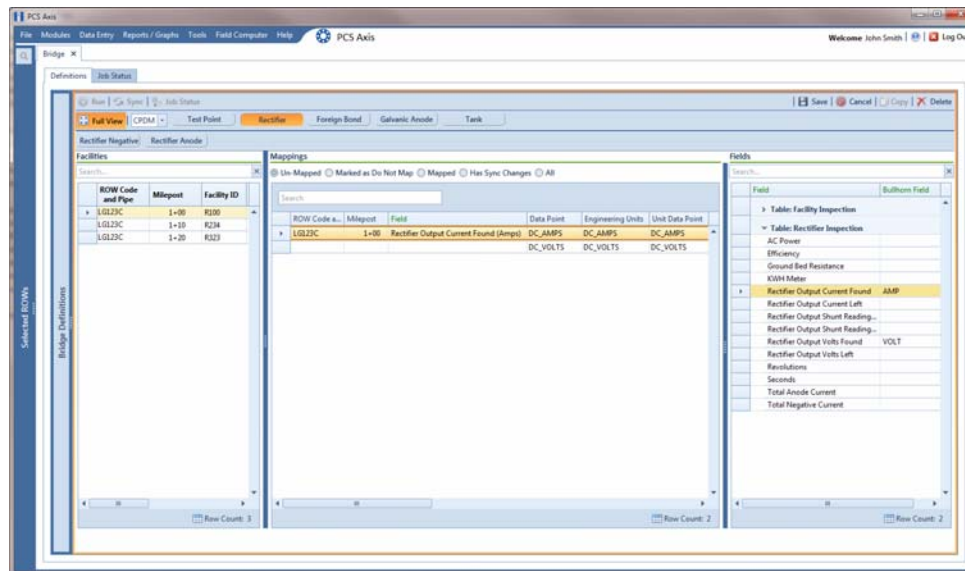
Figure 9-46. PCS Axis and Bullhorn Mappings

12 When Bullhorn units are added or removed in the unit group set up for the Extract, or the Bullhorn client name changes, click the ⟳ **Sync** button to synchronize and update the definition file in PCS Axis.

13 To manually run the definition, follow these steps:

a Click ⟳ **Run** in the *Definitions* window.

b When a date range dialog box opens, specify a date range for the data you want to import from BAT. Type a date in the **Start Date** and **End Date** fields or click the down arrow in these fields to choose a date using a calendar.

c Click ⟳ **Apply** to run the Bridge Bullhorn definition and close the date range dialog box.
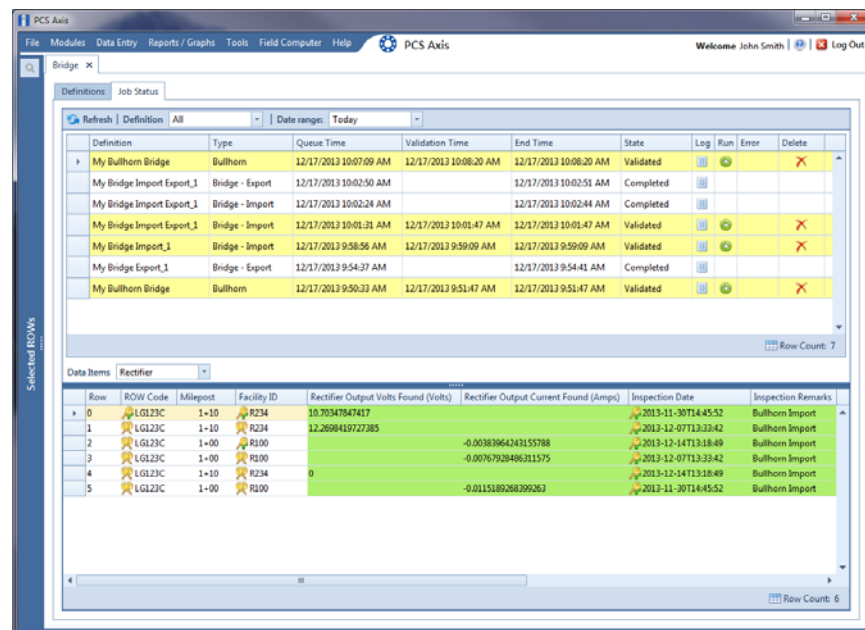
After clicking *Apply*, Bridge validates data in the Bridge Bullhorn definition; data is not posted in the database during this process.

d When the message *Validated* displays, click ⟳ **View Job Status** to open the *Job Status* window to complete any of the following tasks:

• Click ⟳ **Run** for a Bullhorn Bridge definition listed in the window to post data in the database.

- Click ✗ **Delete** for a Bullhorn Bridge definition listed in the window to delete the job. This function is available for prevalidated data that has not posted in the database yet.

- Click 🔄 **Refresh** to update information in the *Job Status* window.

NOTE: PCS Axis adds the phrase *Bullhorn Import* in the *Inspection Remarks* field of the facility *Inspection* data entry grid.

---

14 To view the status of a Bridge session, click 🔵🟠 **Job Status** in the *Definitions window* to open the *Job Status* window (Figure 9-47). Clicking ▦ **Log** for a Bridge session opens the log file for the selected session.

Figure 9-47. Job Status

15 To copy the Bridge definition to a file, such as a Notepad or Microsoft Word file, follow these steps:

a Click the **Definitions** tab if the *Definitions window* is not open.

b Click ▭ **Copy to Clipboard**.

c Start a text editor or word processor program, such as Notepad or Microsoft Word.

d Open a new file and then **Paste** the definition file. Click **Save**.

Importing Pipeline Series

The following procedure explains how to use Bridge to import pipeline series in PCS Axis. The import transition file must include fields that you can map to the following required PCS Axis fields:

- ROW Code

- Series Number

- Start Milepost

- End Milepost

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the Bridge definition. Click ![icon] **Save** to close the window (Figure 9-43, page 428).

2 Click **Tools** > **Bridge** to open the *Bridge* window. Then click ![icon] **Basic** to open the basic definition panel (Figure 9-48).
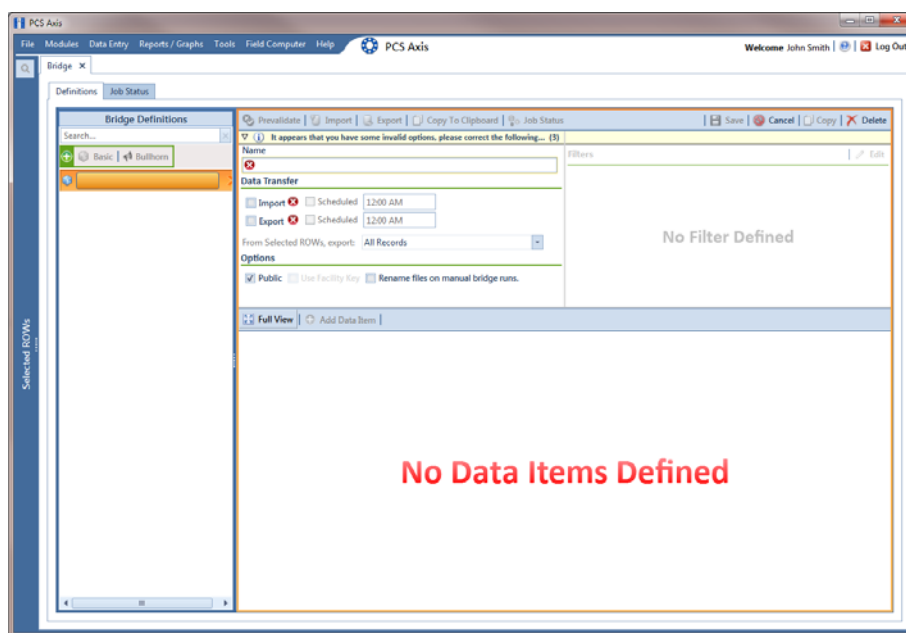
Figure 9-48. Basic Definition Panel

3 Type a unique name for the Bridge definition in the **Name** field (Figure 9-48, page 434).

NOTE: Clicking the *Bridge Definitions* bar collapses the panel allowing you to view more of the definition panel. Clicking the bar again expands the panel.

---

4 Set properties in the *Data Transfer* group box in the following manner:

a Click the **Import** check box.

b If you want PCS Axis to automatically run the import file at a scheduled time, click the **Scheduled** check box and then type a scheduled time in the adjacent field. Enter a scheduled time using 12-hour time format to specify the hour, minute, and AM/PM setting (HH:MM AM or PM).

When the import file is not scheduled to run automatically, you can run it manually by clicking the 📁 **Import** button.

IMPORTANT: When scheduling a time to run *Bridge*, choose a time that does not impact other network services or computer resources. For example, consider a staggered time schedule instead of running *Bridge* at the same time as other scheduled network services.

---

5 Set properties in the *Options* group box as follows (Figure 9-49, page 436):

a Click the **Public** check box if you want the import definition file available for use by all PCS Axis users. When the check box is empty, the definition file is available only to the user who creates it.

b Do not enable the option *Use Facility Key*. It is not required to import pipeline series. See *Using a Facility Key in Bridge* (page 388) for more information if needed

c If you plan to run the Bridge definition manually and want Bridge to rename the file after importing data, click the check box **Rename files on manual bridge runs**.
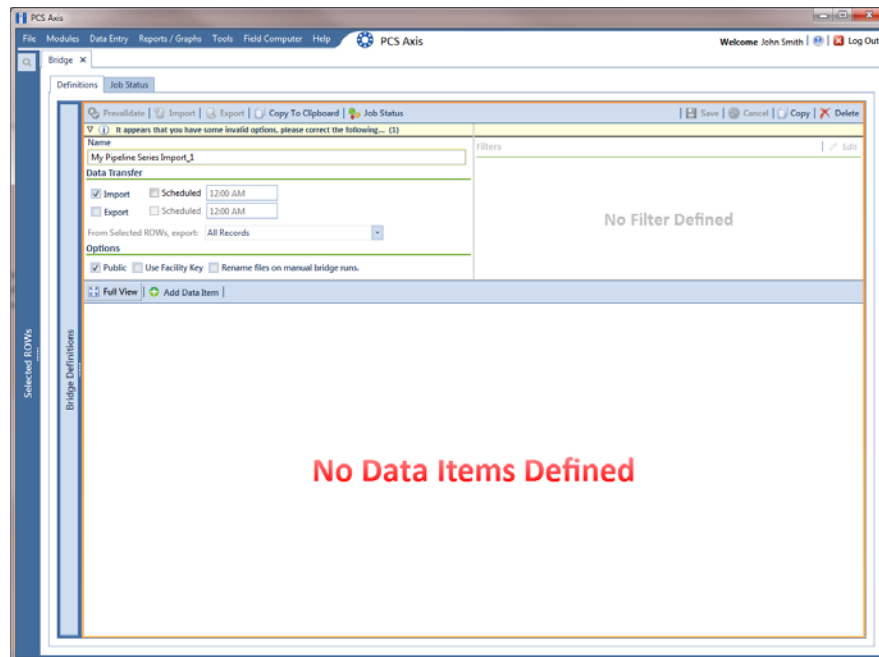
Figure 9-49. Bridge Import Definition

6 Click ![save] **Save** and then click ![fullview] **Full View** to hide the group boxes *Data Transfer* and *Options*. Clicking *Full View* again displays these group boxes.

NOTE: Clicking the ![toggle] toggle button in the ![info] information bar displays important information related to required property settings.

---

7 Click ![add] **Add Data Item** to open the *Data Items* window and then complete the following steps (Figure 9-50, page 437):

a Open the **System Items** folder and then double-click **Series** to move the data item to the right pane of the window.

b Click ![ok] **OK** to close the window and return to the definition panel. Then click ![save] **Save**.
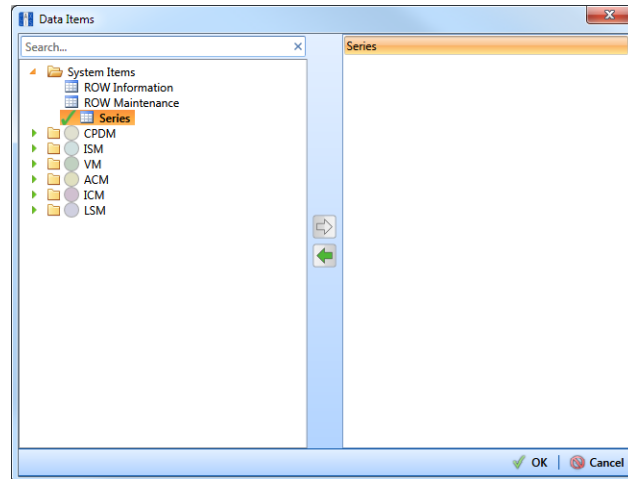
Figure 9-50. Data Items

8 Identify the location of the import transition file using the following steps (Figure 9-51, page 438):

a Click the ellipsis button **...** in the field **Import File Name** to open the *Import File* dialog box. Navigate to the import file and then select it.

b Click **Open** to close the dialog box and return to the definition panel. The path to the import transition file displays in the field *Import File Name*.

9 To assign inspections to a survey folder based on the inspection date, complete one or both of the following steps in the *Options* group box as required (Figure 9-8, page 395):

a If you want to assign inspections to an annual survey folder, click the check box **Assign inspections to an Annual Survey**.

b If you want to assign inspections to a periodic survey folder, click the check box **Assign inspections to a Periodic Survey**.
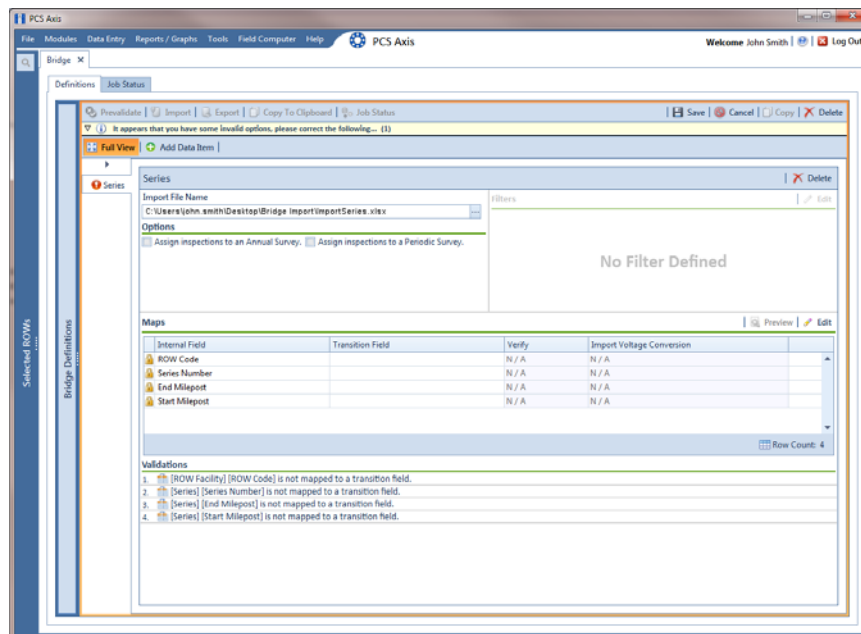
Figure 9-51. Definition

10 To map fields in PCS Axis with fields in the import transition file, follow these steps:

a Click 🖌 **Edit** in the *Maps* group box to open a field mapping window (Figure 9-52, page 439).

NOTE: Fields in the *Mappings* panel with a lock icon 🔒 are required fields for mapping, such as *ROW Code*, *Series*, *End Milepost*, and *Start Milepost* shown in Figure 9-52 (page 439).

---

b If you want to sort import fields listed in the *Transition Fields* panel in alphabetical order, click the check box **Sort Alphabetically**.

c To map PCS Axis fields with fields in the import transition file, follow these steps:

• Select a PCS Axis field in the *Mappings* panel.

• Map the selected field to a field in the import file by double-clicking a field listed in the *Transition Fields* panel. Repeat this step for remaining fields.
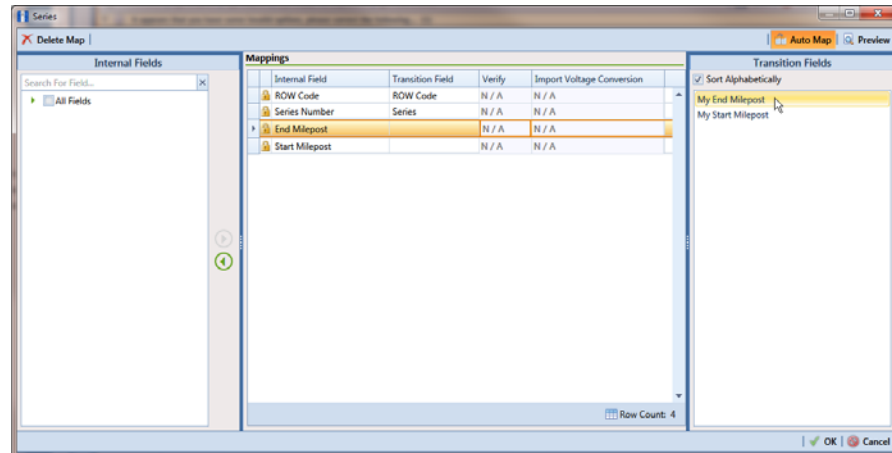
Figure 9-52. Field Mappings

> **NOTE:** When the ⬜ **Auto Map** button is enabled and the names of fields in the import transition file match those in PCS Axis, double-clicking a PCS Axis field in the *Mappings* panel automatically maps to an import field listed in the *Transition Fields* panel.

d If you want to preview fields for mapping in the import transition file, click the 🔍 **Preview** button to open the import file in the *Preview Maps* window.

11 Click ✔ **OK** to close the mapping window and return to the definition window. Then click 💾 **Save**.

Field mappings display in the *Maps* group box.

12 To validate the definition, click the 🔄 **Prevalidate** button. When the validation process completes and the following message displays (Figure 9-53), click 🔄 **View Job Status** to open the *Job Status* window or ↩ **Return to Definition** to open the *Definitions window*.

> **NOTE:** The *Prevalidate* process confirms the definition file is set up correctly; it does not post data in the database.
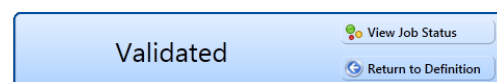
Figure 9-53. Validated Message

13 To manually import the *Pipeline Series* in PCS Axis, complete one of the following steps:

a If the *Job Status* window is open, click ![Run icon] **Run** for a selected import file listed in the *Job Status* window (Figure 9-54). Then click ![Refresh icon] **Refresh** to update status information.

b If the *Definitions window* is open for the import file, click ![Import icon] **Import**.

14 To view the status of a Bridge session, click ![Job Status icon] **Job Status** in the *Definitions window* to open the *Job Status* window. Clicking ![Log icon] **Log** for a Bridge session opens the log file for the selected session.
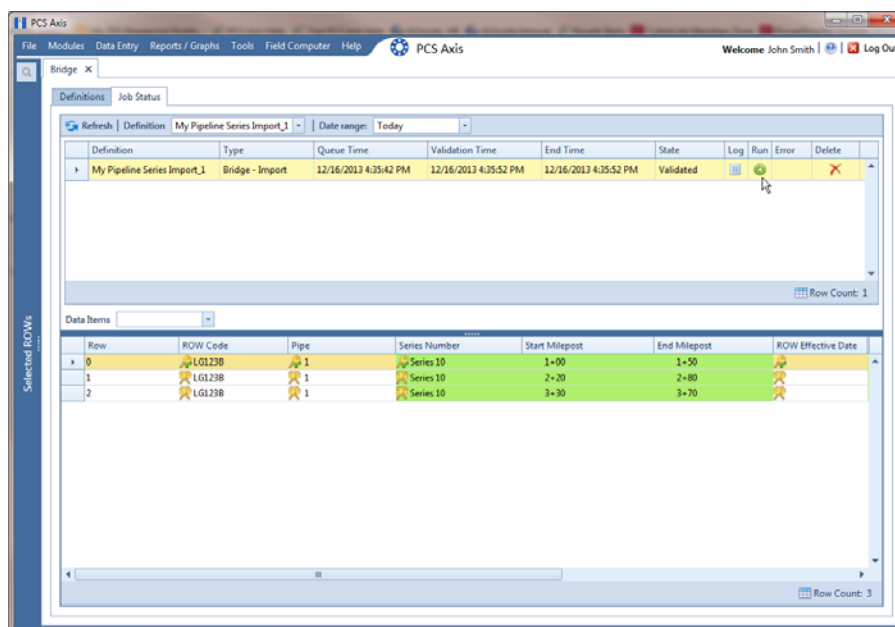
Figure 9-54. Job Status

15 To view the imported *Pipeline Series*, click **Data Entry** > **Pipeline Series**.

When the import transition file includes facility survey readings that have also been mapped in the Bridge definition, PCS Axis imports this data in the facility Inspections grid (*Data Entry > Edit <module> Data*).

Viewing Bridge Job Status and Log

To view the job status and log for a Bridge definition, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![Save icon] **Save** to close the window.

2 Click **Tools** > **Bridge** to open the *Bridge* window (Figure 9-55).
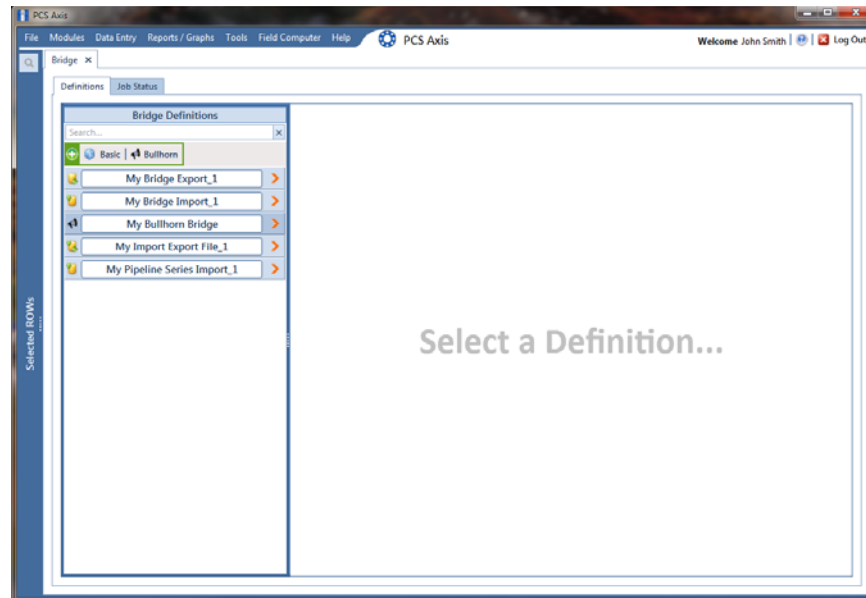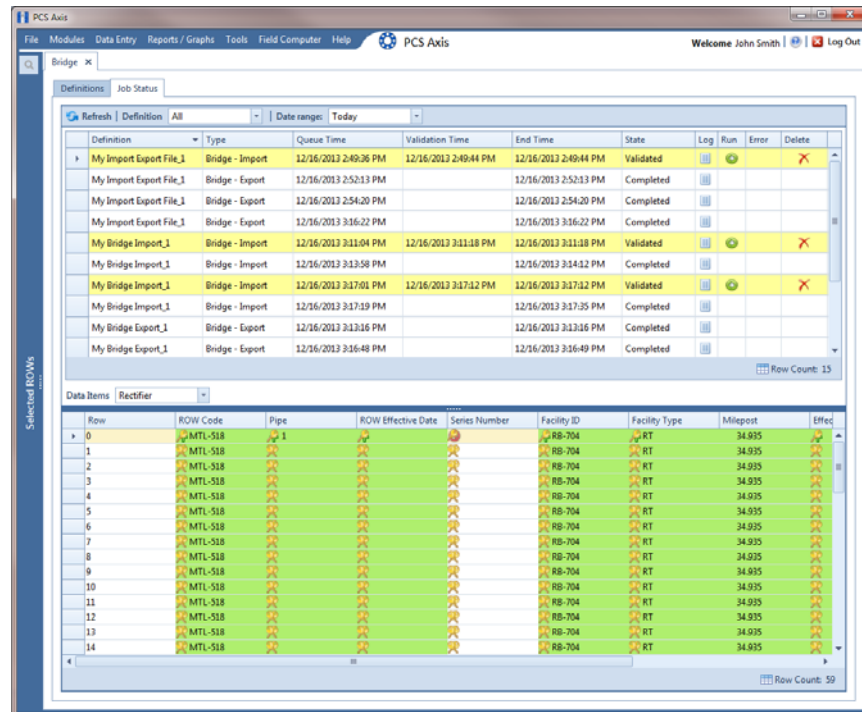
Figure 9-55. Select Definition

3 Click the **Job Status** tab to open the job status window (Figure 9-56, page 442).

4 Select a definition to display status information in the bottom panel of the job status window.

Figure 9-56.   Job Status

5   If you want to delete prevalidated data that has not posted in the database yet, click ✖ **Delete** to remove the job from the *Job Status* window (Figure 9-56).

6   Click ▦ **Log** for a selected definition to open a window with detailed information (Figure 9-57).

Figure 9-57. Log

Notes

10

Using Job Service Viewer

When you need to know which job is currently running, which jobs are in the queue waiting to run, or a history of jobs that have run, use *Job Service Viewer* to view details for each of these scenarios.

Topics in this chapter include those in the following list:

- *About Job Service Viewer* (page 446)

- *Viewing Current and History Jobs* (page 448)

- *Restarting the PCS Axis Job Service* (page 448)

About Job Service Viewer
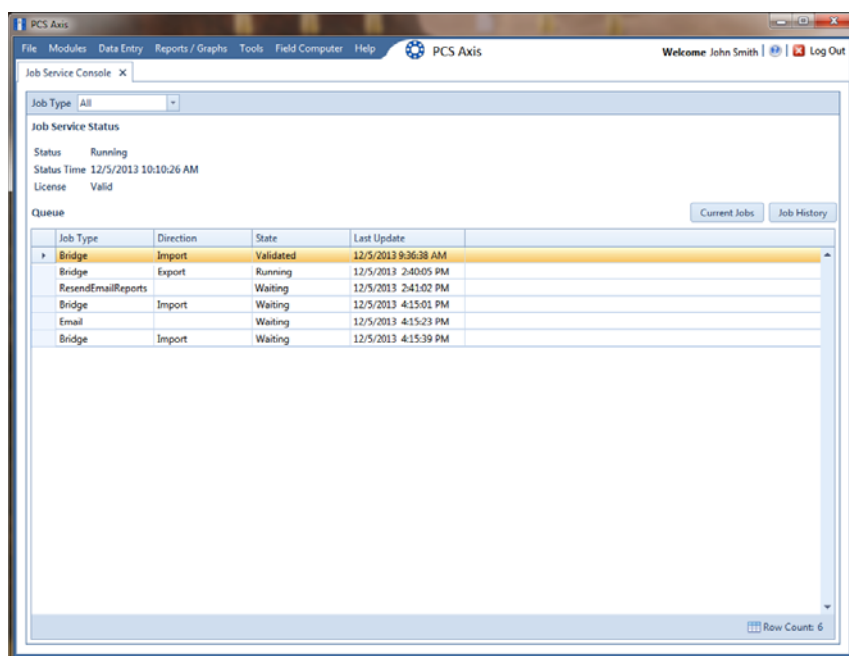
Job Service Viewer provides two functions. One allows you to activate the optional Bridge add-on for importing raw data from third-party applications as described earlier in the section *Activating Bridge Import for Operation* (page 5). The other provides job status information for the following list of job types to identify which job is currently running, those waiting in the queue to run, and a history of completed jobs:

- Bridge Import, Bridge Export, and Bridge Import/Export

- Email Notification

- Field Computer Receive

The type of job displays in the *Job Type* column. All Bridge and Field Computer Receive jobs display as a *Bridge* job type. The *EmailReports* job type displays for Email Notification jobs. The *ResendEmailReports* job type displays when you resend an Email Notification (Figure 10-1).

Job status displays in the *State* column. The *Current Jobs* grid identifies the job that is currently running as *Running* and those that are waiting in the queue as *Waiting*. The job status *Validated* displays for a manual Bridge import. When the manual Bridge import is run by clicking the *Run* button in Bridge, the status changes to *Running*.

Use the *Job Type* drop-down list to select an option for filtering data in the window. For example, when you only want to view Bridge job types in the console, click the down arrow in the *Job Type* field and select *Bridge* in the selection list.

Figure 10-1. Current Jobs

The *Job History* grid provides information for completed and failed jobs. Jobs that have run successfully are labeled *Completed* in the *State* column while those that did not run successfully are labeled *Failed* (Figure 10-2, page 447).

Figure 10-2. Job History

A log with job information is available for all jobs listed in the *Job History* grid. Clicking the log icon ▥ opens a window with information similar to that shown in the following example (Figure 10-3).

Figure 10-3. Job Log Example

Viewing Current and History Jobs

To view current and history jobs, follow these steps:

1 Click **Tools** > **Job Service Viewer** to open the *Job Service Console* (Figure 10-1, page 446).

2 To view jobs that are currently running and in the queue, click **Current Jobs**.

3 To view a list of all jobs that have previously run, click **Job History**. If you want to view additional information about a job listed in the *Job History* grid, click the ▥ log icon for that job.

4 If you want to filter the data view in the console to only view a particular job type, click the down arrow in the **Job Type** field and select an option in the list, such as *Email Reports* or *Field Computer*.

5 To close the *Job Service Console*, click the ✖ close button.

Restarting the PCS Axis Job Service

If the message *Not Running* displays in the *Status* field of the Job Service Console as shown in the following figure (Figure 10-4), use the procedure in this section to restart the PCS Axis Job Service. PCS Axis Job Service monitors the job queue, initiating jobs as they become available.
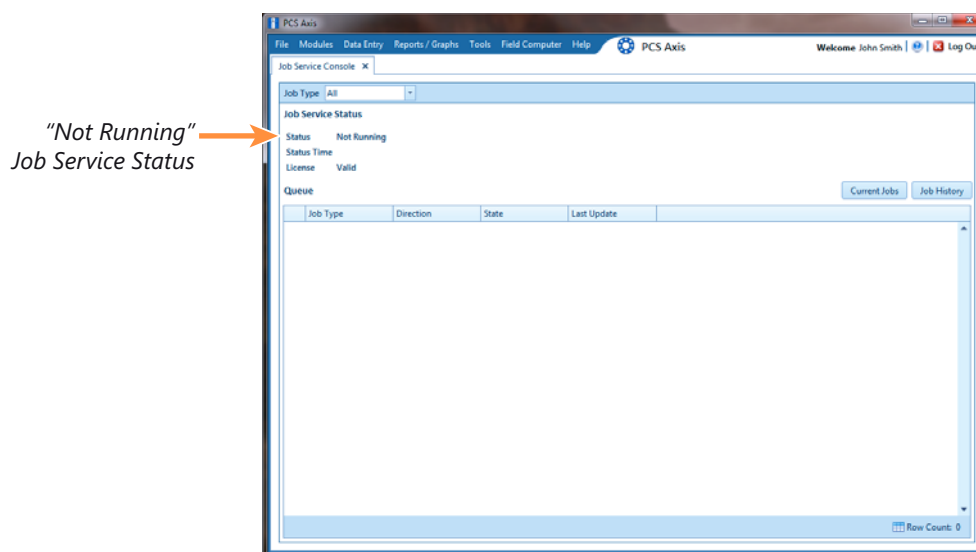
Figure 10-4. Job Service Status

To restart the PCS Axis Job Service, follow these steps:

1 Click the Windows **Start** button 🪟 and right-click **Computer** to open a shortcut menu. Select **Manage** to open the *Computer Management* console (Figure 10-5).

2 Double-click **Services and Applications** in the left pane of the console. Then click **Services** to display a list of services in the middle pane.

3 Select the service labeled **PCS Axis Job Service 1.3** in the middle pane. Click **Start** to start the service.

4 Click **File** > **Exit** to close the *Computer Management* console.

5 In PCS Axis, verify the message *Running* displays in the *Status* field of the Job Service Console (Figure 10-4, page 448).
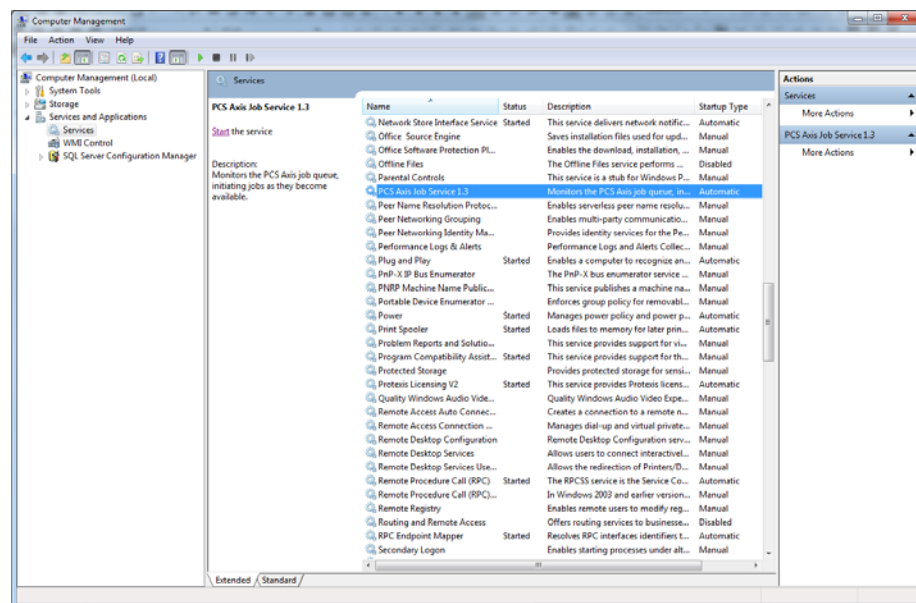
Figure 10-5. Computer Management Console

Notes

Using Email Notification

Email Notification is a feature that allows you to send reports at a regularly scheduled time as an attachment in an email to recipients. Reports are in Adobe® PDF format and can be sent to one or more PCS Axis users as well as to non-PCS Axis users. You can set up email notifications with email reports that only include data for pipeline segments assigned to a recipient as well as pipeline segments assigned to an email report.

IMPORTANT: Because some email servers are set up to process emails no larger than 10 MB (megabytes) in size, it may be necessary to contact your IT department for this information to ensure email recipients receive email notifications.

Topics in this chapter include those in the following list and are intended for users with *SysAdmin* permissions:

- *Adding Email Recipients* (page 452)

- *Adding an Email Report* (page 458)

- *Assigning Reports by Recipient or Email Report* (page 464)

- *Viewing the Log* (page 466)

- *Re-sending Reports* (page 467)

- *Stopping Delivery of Email Notifications* (page 468)

NOTE: Using *Email Notification* requires property settings in *Options* (*Tools > Options*). For more information refer to *Setting Email Notification Options* (page 30).

Adding Email Recipients

Information in this section explains how to add email recipients of reports. Email recipients are both users and non-users of PCS Axis and can be set up with more than one email address. Topics in this section include:

- *Adding a PCS Axis User*

- *Adding an External User* (page 456)

NOTE: Do not assign all pipeline segments in the hierarchy to recipients of email reports. Doing so may cause server problems when sending email notifications.

Likewise, use a limited hierarchy selection for users with *SysAdmin* privileges. Email reports are generated based on the hierarchy view in *Email Notifications* for *SysAdmin* users, which is ALL pipeline segments in PCS Axis.

Adding a PCS Axis User

The following procedure explains how to add a PCS Axis user in *Email Notification*. The process includes assigning one or more pipeline segments to the PCS Axis user. This allows PCS Axis to send email reports that include data *only* for those pipeline segments assigned to the PCS Axis user.

Complete the following steps:

1 Click **Tools** > **Email Notification** to open the *Email Notification* window.

2 Click ⊕ **Add Pcs Axis User** to display a list of PCS Axis users. All PCS Axis users added in *User Management* (*Tools* > *User Management*) display in the center panel of the *Email Notification* window.

3 Select a user name in the center panel (Figure 11-1, page 453).
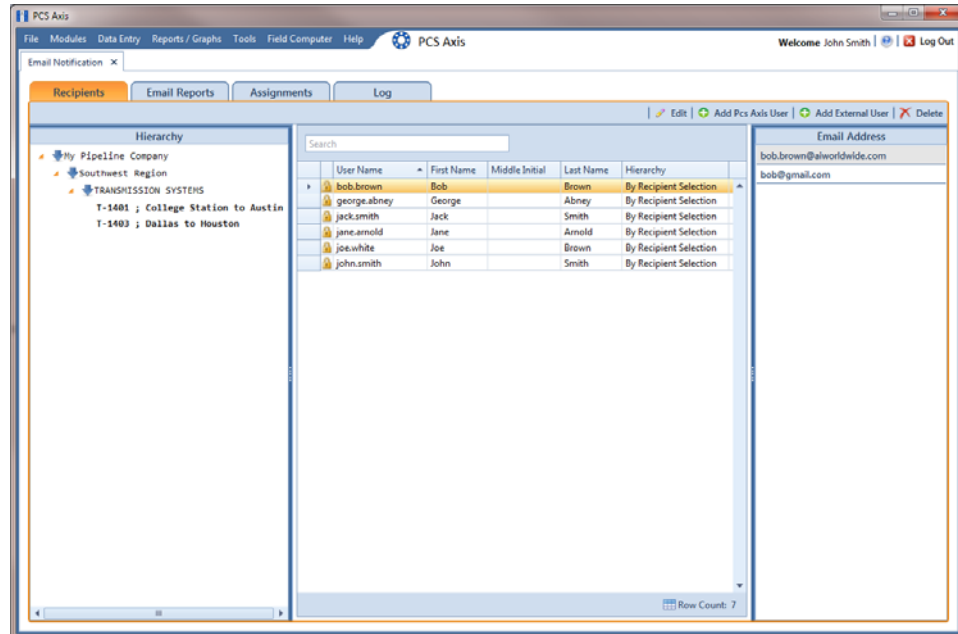
Figure 11-1. Recipients / Add PCS Axis User

4 If PCS Axis is set up with *Hierarchical Security* in system *Options* (*Tools > Options*), click the down arrow in the **Hierarchy** field and select one of the following options. Your selection determines which pipeline segments are assigned to the user.

- Select **By Hierarchy Security** if you want to use the same pipeline segments assigned to the user in *Hierarchy Rights* of *User Management* (*Tools > User Management*).

- Select **By Recipient Selection** if you want to assign one or more pipeline segments to the PCS Axis user in the *Hierarchy* panel of the *Recipients* tab.

NOTE: For information about *Hierarchical Security*, refer to *Setting Security Options* (page 39) and *Setting Up User Management* (page 127).

5   If **By Recipient Selection** is selected in the *Hierarchy* field, click the ▶ toggle arrow in the *Hierarchy* panel to view a list of pipeline segments in the hierarchy. Click the check box for each pipeline segment you want to assign to the user.

A check mark inside the check box indicates a selection. To clear a selection, click the check box to remove the check mark.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays information related to required property settings.

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6   If you want to add an additional email address for the PCS Axis user, complete the following steps:

a   Click ⊕ **Add Email** to open the *Add Email Address* dialog box (Figure 11-2).

b   Type an email address in the **Email Address** field and then click ✓ **OK**. Repeat this step as needed to add another email address.
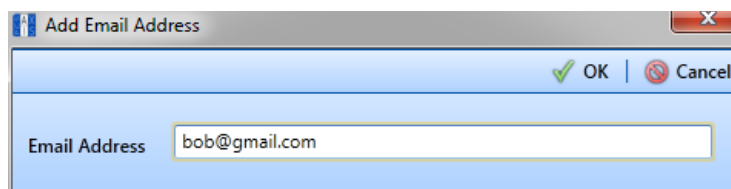
Figure 11-2. Add Email Address

7   Click 💾 **Save** to save changes.

The *Email Address* panel displays all email addresses set up for a user selected in the center panel (Figure 11-3).
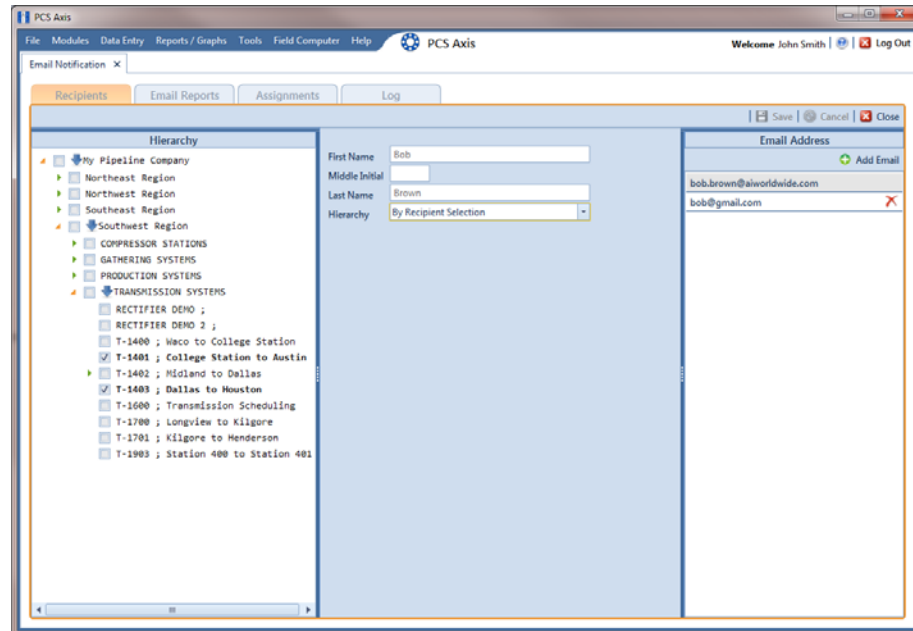
Figure 11-3. Recipients / Email Address

Adding an External User

An external user is a person who is not set up with login credentials for PCS Axis in *User Management* (*Tools > User Management*). The following procedure explains how to add an external user as a recipient of one or more email reports.

Complete the following steps:

1 Click **Tools** > **Email Notification** to open the *Email Notification* window.

2 Click ⊕ **Add External User**. Type the user's **First Name**, **Middle Initial** (optional), and **Last Name** in the respective fields located in the center panel of the window (Figure 11-4).

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays information related to required property settings.
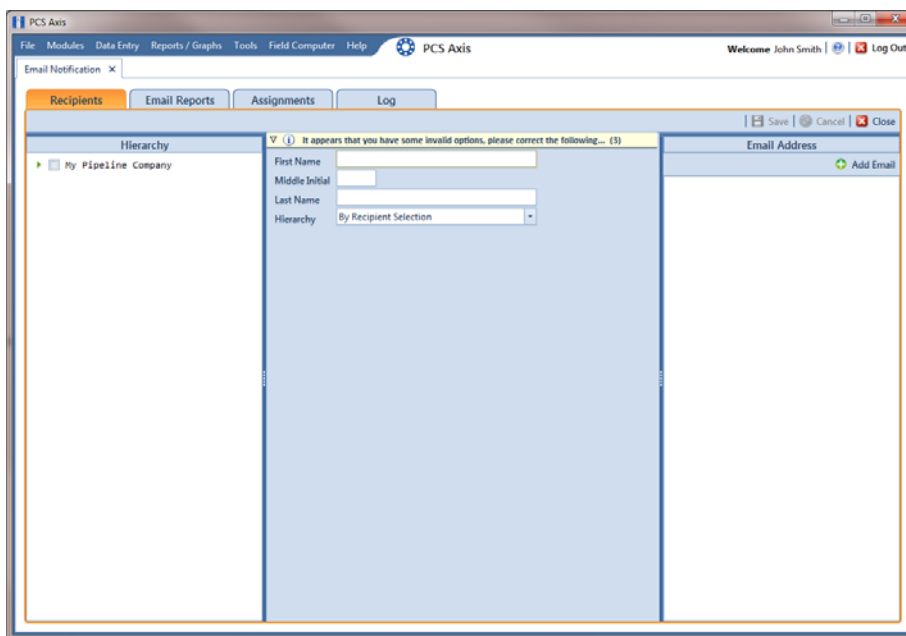
Figure 11-4. Recipients / Add External User

3   Click ➕ **Add Email** to open the *Add Email Address* dialog box. Type the user's email address in the **Email Address** field and then click ✔ **OK**. Repeat this step as needed to add another email address (Figure 11-5).
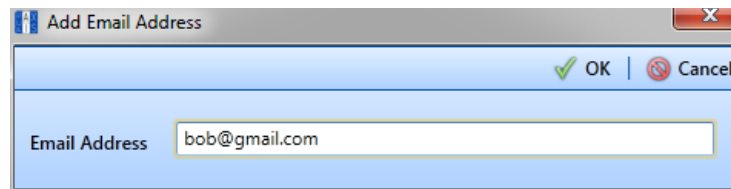
Figure 11-5. Add Email Address

4   Click the toggle arrow ▶ in the *Hierarchy* panel to view a list of pipeline segments in the hierarchy. Click the check box for each pipeline segment you want to assign to the user (Figure 11-6).

Assigning pipeline segments to the external user allows PCS Axis to send email reports with data *only* for those pipeline segments assigned to the external user.

A check mark inside the check box indicates a selection. To clear a selection, click the check box to remove the check mark.

5   Click 💾 **Save** to save changes.

The *Email Address* panel displays all email addresses set up for a user selected in the center panel (Figure 11-6).
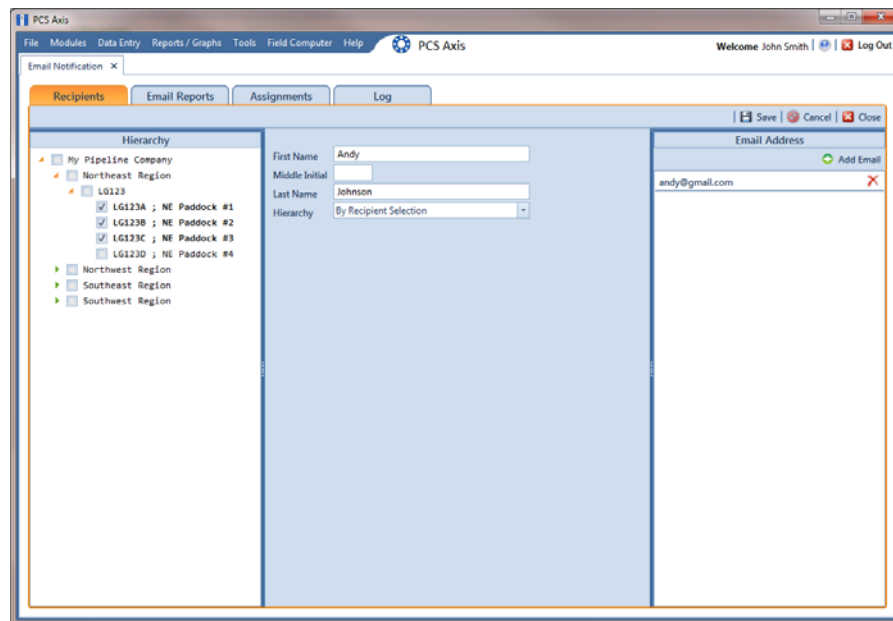
Figure 11-6. Recipients / External User

3   Type a name for the email report in the **Name** field. Fields requiring information include a ❌ red icon, such as *Name* shown in the previous example (Figure 11-7, page 458).

The filename of the PDF report sent as an attachment in an email to recipients includes the *Name* of the email report and transmission date. This same information is used as the *Subject* of the email, such as *My_Email_Report_03_10_2013.pdf*.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays information related to required property settings.

---

4   Complete one of the following steps to set the check box *Send No Data Found*:

a   To always have an email sent to recipients, including when no report data is found, click the check box **Send No Data Found** to place a check mark inside the check box. When no report data is found, the recipient receives a report with the message *No Data Found*.

b   To only send a report to an email recipient when report data is found, clear the check mark by clicking the check box **Send No Data Found**.

5   Choose which data to include in the report. Click the down arrow in the **Mode** field and select one of the following options:

•   *Full*: Report includes current and historical data.

•   *Incremental*: Report only includes new data that has occurred since the last time the report was sent to email recipients.

6   Click the down arrow in the **Hierarchy** field and select one of the following options that determine which pipeline segments to include in the report:

•   *By Assigned Recipient*: Report includes data *only* for those pipeline segments assigned to a recipient in the *Recipients* tab of *Email Notification*.

•   *By Email Report Selection*: Report includes data *only* for those pipeline segments assigned to the email report in the *Hierarchy* panel of the *Email Reports* tab in *Email Notification*.

7   If you selected *By Email Report Selection* in step 6, complete the following steps to select which pipeline segments to include in the email report:

a   Click the toggle arrow ▶ in the *Hierarchy* panel to view a list of pipeline segments in the hierarchy (Figure 11-8).

b   Click the check box for each pipeline segment you want to include in the report. A check mark inside the check box indicates a selection. To clear a selection, click the check box to remove the check mark. In the following figure, pipeline segments *LG123-D* and *LG123-E* have been selected in the *Hierarchy* panel.
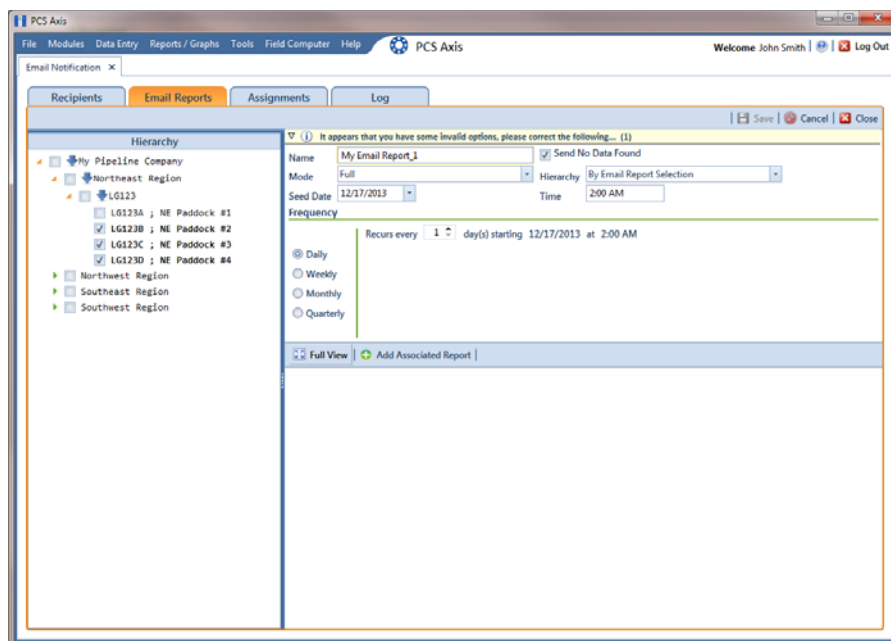
Figure 11-8.   Email Reports

8   Complete the following steps to set up a transmission schedule for sending email reports to recipients.

IMPORTANT: When setting up a transmission schedule, consider a time and frequency interval that does not impact other network services or computer resources.

---

a   Choose a date to begin sending the report. Click the down arrow in the **Seed Date** field to select a start date using a calendar.

b   If you want to override the default time set up in *Options* for sending reports, enter a time in the **Time** field. Use 12-hour time format to indicate the hour, minute, and AM/PM setting (HH:MM AM/PM).

> **NOTE:** For more information about *Options*, see *Setting Email Notification Options* (page 30).

c   Choose how often to send reports to email recipients. Select one of the following options to set a *Frequency* schedule:

-    *Daily*: Sends first report on the *Seed Date* and recurring reports at regular intervals based on the *Recurs every* setting.

-    *Weekly*: Sends first report on the *Seed Date* and recurring reports at regular intervals based on settings for *Recurs every* and a day of the week selection.

-    *Monthly*: Sends first report on the *Seed Date* and recurring reports at regular intervals based on day and month settings.

-    *Quarterly*: Sends first report on the *Seed Date* and recurring reports at regular intervals based on the first day of each quarter.

9   To select a PCS Axis report to send to email recipients, follow these steps:

a   Click ⊕ **Add Associated Report** to open the *Add Associated Report* window (Figure 11-9, page 462).

b   Double-click a 📁 folder to view a list of reports available for selection. Clicking the ▸ toggle arrow for a report category also displays available reports.

For example, double-clicking 📁 **ROW Reports** > 📁 **ROW Maintenance Report** displays a list of reports available for selection (Figure 11-9, page 462).

c Select a report in the list to move it to the *Selected Report* panel and then click ✔ **OK** (Figure 11-9).
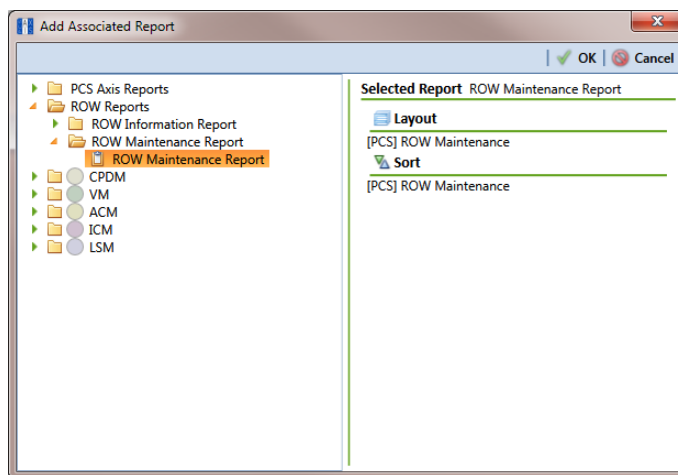
Figure 11-9. Add Associated Report

10 Click ⛶ **Full View** to only display fields for setting report options. Clicking *Full View* again displays all fields (Figure 11-10).

NOTE: Clicking the *Hierarchy* bar hides the *Hierarchy* panel. Clicking the bar again opens the panel.
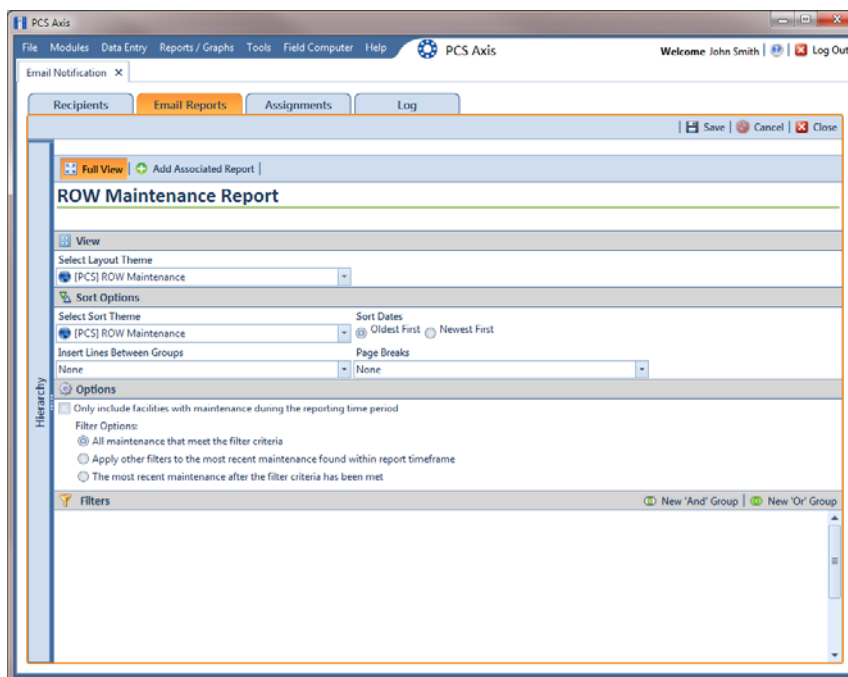
Figure 11-10. Email Reports

11 Set report options as required, such as a layout and sorting theme. For more information about report options, see *Working with a Report Based on the Columnar Report Style* (page 552).

12 Click ![save icon] **Save**.

Email reports currently set up in the system display in the *Email Reports* window as shown in the following example (Figure 11-11, page 463).
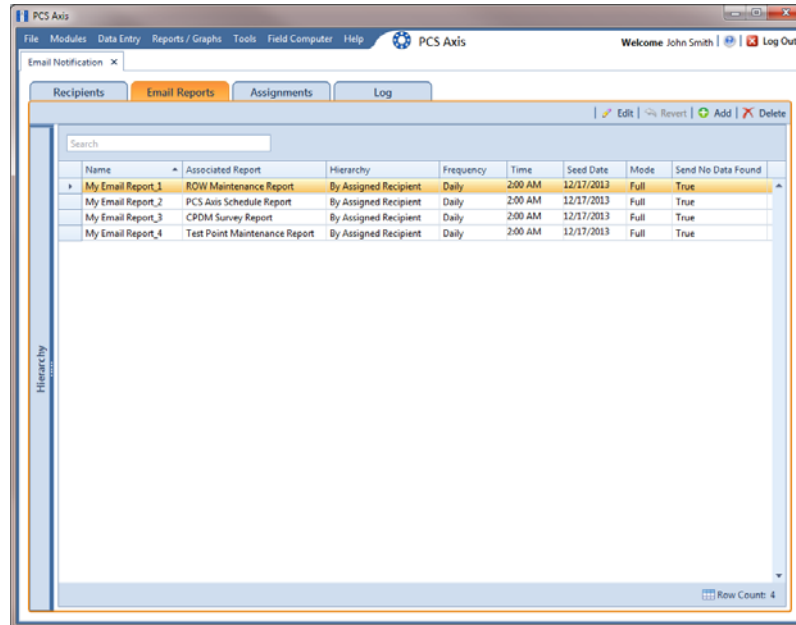
Figure 11-11. Email Reports

Assigning Reports by Recipient or Email Report

Assigning email reports *By Recipient* allows PCS Axis to only include data for pipeline segments assigned to the recipient in the *Recipients* tab of *Email Notification*. When assigning email reports *By Email Report*, the report only includes data for pipeline segments assigned to the email report in the *Email Reports* tab of *Email Notification*.

To assign an email report either *By Recipient* or *By Email Report*, follow these steps:

1 If the *Email Notification* window is not open, click **Tools** > **Email Notification**.

2 Click ⟨ Assignments ⟩ **Assignments** and then click ✚ **Add/Remove Assignments**.

3 To include data in an email report *only* for those pipeline segments assigned to a selected recipient, complete the following steps:

    a Click ⟨ By Recipient ⟩ **By Recipient** if it is not selected (Figure 11-12).

    b Select an email recipient in the grid and then double-click a report in the *Available Email Reports* panel to move the report to the *Assignments* panel. Repeat this step as needed for another email recipient listed in the grid.

       Clicking the ▶ top arrow button also moves a selected report to the *Assignments* panel.

    c Click 💾 **Save**.
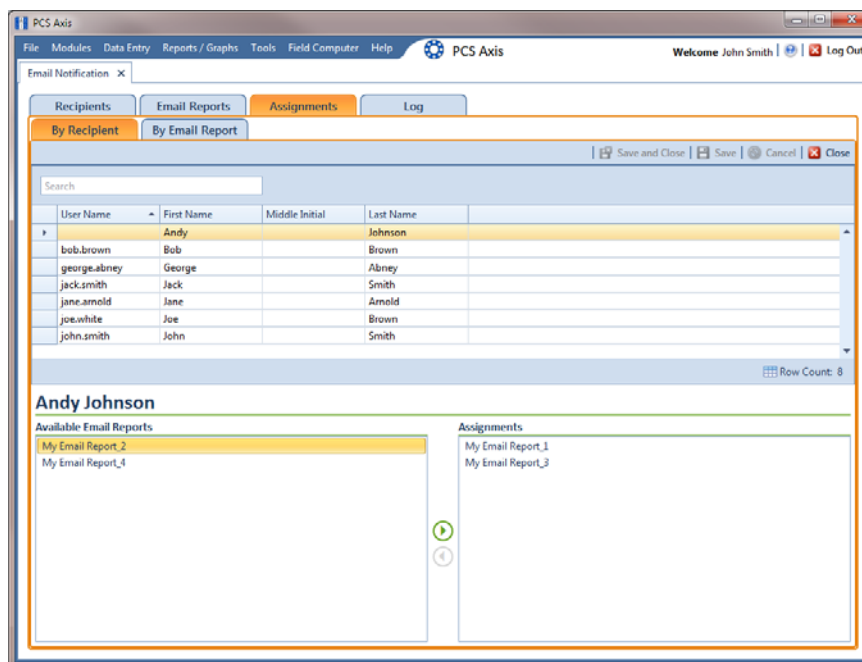
Figure 11-12. Assignments By Recipient

4   To include data in an email report *only* for those pipeline segments assigned to the email report, complete the following steps:

a   Click   By Email Report   **By Email Report** (Figure 11-13).

b   Select an email report in the grid and then double-click a recipient user name in the *Available Recipients* panel to move the user name to the *Assignments* panel. Repeat this step as needed for another email report listed in the grid.

Clicking the ⏵ top arrow button also moves a selected user name to the *Assignments* panel.

c   Click 💾 **Save**.
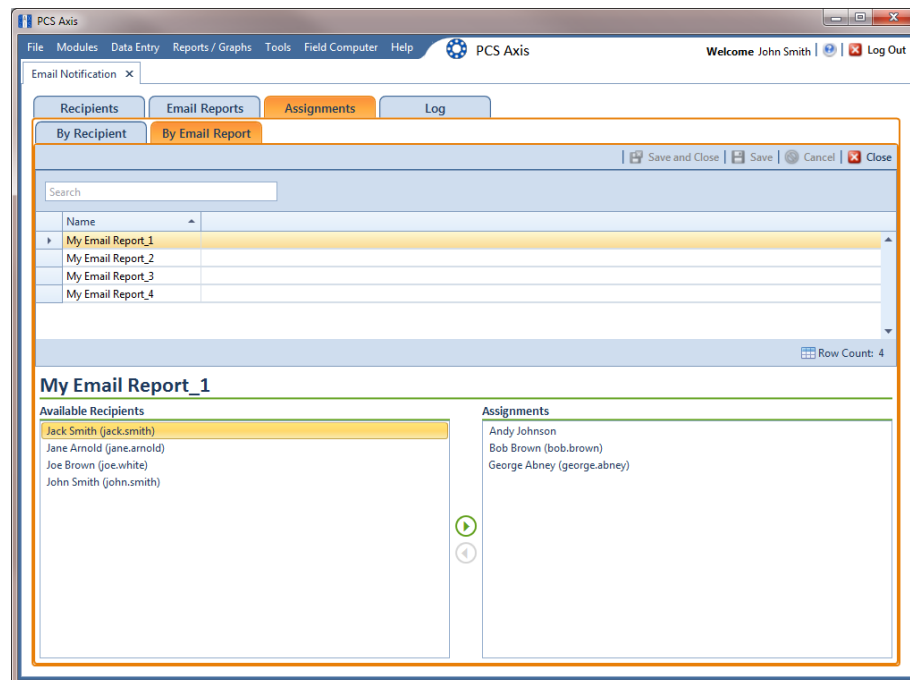
Figure 11-13. Assignments by Email Report
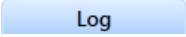
Viewing the Log

The *Email Notification* log is an activity log that identifies PCS Axis reports sent to email recipients. It includes a transmission date; whether or not email reports transmitted successfully; and set up information such as *Frequency* and *Mode* settings in the *Email Reports* tab of *Email Notification*.

If your computer is installed with Adobe® Reader, you can also view a copy of a report sent to an email recipient by clicking the *Preview* button in the *Details For* group box (Figure 11-14). Clicking *ReSend* for a selected email recipient in the *Recipients For* group box allows PCS Axis to re-send reports assigned to the user.

NOTE: PCS Axis retains log information and associated email reports in PDF format for the length of time specified in system *Options*. See *Setting Email Notification Options* (page 30) for more information.

To open the *Email Notification* log, follow these steps:

1 If the *Email Notification* window is not open, click **Tools** > **Email Notification**.

2 Click Log **Log** to open the *Email Notification* log (Figure 11-14, page 467).

3 Click the down arrow in the **Date range** field and select an option, such as *Last 24 hours*.

4 To sort information alphanumerically in ascending or descending order, click a column heading in the reports grid or in the *Recipients For* group box.

NOTE: When navigating the reports grid, pressing *Home* on the computer keyboard moves the cursor to the top of the grid. Clicking *Full View* opens and closes the panels *Recipients For* and *Details For* allowing you to view only the reports grid.

5 To view a copy of a report sent to an email recipient:

a Select a report in the list and then select an email recipient in the **Recipients For** group box. Information related to your selections display in the *Details For* group box.

b Click Preview **Preview** to open a copy of the selected report in Adobe Reader.
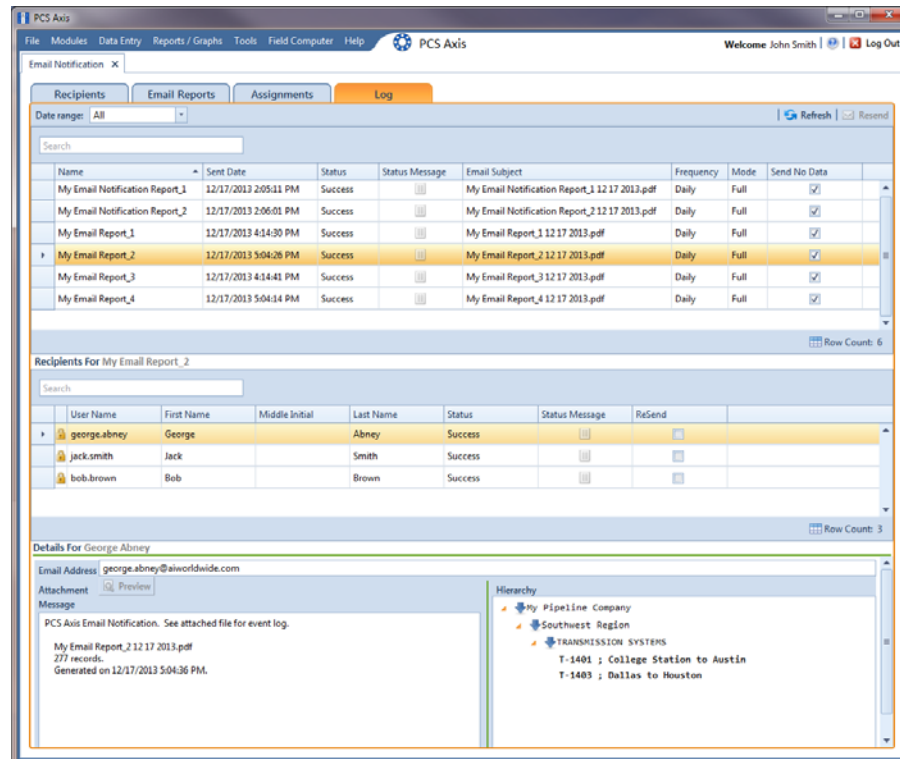
Figure 11-14. Email Notification Log

Re-sending Reports

To re-send a report to an email recipient, follow these steps:

1   If the *Email Notification* window is not open, click **Tools** > **Email Notification**.

2   Click ⟨ Log ⟩ **Log** to open the *Email Notification* log (Figure 11-14, page 467).

3   Select a report in the list and then select an email recipient in the **Recipients For** panel. Click the **ReSend** check box for the selected recipient to place a check mark inside the check box. Then click ✉ **Resend**.

4   Click 🔄 **Refresh** to update information displaying in the window.

The report is sent as a PDF attachment in an email to the recipient. The following figure shows an example of a typical email notification in Microsoft® Outlook® (Figure 11-15, page 468).
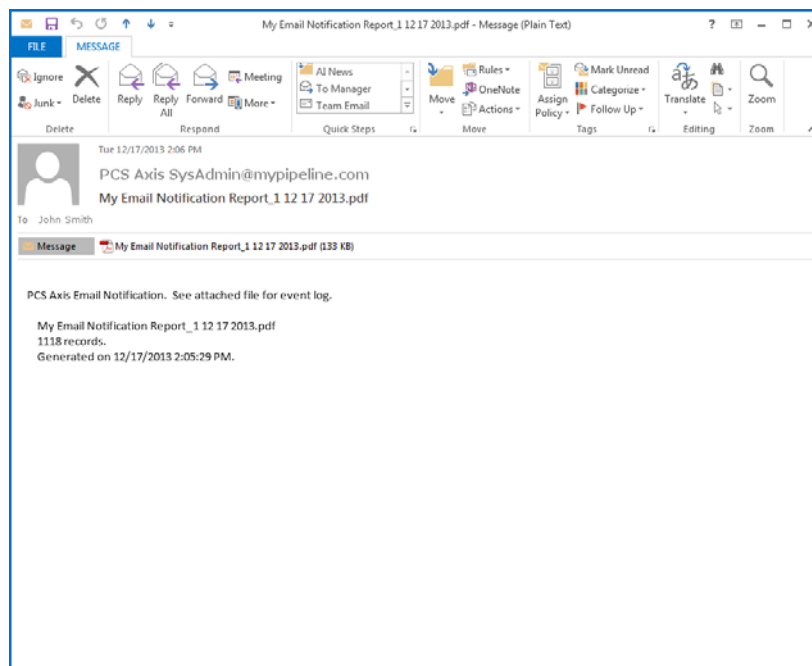
Figure 11-15. Example of Email Notification

Stopping Delivery of Email Notifications

Complete step 1 to stop sending scheduled email notifications to *all* recipients, or step 2 for one or more recipients:

1 To stop sending scheduled email notifications *to all recipients*, follow these steps:

    a Click **Tools** > **Options** to open the *Options* window.

    b Click the **Email Notifications** tab to view property settings for *Email Notification* (Figure 11-16, page 469).

    c Click the check box labeled **Disable Email Service** to place a check mark inside the check box. A check mark inside the check box indicates the service is disabled; scheduled email reports are no longer sent to recipients.

       When you want to restart the service and begin sending scheduled email reports to recipients again, click the **Disable Email Service** check box to remove the check mark.
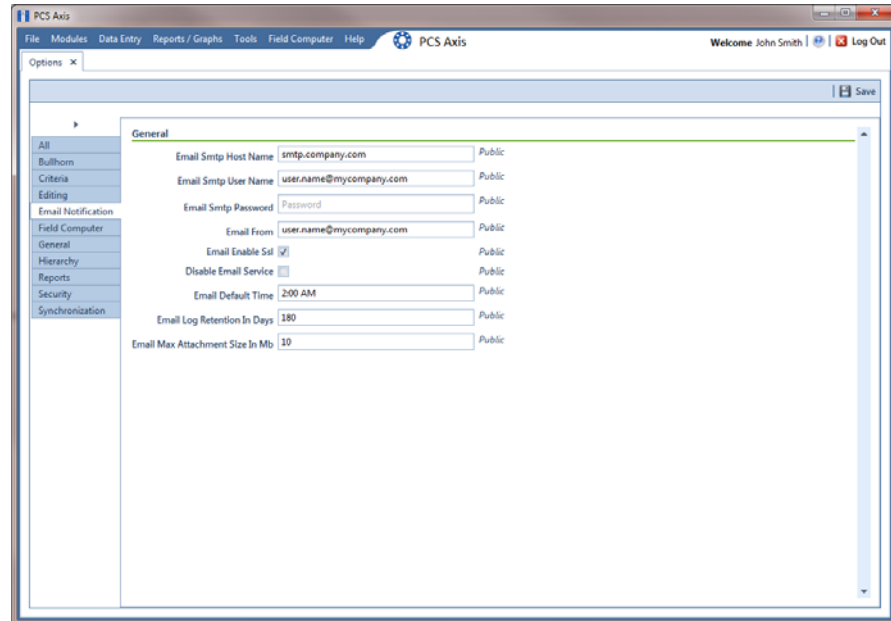
Figure 11-16. Options / Email Notification

2   To stop sending scheduled email notifications to *one or more recipients*, follow these steps:

a   Click **Tools** > **Email Notification** > **Assignments** tab. Then click
      Add/Remove Assignments to open the *Email Notification Assignments* window (Figure 11-17).

b   Select how you want to view report assignments. Click   By Recipient
      By Recipient to view report assignments by recipient or   By Email Report
      By Email Report to view assignments by report.

c   If you are viewing report assignments *By Recipient*, complete the following steps:

   1)   Select a recipient name in the grid.

   2)   Double-click a report in the *Assignments* pane to move it to the *Available Email Reports* pane. Then click   **Save**. The recipient receives email notifications only for those reports listed in the *Assignments* pane (Figure 11-17).
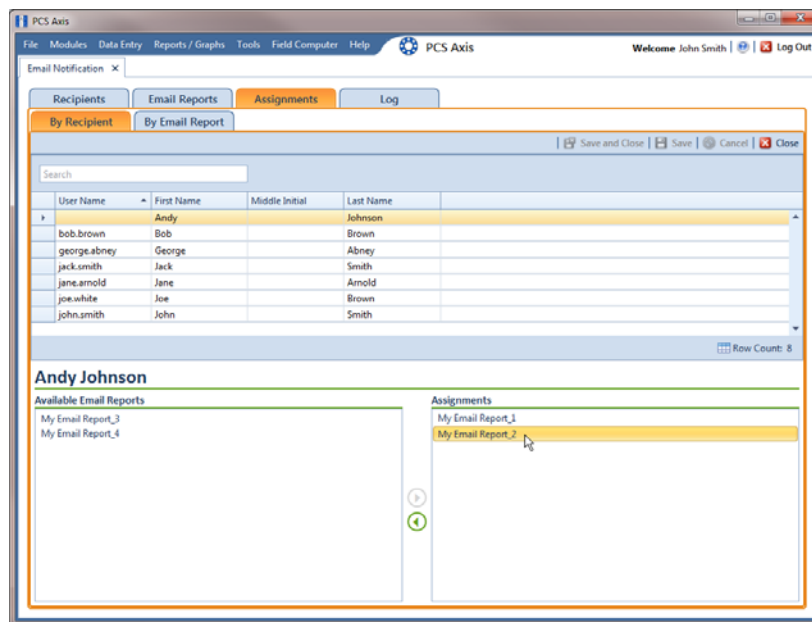
Figure 11-17. Email Notification Assignments By Recipient

d If you are viewing report assignments *By Email Report*, complete the following steps:

1) Select the name of an email report in the grid.

2) Double-click a recipient name in the *Assignments* pane to move it to the *Available Recipients* pane. Then click ▣ **Save**. The email report is sent only to those recipients listed in the *Assignments* pane (Figure 11-18).
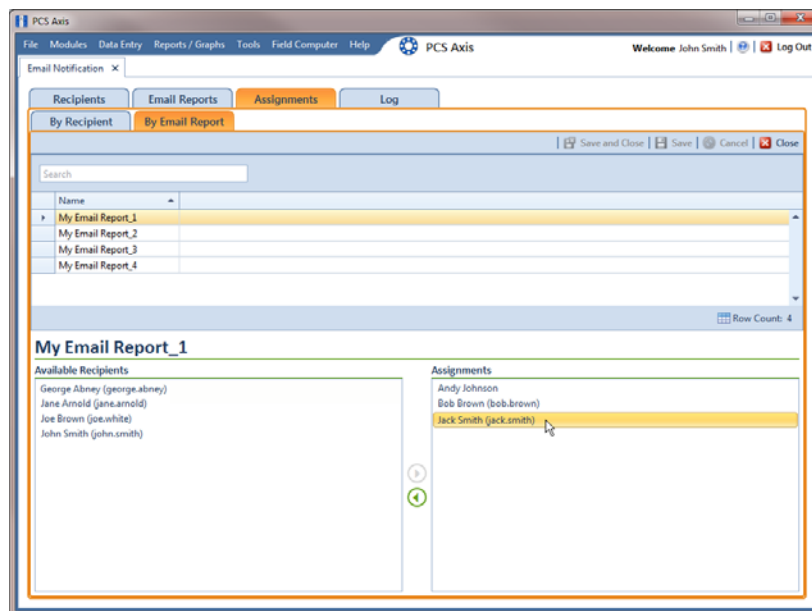
Figure 11-18. Email Notification Assignments By Email Report

Notes

Using Field Computer

Information in this chapter explains how to use PCS Axis with the Allegro Field Computer to send and receive survey files. The information is intended for users with *SysAdmin*, *User*, and *Read Only* permissions unless noted otherwise. Topics in this chapter include those in the following list:

- *Quick Start*

- *Working with Themes and Filter Groups* (page 497)

- *Viewing the Field Computer Log* (page 517)

Quick Start

The procedures listed below explain how to use PCS Axis with the Allegro to send and receive survey files. The process for sending a survey file to the Allegro requires selection of a prompt, layout, and sorting method theme. If themes have not previously been set up in PCS Axis, begin with the section *Working with Themes and Filter Groups* (page 497) and then continue with any of the following procedures for sending a survey file to the Allegro.

Topics in this section include those in the following list:

- *Sending a Facility Survey Based on Selected ROWs* (page 474)

- *Sending a Facility Survey Based on a Route* (page 478)

- *Sending a Facility Survey Based on a Schedule* (page 483)

- *Sending a Facility Survey Based on an Import Exported List* (page 490)

- *Receiving a Facility Survey from the Allegro* (page 492)

- *Receiving a Continuous Survey from the Allegro* (page 494)

Sending a Facility Survey Based on Selected ROWs

The following procedure explains how to send a facility survey based on selected ROWs to the Allegro or a folder on your computer. The survey file includes facilities for inspection based on selected pipeline segments in the *Select ROWs* window.

Use the following procedure when you plan to take inspection readings using the Periodic Survey software on the Allegro or you plan to use the survey file with a third party software such as RouteSmart®.

Complete the following steps:

1   Verify the Allegro is connected to your computer if you plan to send the survey file to the Allegro. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2   Click the **Select ROWs** button to open the *Select ROWs* window (Figure 12-1). Click the check box for each pipeline segment with facilities you want to include in the survey file. Click **Save** to close the window.
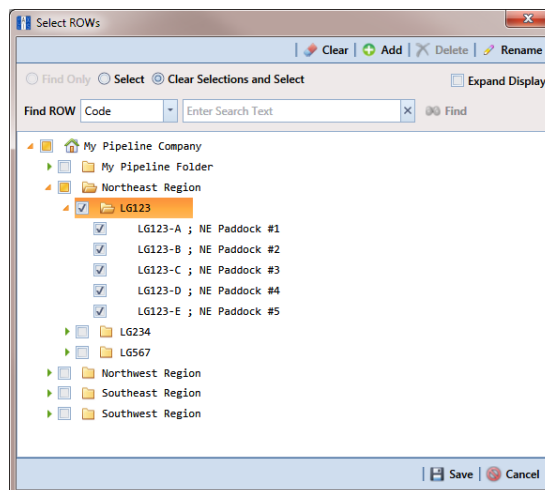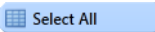
Figure 12-1. Select ROWs

3   Click **Field Computer** > **Send** to open the *Field Computer Send* window (Figure 12-2, page 475).

NOTE: Clicking the *Selected ROWs* bar collapses the *Selected ROWs* panel allowing you to view more of the grid. Clicking the *Selected ROWs* bar again expands the *Selected ROWs* panel.

4 Click the **Selected ROWs** option and then choose one or more facility types using one of the following options described in step a, b, or c:

a Click the down arrow and select a facility type theme in the selection list, such as 🌐 [**PCS**] **Test Point Survey**.

b Click **Ad Hoc Theme** and then click the check box for each facility type you want to view in the grid.

NOTE: An *Ad Hoc Theme* only applies to the current session and is not saved. A facility type is selected when a check mark appears inside the check box. To clear the check mark, click the check box again.

---

c Click the **Select All** button 🔲 Select All to select all facility types.

5 Click 💾 **Apply** to update the grid.

6 Select a prompt, layout, and sorting theme as follows (Figure 12-2):

a Click the down arrow in **Select Prompt** and select a prompt theme in the selection list.

b Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.

c Click the down arrow in **Select Sort Theme** and select a sorting theme in the selection list.
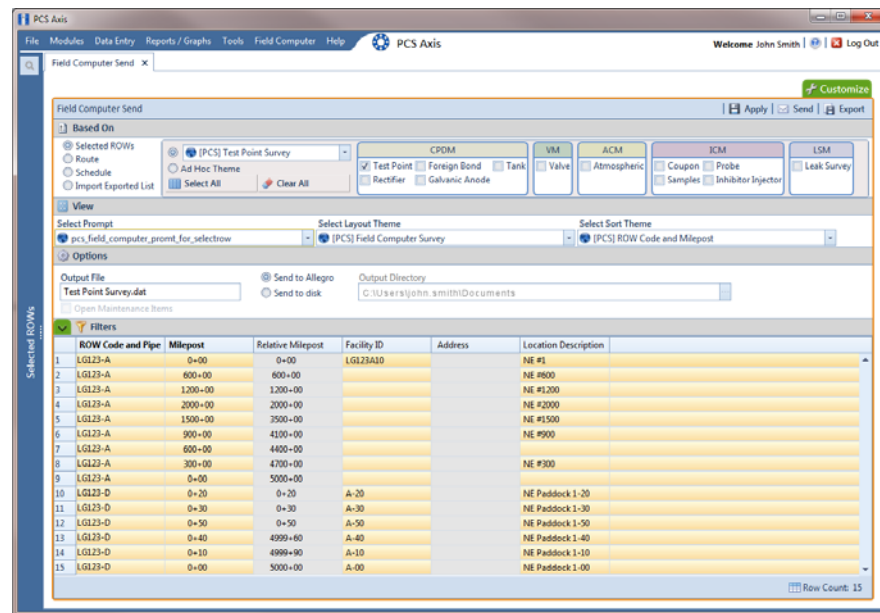
Figure 12-2. Select ROWs and Facility Type(s)

7 If you want to work with a subset of facility records that meet *all* filter conditions, create an AND filter group using the following steps (Figure 12-3):

a Click the ⌄ **Filters** button to open the *Filters* panel.

b Click ⊕ **Add** to open the filter properties group box.

c Set up filter criteria. Select a PCS Axis field, operator, and filter condition(s) using filter selection fields.

d If you want to set up an additional filter, click ⊕ **Add** to add another row of filter selection fields. Select a PCS Axis field, operator, and filter condition(s) to set up filter criteria. Repeat this step as needed. When you finish, click the ⌃ **Filters** button to close the *Filters* panel.

8 If you want to rename the survey file, type a name in the field **Output File**.

9 Choose a *Send to* option using one of the following methods:

a Select **Send to Allegro** if you plan to send the survey file to the Allegro.

b Select **Send to disk** if you plan to send the survey file to a folder on your computer. Identify the folder location as follows:

- Click the ellipsis button **...** in the **Output Directory** field to open the *Browse For Folder* dialog box.

- Navigate to the folder and select it. Click **OK** to close the dialog box and return to the *Field Computer Send* window.
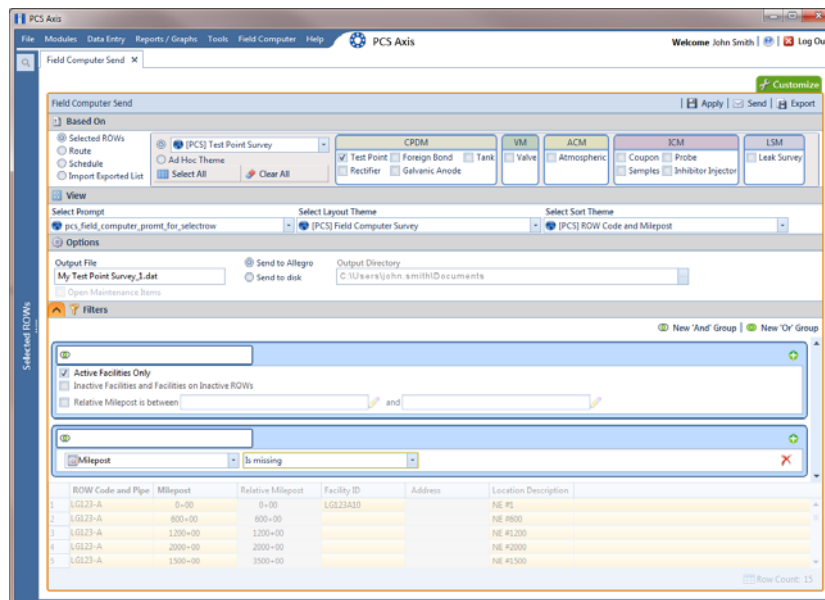
Figure 12-3. New 'And' Filter

10 If the check box **Open Maintenance Items** is available for selection, click the check box if you want to include open maintenance records in the survey file (Figure 12-3, page 476).

NOTE: When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled and unavailable for selection when maintenance prompts are not included in the currently selected prompt theme.

11 Click 💾 **Apply** to update the grid.

12 Click ✉ **Send**. Based on your selection earlier, the survey file is sent either to the Allegro or a folder on your computer.

13 When a message displays confirming the send process is complete, click ✔ **OK** to close the message (Figure 12-4).

If you selected to send the survey file to the Allegro, PCS Axis sends the survey file to the *PSData* folder on the Allegro.
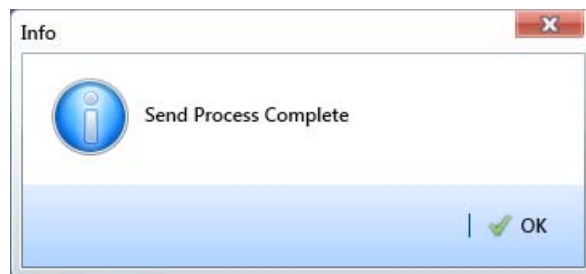
Figure 12-4. Send Process Complete

Sending a Facility Survey Based on a Route

The procedure in this section explains how to send a facility survey based on a route to the Allegro or a folder on your computer. The information assumes a route has previously been set up in Define Routes (*Data Entry > Define Routes*, see page 283).

Use the following procedure when you plan to take inspection readings using the Periodic Survey software on the Allegro or you plan to use the survey file with a third party software such as RouteSmart®.

Complete the following steps:

1   Verify the Allegro is connected to your computer if you plan to send the survey file to the Allegro. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2   Select one or more pipeline segments in the *Select ROWs* window. Click ▣ **Save** to close the window (Figure 12-1, page 474).

3   Click **Field Computer** > **Send** to open the *Field Computer Send* window.

4   Click the **Route** option and then select a route in the selection box. The following figure shows *My Route_2* has been selected (Figure 12-5).

5   Click ▣ **Apply** to update the grid.
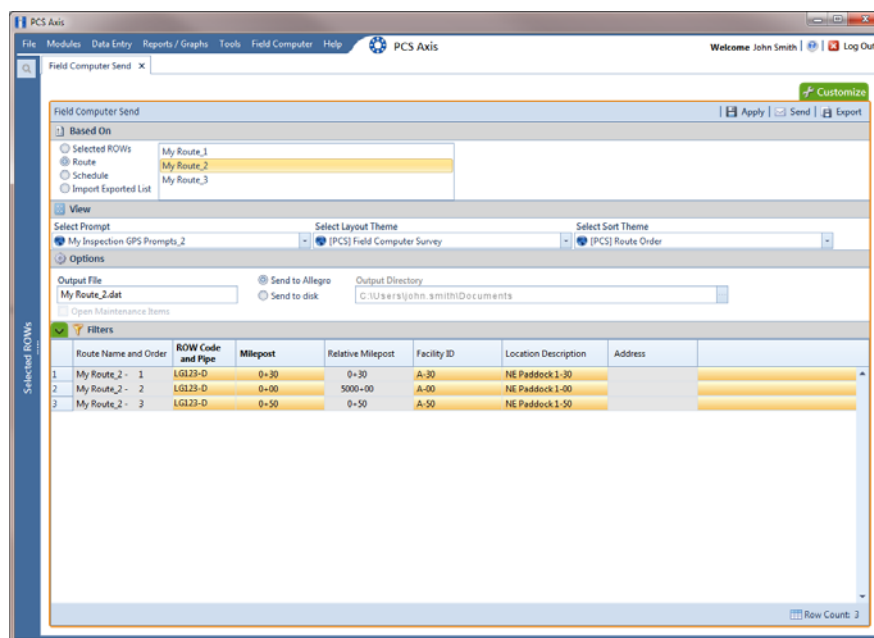
Figure 12-5. Field Computer Send

6 Select a prompt, layout, and sorting theme as follows (Figure 12-5, page 478):

 a Click the down arrow in **Select Prompt** and select a prompt theme in the selection list.

 b Click the down arrow in **Select Layout Theme** and select a layout theme in the selection list.

 c Click the down arrow in **Select Sort Theme** and select a sorting theme in the selection list.

7 If you want to rename the survey file, type a name in the field **Output File**.

8 Choose a *Send to* option using one of the following methods:

 a Select **Send to Allegro** if you plan to send the survey file to the Allegro.

 b Select **Send to disk** if you plan to send the survey file to a folder on your computer. Identify the folder location as follows:

  • Click the ellipsis button **...** in the **Output Directory** field to open the *Browse For Folder* dialog box.

  • Navigate to the folder and select it. Click **OK** to close the dialog box and return to the *Field Computer Send* window.

9 If the check box **Open Maintenance Items** is available for selection, click the check box if you want to include open maintenance records in the survey file.

NOTE: When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled and unavailable for selection when maintenance prompts are not included in the currently selected prompt theme.

10 Click **Apply** to update the grid.

11 If you want to filter records in the grid and in the route sent to the Allegro, complete the following steps.

> **IMPORTANT:** Filter settings in *Field Computer Send* apply only to the current session and are not saved. See *Working with Themes and Filter Groups* (page 497) for information about saving filter settings.

a Click the ⌄ **Filters** tab to open the *Filters* panel (Figure 12-5, page 478).

b Select one or more options in *Filters* and then click ▦ **Apply**. For example, click **Active Facilities Only** to only include active facilities in the grid and in the route sent to the Allegro (Figure 12-6).

c If you want to add a new AND or OR filter group, continue with one of the following steps. Otherwise continue with step 14 (step 14).

- To add a new AND filter group continue with step 12 (page 481).

- To add a new OR filter group continue with step 13 (step 13).
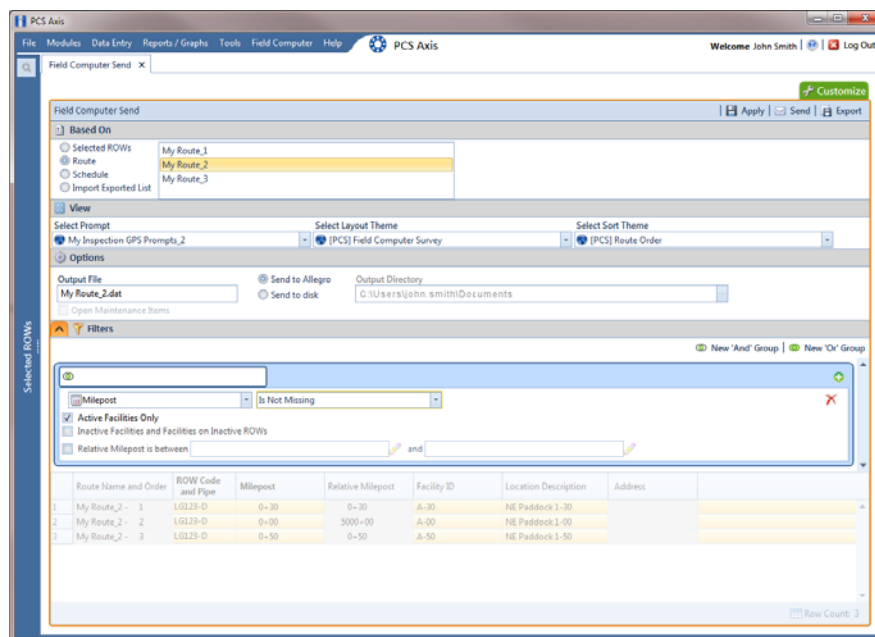
Figure 12-6. Filters

12 If you want to add a new AND filter group, complete the following steps. With an AND filter group, PCS Axis includes a subset of records that meet *all* filter conditions defined for the filter group. Records are filtered in the grid and in the route sent to the Allegro (Figure 12-7).

a Click ⬤ **New 'And' Group** to open the filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

- Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

- To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings.

Figure 12-7. New 'And' Filter Group

13 If you want to add a new OR filter group, complete the following steps. With an OR filter group, PCS Axis includes a subset of records that meet *any* filter condition defined for the filter group. Records are filtered in the grid and in the route sent to the Allegro (Figure 12-8):

a Click ⬤ **New 'Or" Group** to open a filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

- Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

- To set a date range using dynamic start and end dates, click the 🖩 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings.

Figure 12-8. New 'Or Filter Group

14 Click the ⌃ **Filters** tab to close the *Filters* panel. Then click 💾 **Apply** to update the grid.

15 Click ✉ **Send**. Based on your selection earlier, the survey file is sent either to the Allegro or a folder on your computer.

16 Click ✔ **OK** when the message *Send Process Complete* displays (Figure 12-9). If you selected to send the survey file to the Allegro, the survey file transfers to the *PSData* folder on the Allegro.
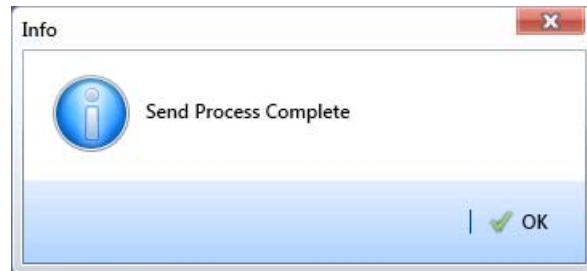
Figure 12-9. Send Process Complete

Sending a Facility Survey Based on a Schedule

The procedure in this section explains how to send a facility survey based on a schedule to the Allegro or a folder on your computer. The survey file includes facilities for inspection based on a schedule definition and schedule date range.

Use the procedure in this section when you plan to take inspection readings using the Periodic Survey software on the Allegro or you plan to use the survey file with a third party software such as RouteSmart.

The following procedure assumes scheduling criteria has previously been set up in *Edit Schedule Settings* (page 351) and a schedule definition created in *Define Schedules* (page 378).

Complete the following steps:

1 Verify the Allegro is connected to your computer if you plan to send the survey file to the Allegro. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you plan to survey. Click 💾 **Save** to close the window (Figure 12-1, page 474).

3 Click **Field Computer** > **Send** to open the *Field Computer Send* window (Figure 12-10, page 485).

4 Click the **Schedule** option. Then click the down arrow in the field **Select Schedule Definition** and select a schedule definition in the list.

NOTE: Clicking the ▽ toggle button in the ⓘ information bar displays important information related to required settings.

Complete step 5 or step 6 to set a schedule date range:

5 To set a schedule date range, type a date in the **Start Date** field and a date in the **End Date** field using the format M/DD/YYYY to indicate the month, day, and year. Then continue with step 7 (page 485).

6 To set a schedule date range using dynamic dates, follow these steps:

    a Click the **Start Date** 📅 calculator and set properties in the following manner:

        • Click the down arrow in the **Start Date** field and select one of the following options: *Today*, *Beginning Of Month*, *End Of Month*, *Beginning of Year*, or *End Of Year*.

        • In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the 🖊 pencil button to close dynamic start date fields.

    b Click the **End Date** 📅 calculator and set properties in the following manner:

        • Click the down arrow in the **End Date** field and select one of the following options: *Today*, *Beginning Of Month*, *End Of Month*, *Beginning of Year*, or *End Of Year*.

        • In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the 🖊 pencil button to close dynamic end date fields.

7 Click 💾 **Apply** to update the grid.
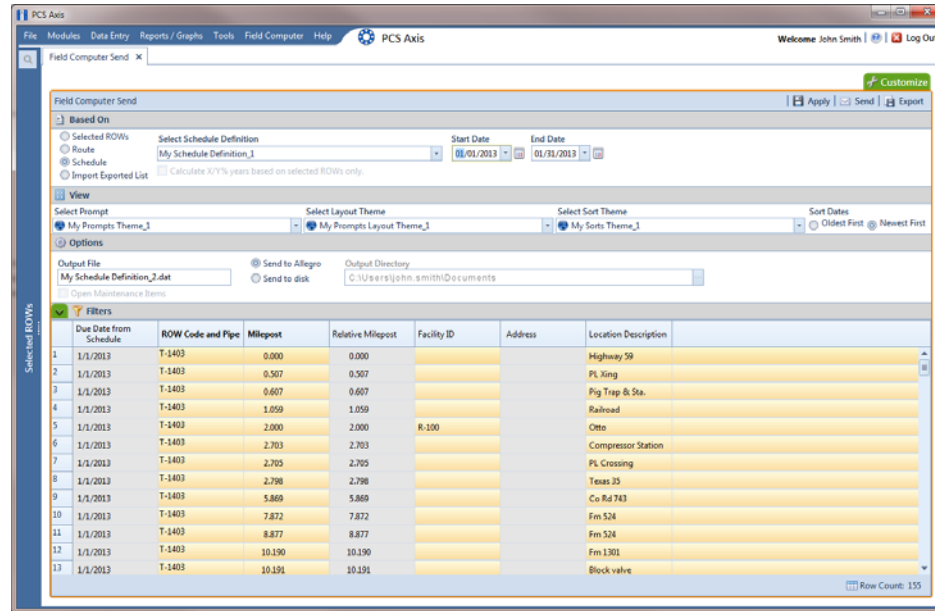
Figure 12-10. Field Computer Send Schedule

8   If the option **Calculate X/Y% years based on selected ROWs only** is available
for selection, click the check box if you want due dates calculated based on your
ROW selection instead of the *X years/y%* setting for facility types in *Edit Schedule
Settings*.

NOTE: *X/Y due dates* refer to inspections older than *X years* with a minimum of *Y
percent* scheduled for inspection. For more information, refer to *Using a Schedule*
(page 349).

---

9   Select a prompt, layout, and sorting theme in the following manner (Figure 12-10,
page 485):

a   Click the down arrow in **Select Prompt** and select a prompt theme in the
selection list.

b   Click the down arrow in **Select Layout Theme** and select a layout theme in
the selection list.

c   Click the down arrow in **Select Sort Theme** and select a sorting method
theme in the selection list.

10 Click **Oldest First** or **Newest First** in *Sort Dates* to sort records with the oldest or
newest dates first.

11 If you want to rename the survey file, type a name in the field **Output File**.

12 Choose a *Send to* option using one of the following methods:

a Select **Send to Allegro** if you plan to send the survey file to the Allegro.

b Select **Send to disk** if you plan to send the survey file to a folder on your computer. Identify the folder location as follows:

- Click the ellipsis button **...** in the **Output Directory** field to open the *Browse For Folder* dialog box.

- Navigate to the folder and select it. Click **OK** to close the dialog box and return to the *Field Computer Send* window.

13 If the check box **Open Maintenance Items** is available for selection, click the check box if you want to include open maintenance records in the survey file.

NOTE: When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled and unavailable for selection when maintenance prompts are not included in the currently selected prompt theme.

---

14 Click the **Filters** button to open the *Filters* panel (Figure 12-11).

15 If you want to filter records in the grid and in the schedule sent to the Allegro, select one or more options in *Filters.* For example, click *Active Facilities Only* to only include active facilities.

IMPORTANT: Filter settings in *Field Computer Send* apply only to the current session and are not saved. See *Working with Themes and Filter Groups* (page 497) for information about saving filter settings.
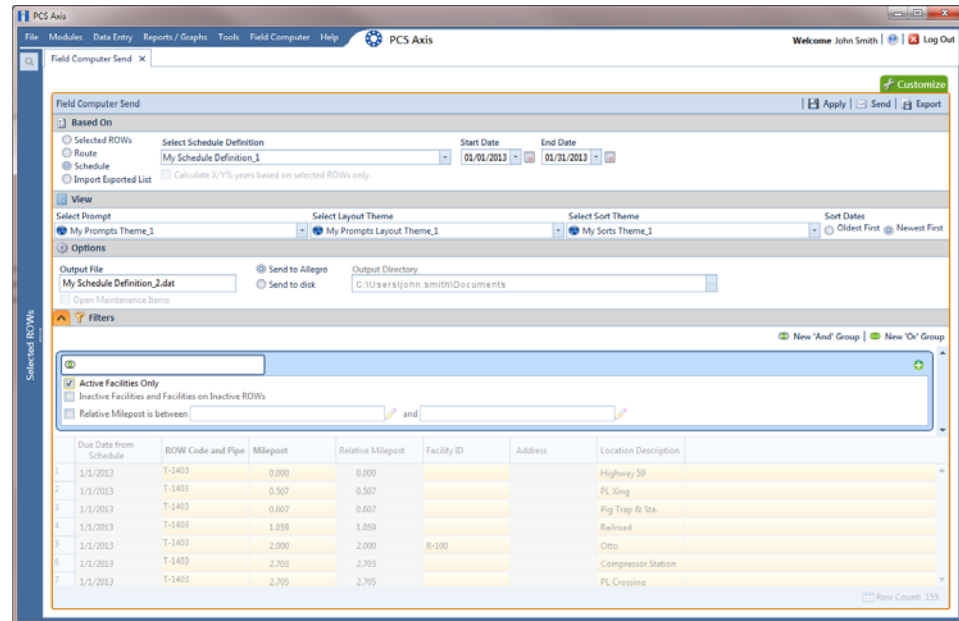
Figure 12-11. Filters

If you want to add a new AND or OR filter group, continue with step 16 or step 17 (page 488).

16 To filter records in the grid and in the schedule sent to the Allegro based on a subset of records that meet *all* filter conditions, complete the following steps to add a new AND filter group (Figure 12-12):

a Click 🔘 **New 'And' Group** to open the filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

• Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

• To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

• To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

Figure 12-12. New 'And' Filter Group

17 To filter records in the grid and in the schedule sent to the Allegro based on a subset of records that meet *any* filter condition, complete the following steps to add a new OR filter group (Figure 12-13):

a Click **New 'Or" Group** to open a filter properties group box.

b Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

When adding a date filter, such as *Last Inspection Date Is Between*, set a date range using one of the following methods:

- Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

- To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

Figure 12-13. New 'Or Filter Group

18 Click the ▲ **Filters** button to close the *Filters* panel. Then click 🖫 **Apply** to update the grid.

19 Click ✉ **Send**. Based on your selection earlier, the survey file is sent either to the Allegro or a folder on your computer.

20 When a message displays confirming the send process is complete, click ✔ **OK** to close the message (Figure 12-14). If you selected to send the survey file to the Allegro, PCS Axis sends the survey file to the *PSData* folder on the Allegro.
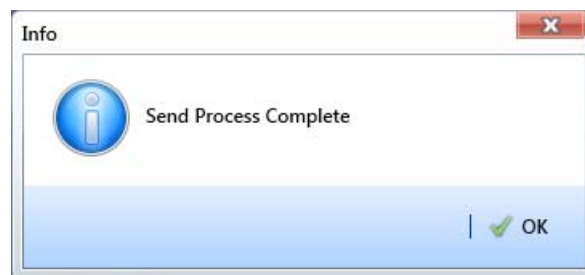
Figure 12-14. Send Process Complete

Sending a Facility Survey Based on an Import Exported List

The following information applies to a survey file that has previously been set up, sent to disk, and then altered by a third party software such as RouteSmart®. Use the procedure in this section to import the survey file in PCS Axis and then send it to the Allegro.

Complete the following steps:

1 Verify the Allegro is connected to your computer. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window (Figure 12-1, page 474).

3 Click **Field Computer** > **Send** to open the *Field Computer Send* window.

4 Click the option **Import Exported List** (Figure 12-15, page 491).

5 Click the ellipsis button **...** in the field **Import Exported List** to display the *Open* dialog box. Navigate to the altered survey file and select it. Click **Open** to close the dialog box and return to the *Field Computer Send* window.

6 Click the down arrow in **Select Prompt** and select a prompt theme in the selection list.

7 If you want to rename the survey file, type a name in the field **Output File**.

8 Click **Send to Allegro** if the option is not selected.

9 If the check box **Open Maintenance Items** is available for selection, click the check box if you want to include open maintenance records in the survey file.

> **NOTE:** When the selected prompt theme includes maintenance prompts, the check box *Open Maintenance Items* is available for selection. It is disabled and unavailable for selection when maintenance prompts are not included in the currently selected prompt theme.

10 If you want to work with a subset of facility records that meet *all* filter conditions, create an AND filter group using the following steps (Figure 12-15):

a Click the ☑ **Filters** button to open the *Filters* panel. Then click ➕ **Add** to open the filter properties group box.

b Set up filter criteria. Select a PCS Axis field, operator, and filter condition(s) using filter selection fields.

c If you want to set up an additional filter, click ⊕ **Add** to add another row of filter selection fields. Select a PCS Axis field, operator, and filter condition(s) to set up filter criteria. Repeat this step as needed.

d Click the ⌃ **Filters** button to close the *Filters* panel.
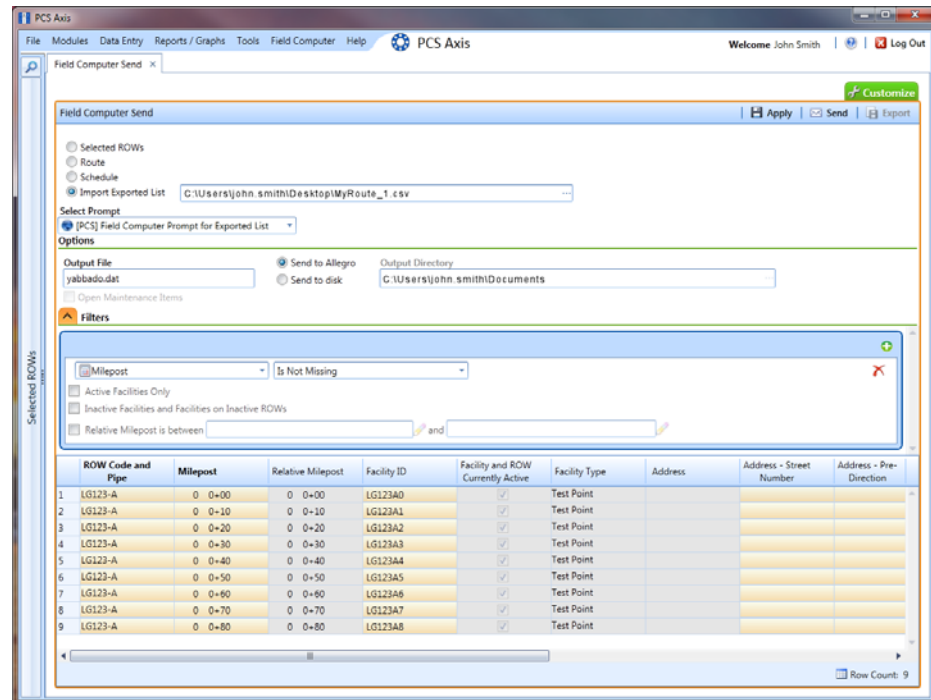
Figure 12-15. New 'And' Filter

11 Click 💾 **Apply** to update the grid.

12 Click ✉ **Send**. When a message displays confirming the send process is complete, click ✔ **OK** to close the message (Figure 12-16).

If you selected to send the survey file to the Allegro, PCS Axis sends the survey file to the *PSData* folder on the Allegro.
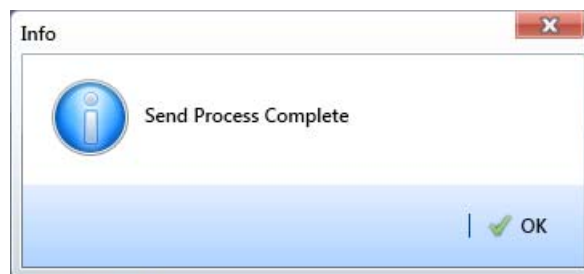
Figure 12-16. Send Process Complete

Receiving a Facility Survey from the Allegro

Complete the following steps to receive an *Allegro PS* periodic survey file in PCS Axis:

1 Verify the Allegro is connected to your computer. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2 Click **Field Computer** > **Receive** to open the *Field Computer Receive Data* window (Figure 12-17).

3 Click **Receive Facility Data**, then click the **Allegro** option.

4 Click **Retrieve File(s)** to view a list of periodic survey files available for selection.
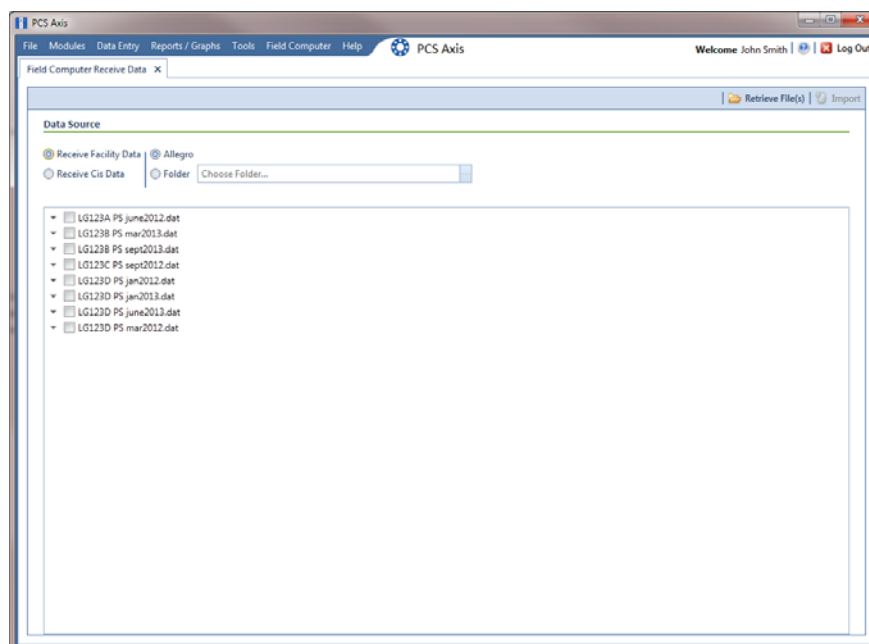
Figure 12-17. Field Computer Receive

5 Choose survey files you want to transfer from the Allegro. Click the check box for one or more survey files in the list of files available for selection (Figure 12-18, page 493).

6 Click the toggle arrow for a selected survey file to view the following options for assigning Allegro survey data to a PCS Axis survey folder:

a Select **No Survey Assignments** if you do not want to assign Allegro survey data to a survey folder.

b Select **Automatic Assignment** and then select one of the following options to have PCS Axis automatically assign Allegro survey data to a survey folder:

- *Assign Survey*:Select this option if you want PCS Axis to automatically assign survey data to an annual or multi-year survey folder based on the inspection date of the Allegro survey data.

- *Assign Periodic Survey and Year*:Select this option if you want PCS Axis to automatically assign survey data to a periodic survey folder based on the inspection date of the Allegro survey data.

c Select **Manual Assignment** and then select one of the following options to manually select a survey folder for assigning Allegro survey data:

- *Survey*:Select this option to choose an annual or multi-year survey folder for assigning Allegro survey data. Click the down arrow in the **Survey** field and select a survey in the selection list.

- *Periodic Survey, Year*:Select this option to choose a periodic survey folder and the survey year for assigning Allegro survey data. Click the down arrow in the **Periodic Survey** field and select a periodic survey folder in the selection list. Then click the down arrow in the **Year** field and select the survey year.

d Click **Apply to all selected files** if you want to apply the selected survey folder option to all selected survey files.
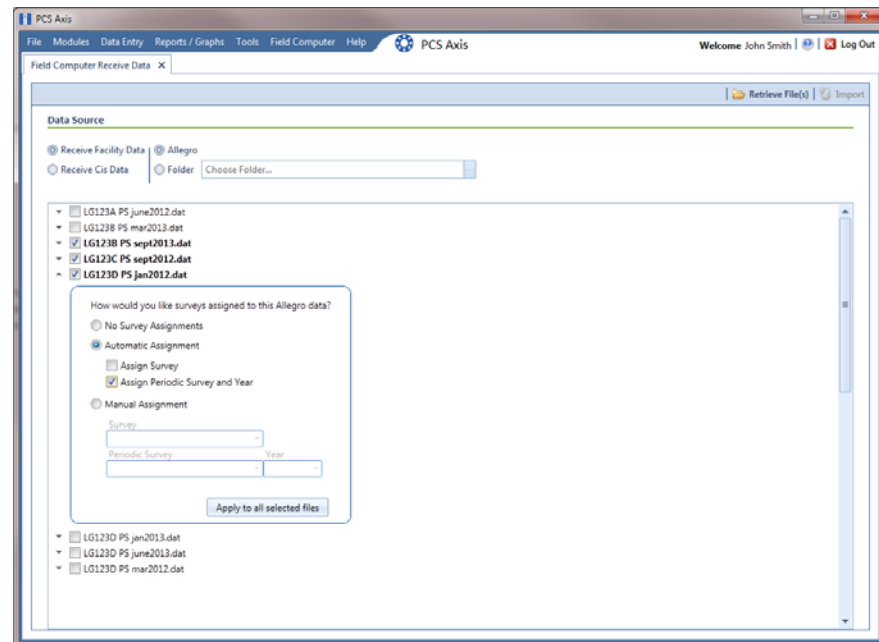
Figure 12-18. Field Computer Receive Data

7   Click 🧩 **Import** to import selected survey file(s) in PCS Axis.

The *Field Computer Receive Status* window displays showing the status of the import process (Figure 12-19).
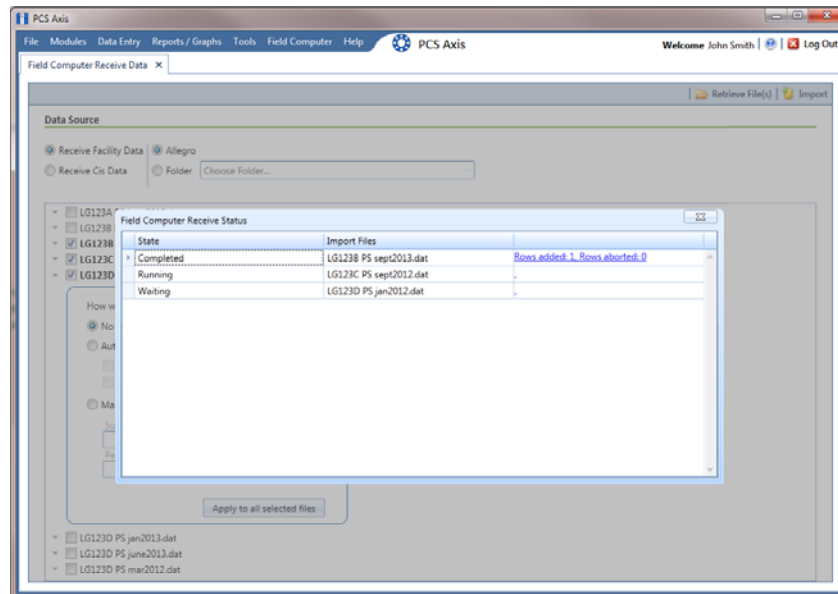
Figure 12-19. Field Computer Receive Status

Receiving a Continuous Survey from the Allegro

Information in this section explains how to receive an *Allegro CeCi* close interval survey file in PCS Axis.

IMPORTANT: For data to transfer properly, the name of the pipeline entered in the *Segment* field of the Allegro CeCi survey file must match the *ROW Code* in PCS Axis. The survey name entered in the *Run* field of the CeCi survey file is used to create a survey folder in PCS Axis (*Data Entry > Survey Folder Maintenance*). See the *Allegro MX User Guide* for more information about setting properties in a CeCi survey file.

Complete the following steps:

1   Verify the Allegro is connected to your computer. If needed, refer to the *Allegro User Guide* for information about how to connect the device.

2   Click **Field Computer** > **Receive** to open the *Field Computer Receive Data* window.

3   Click **Receive Cis Data**, then click the **Allegro** option.

NOTE: *CIS* is an acronym for Close Interval Survey.

---

4   Click 📂 **Retrieve File(s)** to view a list of survey files available for selection (Figure 12-20).

5   Select the close interval (CI) survey files you want to transfer from the Allegro. Click the check box for one or more survey files listed in the *Field Computer Receive Data* window.

A check mark inside a check box indicates a selection. To remove a selection, clear the check mark by clicking the check box again

6   Click 🧩 **Import** to import selected survey file(s) in PCS Axis.
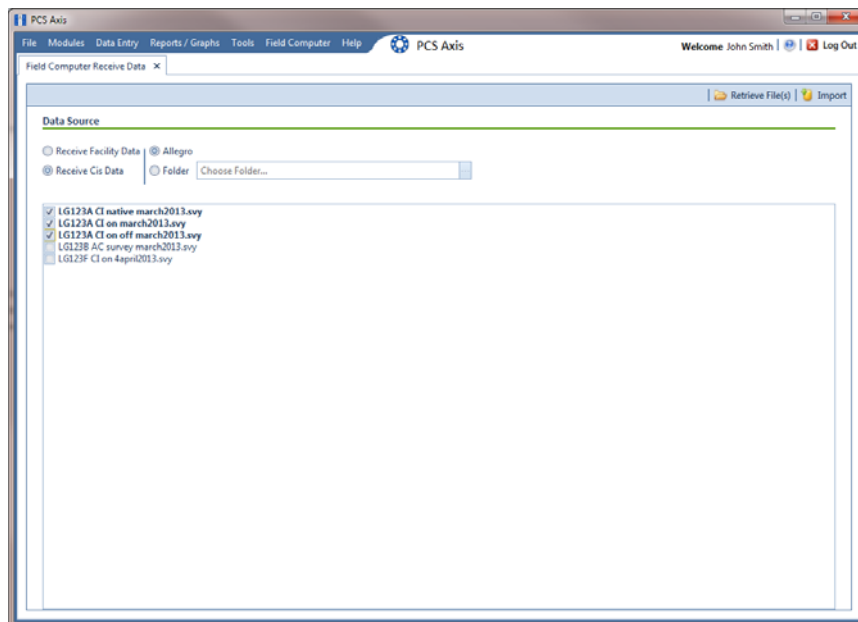
Figure 12-20. Field Computer Receive

7   If you are importing a survey file with *Native Data*, select the native survey file when the *Mark Native* dialog box opens. Then click **OK** to continue the import process (Figure 12-21).
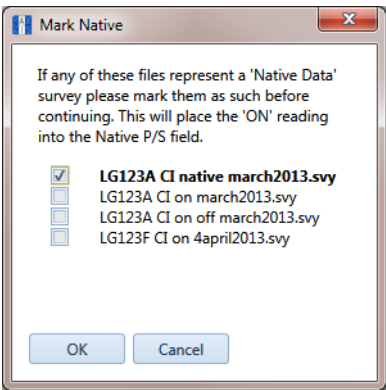
Figure 12-21. Mark Native

The *Field Computer Receive Status* window displays showing the status of the import process (Figure 12-22).

NOTE: Survey data imported from the Allegro is indicated in the *Edit ISM Data* grid with information in the *Allegro Survey Information* field.
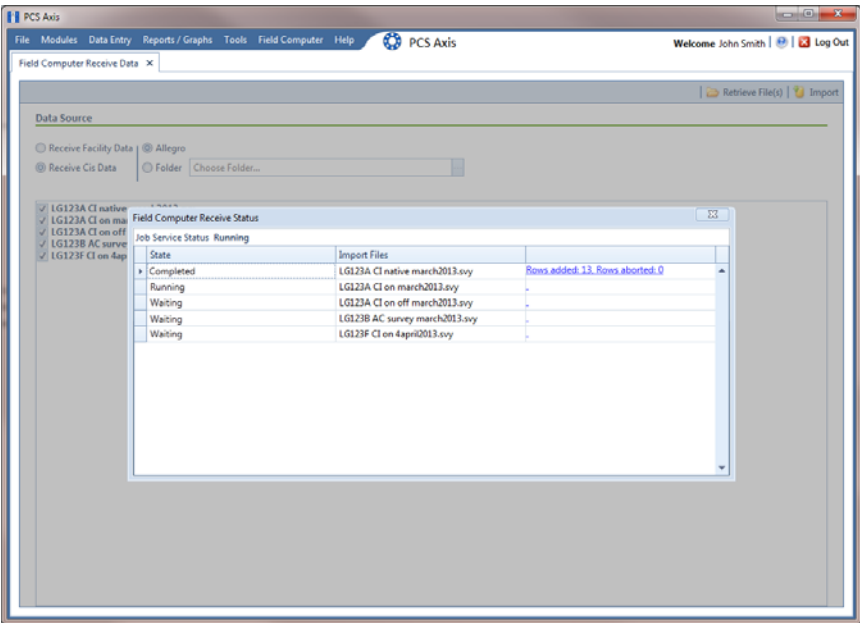
Figure 12-22. Field Computer Receive Status

Working with Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a grid layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS Axis software installation. PCS Axis installed themes are public themes available to all PCS Axis users. These themes are identified with a globe icon and PCS in brackets [PCS], such as **[PCS] Facility ID**.

A filter group is a named set of one or more filters that affect the data output in the grid of *Field Computer Send* grid and subsequently the file sent to the Allegro. PCS Axis provides two types of filter groups you can define. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude. Adding an AND filter group produces a subset of records that meet *all* filter conditions. Adding an OR filter group produces a subset of records that meet *any* filter condition. When you apply a filter group, PCS Axis processes filters in descending order beginning with the filter at the top of the group.

The following sections describe how to add a layout theme, sort theme, and one or more optional filter groups. Topics include those in the following list:

- *Adding a Layout Theme*

- *Adding a Prompt Theme* (page 503)

- *Adding a Sort Theme* (page 507)

- *Adding an AND Filter Group* (page 509)

- *Adding an OR Filter Group* (page 512)

- *Editing and Arranging Filters and Filter Groups* (page 514)

Adding a Layout Theme
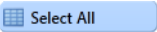
A layout theme is a group of fields in a grid layout. Adding a new layout theme allows you to choose which fields you want to include in the grid and then save the layout as a theme for later use. The following procedure applies to the grid layout in *Field Computer Send*.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ⊟ **Save** to close the window (Figure 12-1, page 474).

2 Click **Field Computer** > **Send** to open the *Field Computer Send* window.

Complete step 3, 4, or 5 to choose an option for displaying facility records in the grid:

3 To view facility records based on pipeline segment(s) selected in the *Select ROWs* window, follow these steps:

   a Click the **Selected ROWs** options.

   b Choose one or more facility types using one of the following options (Figure 12-23):

   • Click the down arrow and select a facility type theme in the selection list, such as 🌐 [**PCS] Rectifier Survey**.

   • Click **Ad Hoc Theme** and then click the check box for each facility type you want to view in the grid.

   • Click the **Select All** button ⊞ Select All to view all facility types in the grid.

   c Click ⊟ **Apply** to update the grid and then continue with step 6 (page 501).
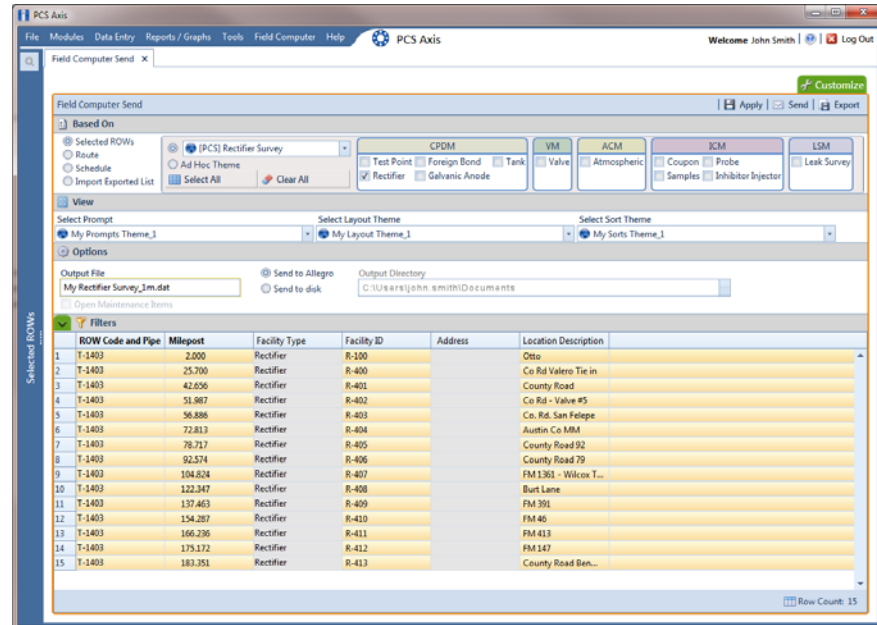
Figure 12-23. Field Computer Send Based on Selected ROWs

4 To view facility records based on a route:

a Click the **Route** option and then select a route in the selection box (Figure 12-24, page 499).

b Click ⊟ **Apply** to update the grid and then continue with step 6 (page 501).
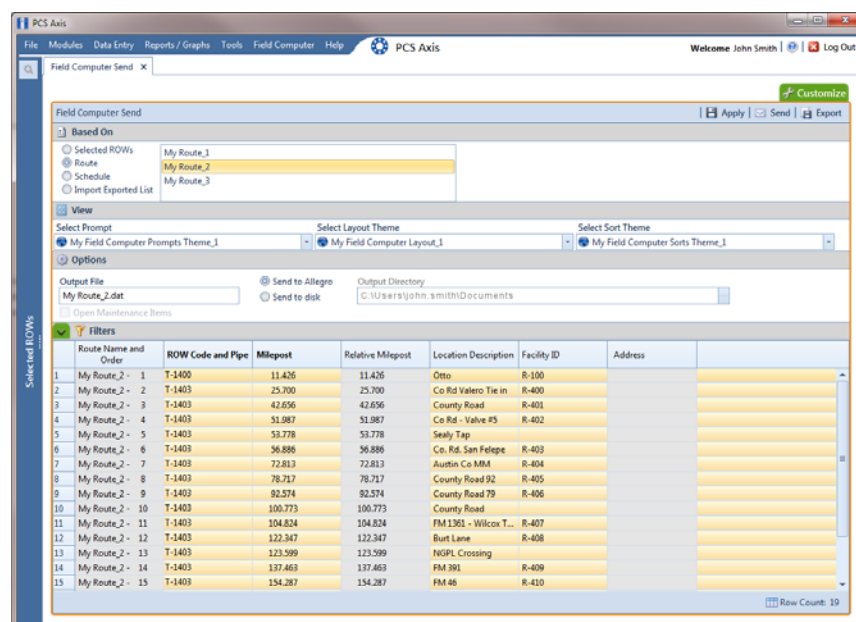
Figure 12-24. Field Computer Send Based on Route

5 To view facility records based on a schedule, follow these steps:

a Click the **Schedule** option. Then click the down arrow in the field **Select Schedule Definition** and choose a schedule definition in the selection list

Complete step "b" to enter a schedule date range or step "c" (page 500) to set a schedule date range using dynamic dates:

b Type a start date in the **Start Date** field and an end date in the **End Date** field.

c To set a schedule date range using dynamic start and end dates, follow these steps (Figure 12-25, page 501):

1) Click the **Start Date** calculator to open dynamic start date fields. Set properties in these fields in the following manner:

- Click the down arrow in the **Start Date** field and select one of the following options: *Today*, *Beginning Of Month*, *End Of Month*, *Beginning of Year*, or *End Of Year*.

- In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the pencil button to close dynamic start date fields.

2) Click the **End Date** calculator to open dynamic end date fields. Set properties in these fields in the following manner:

- Click the down arrow in the **End Date** field and select one of the following options: *Beginning Of Month*, *End Of Month*, *Beginning of Year*, or *End Of Year*.

- In the remaining two fields, type an offset value in the first field and then click the down arrow in the second field and select one of the following options: *Day(s)*, *Month(s)*, or *Year(s)*. Click the pencil button to close dynamic end date fields.

3) Click **Apply** to update the grid and then continue with step 6 (page 501).
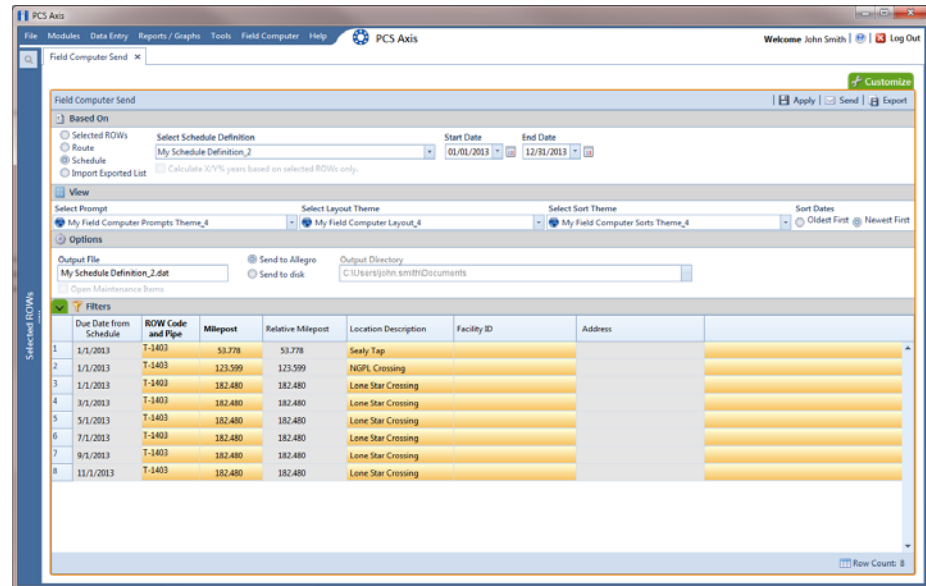
Figure 12-25. Field Computer Send Based on Schedule

6 Click the **Customize** tab 🔧 Customize then the ➕ **Add** button to open the *New Layout Theme* dialog box (Figure 12-26).
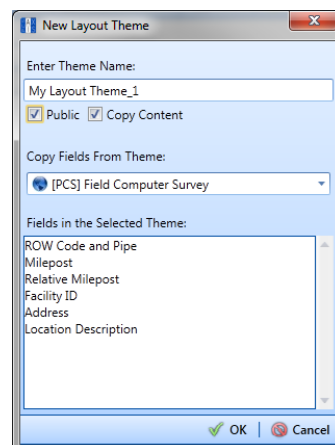
Figure 12-26. New Layout Theme

7 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

8 If you want to copy fields from another theme to the new layout theme, click the check box **Copy Content**. Then click the down arrow in the field **Copy Fields From Theme** and select a theme in the selection list.

9 Click ✓ **OK** to save changes and return to the *Layouts* page.

10 Verify the name of the new layout theme displays in the field *Select Layout Theme*. If not, click the down arrow in **Select Layout Theme** and select the new theme in the selection list.

11 Complete the following steps to add and remove fields in the new layout theme as needed:

    a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **Facility Fields**.

    b Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The grid layout theme includes all fields listed in the right pane of the *Layouts* page.

    c To remove a field in the layout theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

12 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

13 Click 💾 **Save and Close** to return to the *Field Computer Send* window.

14 To apply the new layout theme to the grid, click the down arrow in the field **Select Layout Theme** and select the layout theme in the selection list. Then click 💾 **Apply** to update the grid (Figure 12-27).
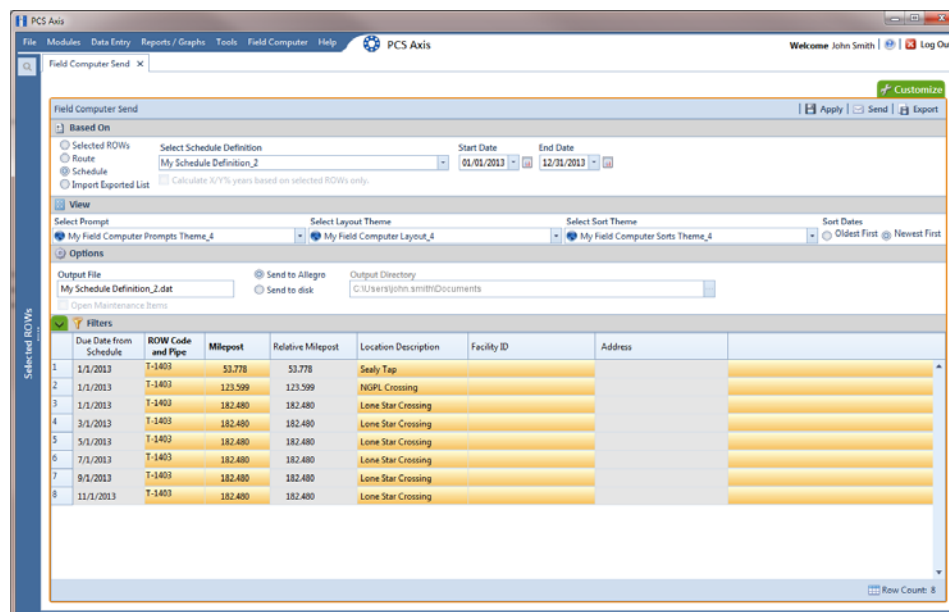
Figure 12-27. Select Layout Theme
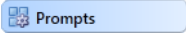
Adding a Prompt Theme

A prompt theme is similar to a layout theme. It is a named set of fields that provide information and prompt the user for survey data when performing a survey using the Allegro.

Adding a prompt theme allows you to choose which fields to include in the survey file sent to the Allegro. The same prompt theme can include multiple facility types, such as test points, rectifiers, bonds, valves, and so on. Each facility type can also include up to eight pages of prompts. For example, you can include up to 8 pages of inspection prompts for entering facility inspection and maintenance readings.

When viewing the survey file on the Allegro, prompts display in either the top or bottom frame of the window. Information prompts display in the top frame while inspection and maintenance prompts display in the bottom frame. See the *Allegro User Guide* for more information about working with a survey file on the Allegro.

To add a prompt theme, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ![Save] **Save** to close the window (Figure 12-1, page 474).

2   Click **Field Computer** > **Send** to open the *Field Computer Send* window.

3   Click the **Customize** tab ![Customize], then the **Prompts** button ![Prompts] to open the *Prompts* page (Figure 12-28).
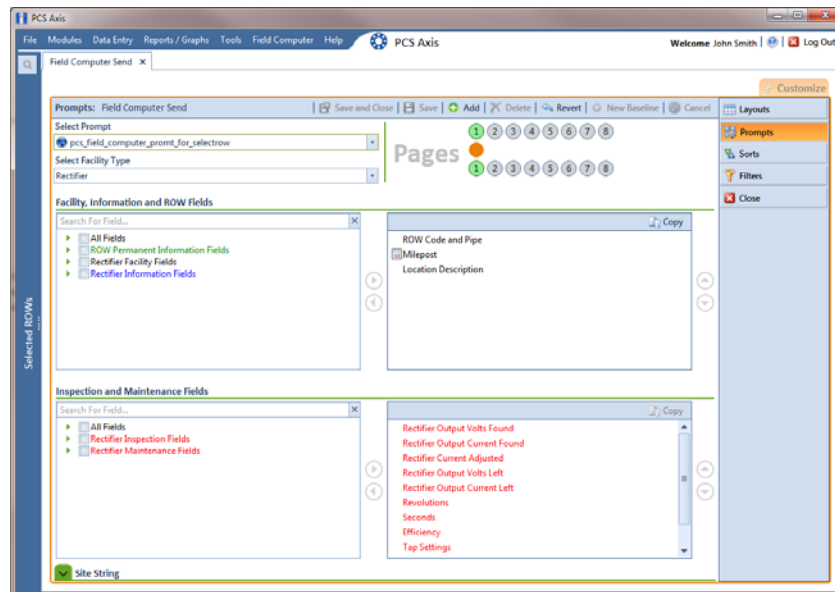
Figure 12-28. Prompts

4   Click the ⊕ **Add** button to open the *New Prompt* dialog box (Figure 12-29).

5   Type a name for the prompt theme in the field **Enter Theme Name**. If you want create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the prompt theme saves as a *private* theme.

6   If you want to copy fields from an existing prompt theme, click the **Copy Content** check box to place a check mark inside the check box. Then click the down arrow in the field **Copy Fields From Theme** and select a theme in the selection list.

     If you do not want to copy fields from an existing prompt theme, remove the check mark inside the *Copy Content* check box by clicking the check box.

7   Click ✔ **OK** to save changes and return to the *Prompts* page.
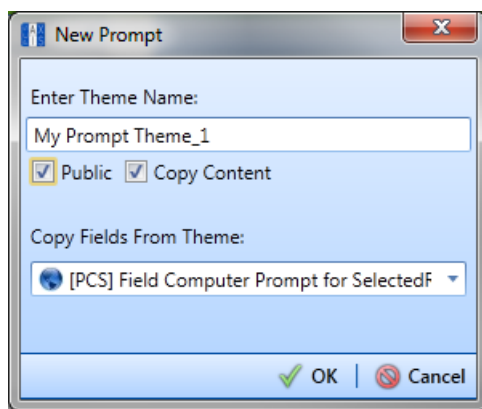
Figure 12-29. New Prompt

8   Verify the name of the new theme displays in the **Select Prompt** field. If not, click the down arrow and select the theme in the selection list (Figure 12-30, page 505).

9   Click the down arrow in the field **Select Facility Type** and select the facility type you want to work with in the selection list.

10 To add information prompts, follow these steps:

a   Double-click ▶ **All Fields** in *Facility, Information and ROW Fields* to view a list of fields available for selection.

b   Double-click one or more fields in the selection list to move fields to the right pane. All fields listed in the right pane are included in the prompt theme.

11 To add inspection and maintenance prompts, follow these steps:

    a Double-click ▶ **All Fields** in *Inspection and Maintenance Field*.

    b Double-click one or more fields in the selection list to move fields to the right pane. All fields listed in the right pane are included in the prompt theme.

12 If you want to remove information, inspection, or maintenance prompts, double-click a field listed in the right pane to move it back to the left pane.
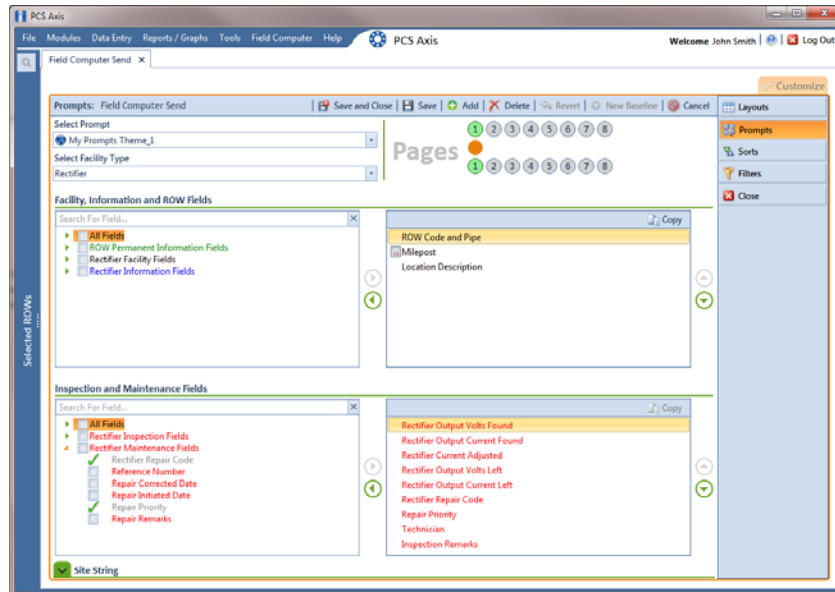
Figure 12-30. Prompts

13 Complete the following steps to add site string prompts that help identify one facility from another when using the Allegro. Site string prompts are included with each facility and can be viewed in the Allegro *Site List* window.

    a Click the ⌄ **Site String** tab to view a list of fields available for selection (Figure 12-31, page 506).

    b Double-click one or more fields in the selection list to move fields to the right pane. For example, double-click **Address** and **Facility ID**. Click the ⌄ **Site String** tab again to close the pane.

14 If you want to add another page of prompts, click **Copy** and then double-click one or more fields as needed in the left pane of **Inspection and Maintenance Fields**.

Information fields in *Facility, Information, and ROW Fields* automatically copy to each page of prompts. The following example shows three pages of prompts (Figure 12-31, page 506).
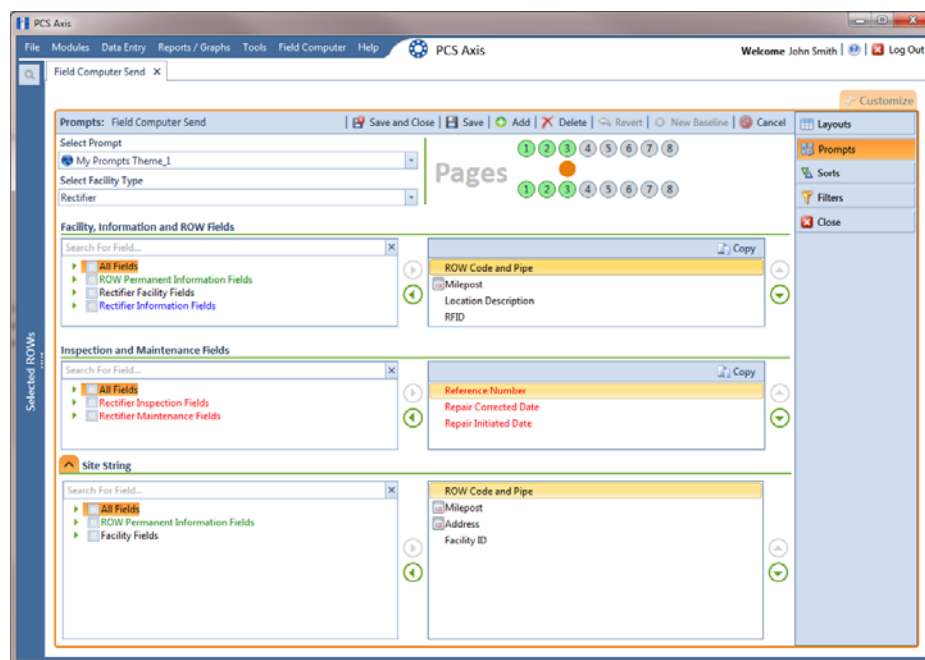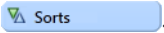
Figure 12-31. Prompts

15 Click **Save and Close** to save changes and return to the *Field Computer Send* window.

16 To apply the new prompt theme to the grid, click the down arrow in the field **Select Prompt** and select the theme in the selection list. Then click **Apply** to update the grid.

Adding a Sort Theme

A sorting theme determines how PCS Axis sorts grid records in the *Field Computer Send* window. Adding a sorting theme allows you to choose which field(s) to sort data by and if data sorts alphanumerically in ascending or descending order.

To add a sorting theme, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![] **Save** to close the window (Figure 12-1, page 474).

2 Click **Field Computer** > **Send** to open the *Field Computer Send* window.

3 Choose a mode for displaying records in the grid by selecting the option **Select ROWs**, **Route**, or **Schedule**. Then click ![] **Apply** to update the grid.

4 Click the **Customize** tab ![Customize], then the **Sorts** button ![Sorts].

5 Click the ![+] **Add** button to open the *New Sort Layout* dialog box (Figure 12-32).
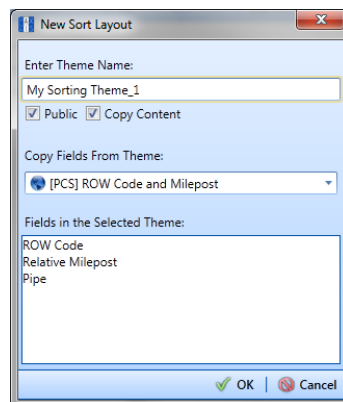
Figure 12-32. New Sort Layout

6 Type a name for the sorting theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the sorting theme saves as a *private* theme.

7 Select a sorting theme with fields you want to copy to the new theme. Click the down arrow in **Copy Fields From Theme** and select a sorting theme in the selection list.

8 Click ![] **OK** to save changes and return to the *Sorts* page (Figure 12-33, page 508).

9 Complete the following steps to add and remove fields in the new sorting theme:

a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **Facility Fields**.

b Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The sorting theme includes all fields listed in the right pane.

c If you want to remove a field in the sorting theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

10 Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC** ASC . To sort in descending order, click the toggle button to select **DESC** DESC .

11 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ▲ or down ▼ button.

Figure 12-33. Sorts

12 Click ![icon] **Save and Close** to return to the *Field Computer Send* window.

13 To apply the new sorting theme to the grid, click the down arrow in the field **Select Sort Theme** and select the sorting theme in the selection list. Then click ![icon] **Apply** to update the grid (Figure 12-34).
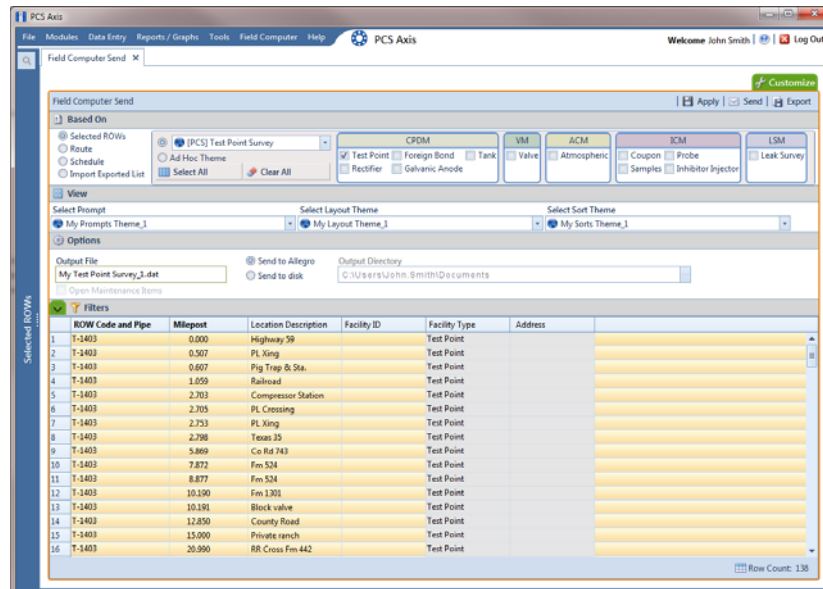
Figure 12-34. Select Sort Theme

Adding an AND Filter Group

An AND filter group is a named set of one or more filters that affect the data output in the grid of *Field Computer Send* and subsequently the file sent to the Allegro. Adding an AND filter group produces a subset of records that meet *all* filter conditions. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an AND filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![icon] **Save** to close the window (Figure 12-1, page 474).

2 Click **Field Computer** > **Send** to open the *Field Computer Send* window.

3 Choose a mode for displaying records in the grid by selecting the option **Select ROWs**, **Route**, or **Schedule**. Then click ![icon] **Apply** to update the grid.

4 Click the **Customize** tab ![icon], then the **Filters** button ![icon] to open the *Filters* page (Figure 12-35, page 510).

5 Click ⬤ **New 'And' Group** to open the filter properties group box (Figure 12-35, page 510).

6 Type a name for the filter group in the field **Filter Group Caption**.

7 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

8 If the AND filter group includes a date filter, such as *Facility Delinquent Date Is Between* shown in Figure 12-35, set a date range using a calendar or dynamic dates in the following manner:

- Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

- To set a date range using dynamic start and end dates, click the 🖩 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

Figure 12-35. New 'And' Filter Group

9   If you want the filter to remain on for all sessions of *Field Computer Send*, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the *Field Computer Send* window using the filter's check box.

10   Type a name for the filter in the field **Enter Custom Filter Caption**.

11   If you want to set up additional filter criteria for the filter group:

a   Click the ⊕ **Add** button to open another filter property group box.

b   Type a name for the filter in the field **Enter Custom Filter Caption**.

c   Repeat steps 7 through 9 to set up filter criteria.

12   Click the close button ❌ to close the filter group.

NOTE: Clicking the 🖊 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

13   To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

a   Point the mouse at the filter handle ⋮⋮ to change the cursor to a vertical resize cursor ⇕.

b   Drag and drop the filter or the filter group to a new location.

14   Click 💾 **Save and Close** to return to the *Field Computer Send* window.

Adding an OR Filter Group

An OR filter group is a named set of one or more filters that affect the data output in the grid of *Field Computer Send* and subsequently the file sent to the Allegro. Adding an OR filter group produces a subset of records that meet *any* filter condition. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an OR filter group, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Click ⊞ **Save** to close the window (Figure 12-1, page 474).

2   Click **Field Computer** > **Send** to open the *Field Computer Send* window.

3   Choose a mode for displaying records in the grid by selecting the option **Select ROWs**, **Route**, or **Schedule**. Then click ⊞ **Apply** to update the grid.

4   Click the **Customize** tab ⚙ Customize , then the **Filters** button ▽ Filters to open the *Filters* page (Figure 12-36, page 512).

5   Click ⬤ **New 'Or" Group** to open a filter properties group box (Figure 12-36).
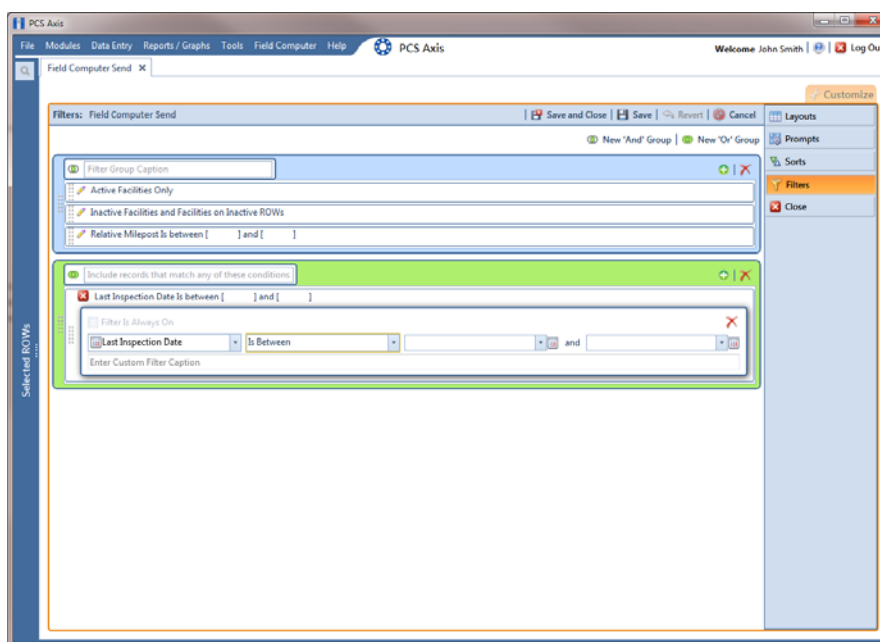
Figure 12-36. New 'Or' Filter Group

6   Type a name for the filter group in the field **Include records that match any of these conditions**.

7   Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

8   If the OR filter group includes a date filter, such as *Facility Delinquent Date Is Between* shown in Figure 12-36, page 512, set a date range using a calendar or dynamic dates in the following manner:

- Type a date in the start and end date fields. Enter a start and end date using the format M/DD/YYYY to indicate the month, day, and year.

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a start date. Then click the down arrow in the end date field to open a calendar and select an end date.

- To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

9   If you want the filter to remain on for all sessions of *Field Computer Send*, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the *Field Computer Send* window using the filter's check box.

10   Type a name for the filter in the field **Enter Custom Filter Caption**.

11   If you want to set up additional filter criteria for the filter group:

a   Click the ⊕ **Add** button to open another filter property group box.

b   Type a name for the filter in the field **Enter Custom Filter Caption**.

c   Repeat steps 7 through 10 to set up filter criteria.

12 Click the close button ❎ to close the filter group.

NOTE: Clicking the 🖊 edit icon for a particular filter opens that filter's property settings allowing you to change settings as needed.

---

13 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

   a Point the mouse at the filter handle ⋮⋮ to change the cursor to a vertical resize cursor ↕.

   b Drag and drop the filter or the filter group to a new location.

14 Click 💾 **Save and Close** to return to the *Field Computer Send* window.

Editing and Arranging Filters and Filter Groups

PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Filter groups are processed similarly. Information in this section explains how to edit filter property settings and how to arrange filters and filter groups.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click 💾 **Save** to close the window (Figure 12-1, page 474).

2 Click **Field Computer** > **Send** to open the *Field Computer Send* window.

3 Choose a mode for displaying records in the grid by selecting the option **Select ROWs**, **Route**, or **Schedule**. Then click 💾 **Apply** to update the grid.

4 Click the **Customize** tab 🔧 Customize , then the **Filters** button 🔽 Filters to open the *Filters* page (Figure 12-37, page 515).

5 Click the edit icon 🖊 to display a filter's property settings.
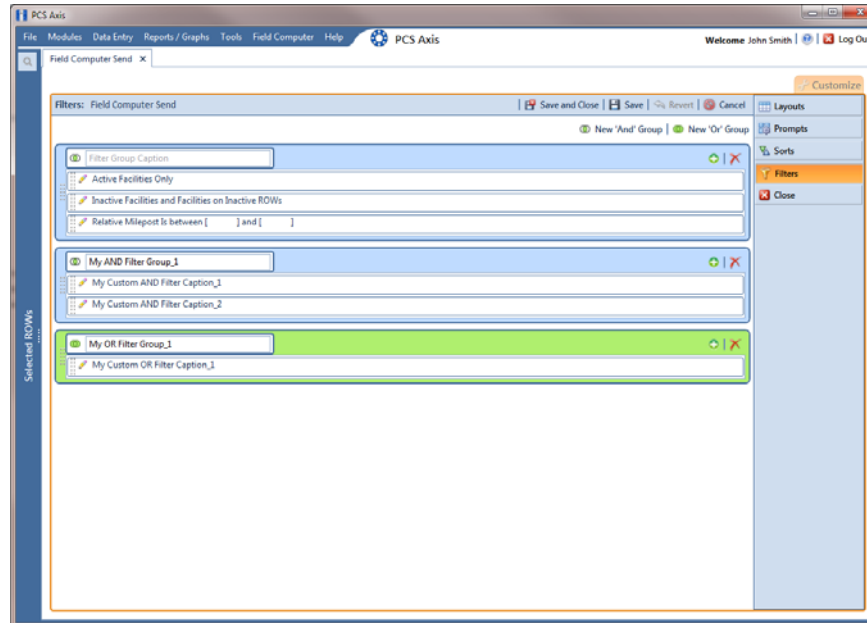
Figure 12-37. Filters

6 To delete a filter in a filter group, click the filter's ✖ delete button. Then click
✔ **OK** when the *Delete* message displays.

7 To rename a filter, type a description in the filter's name field.

8 To change filter criteria, use filter selection fields to select a PCS Axis field,
operator, and one or more filter conditions.

9 To enable a filter for all sessions of the data entry grid, click the check box **Filter is
Always On** to place a check mark inside the check box. When this check box is not
selected, toggle the filter on and off in the options page using the filter's check
box.

10 Click the ✖ close button to close the filter's property settings group box.

11 To move a filter to a different position in a filter group, or to move a filter group to
a different position, follow these steps:

a Point the mouse at the handle ⁝⁝ of a filter or filter group to display a vertical
resize cursor ↕.

b Drag and drop the filter or filter group to a new location.

> **NOTE:** PCS Axis processes filters in descending order beginning with the filter
> at the top of the filter group.

12 Click ![Save and Close icon] **Save and Close** to close the filters page and return to the grid in *Field Computer Send*.

13 To apply filter changes to the grid in *Field Computer Send* and subsequently in the file sent to the Allegro, follow these steps:

a Click the ![down arrow icon] **Filters** tab to open the *Filters* panel (Figure 12-38, page 516).

b Click one or more check boxes in *Filters* and then click ![Apply icon] **Apply**. For example, click **Active Facilities Only** to only include active facilities in the grid and in the file sent to the Allegro.

c Click the ![up arrow icon] **Filters** tab to close the *Filters* panel.
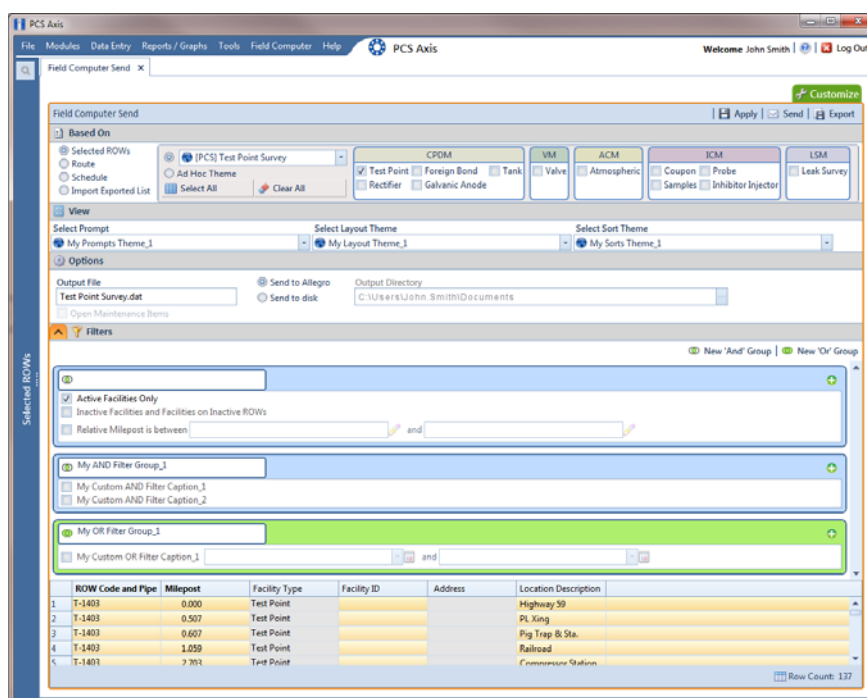
Figure 12-38. Filters

Viewing the Field Computer Log

The field computer log includes a *Send Log* and *Receive Log*. The *Send Log* lists the facility records sent to the Allegro with the date and time records were processed. Likewise, the *Receive Log* identifies facility records received in PCS Axis from the Allegro, as well as the date and time they were received. Only those facility records updated by the Allegro are processed and included in the *Receive Log*.

You can use information in the field computer log to:

- verify which facility records have been sent and received;

- compare both logs to verify all facilities that were inspected contain survey data;

- troubleshoot issues if a problem occurs during data transfer.

To view the field computer log, follow these steps:

1 Click **Field Computer** > **Log** to open the *Field Computer Log* window (Figure 12-39).

2 Click the **Send Log** tab to view facility records sent to the Allegro. To view facility records received in PCS Axis from the Allegro, click the **Receive Log** tab.
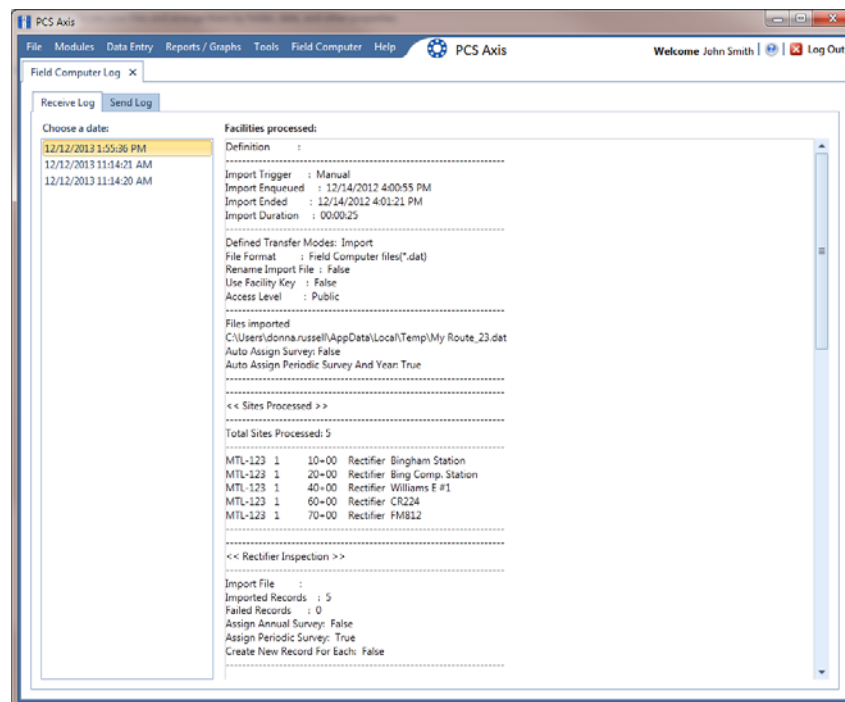
Figure 12-39. Field Computer Log / Receive Log

Notes

Managing Themes

Information in this chapter explains how to work with facility type themes in *Facility Type Themes Management* and how to manage all themes in the system using *Themes Management*. The information is intended for users with *SysAdmin* user permissions unless noted otherwise.

Topics in this chapter include those in the following list:

- *Working with a Facility Type Theme*

- *Managing Themes* (page 525)

Working with a Facility Type Theme

A facility type theme is a named set of one or more facility types, such as test point, rectifier, valve, and atmospheric facility types. Certain features in PCS Axis require you to select a facility type theme to complete an operation, such as selecting a facility type theme when working in *Define Routes* (Data Entry > Define Routes) or *Field Computer Send* (Field Computer > Send).

Two types of facility type themes are available for use. They include *installed* and *addition* facility type themes. An installed facility type theme is one that has been installed during the PCS Axis software installation. A facility type theme addition is one that you create.

Information in this section explains how to work with a facility type theme in *Facility Type Themes Management*. Topics include those in the following list:

- *Editing an Installed Facility Type Theme* (page 520)

- *Adding a Facility Type Theme Addition* (page 521)

- *Editing a Facility Type Theme Addition* (page 524)

Editing an Installed Facility Type Theme

An installed facility type theme includes [PCS] in the name of the theme, such as 🌐 **[PCS] Rectifier Survey**. The procedure in this section explains how to complete the following tasks to edit an installed facility type theme:

- add a facility type

- remove a facility type

- revert an installed facility type theme

To edit an installed facility type theme, follow these steps:

1 Click **Tools** > **Facility Type Themes** to open the *Facility Type Themes* window (Figure 13-1).

2 Click the down arrow in **Select Facility Type Theme** and select a PCS Axis installed theme, such as 🌐 **[PCS] P/S Survey**.
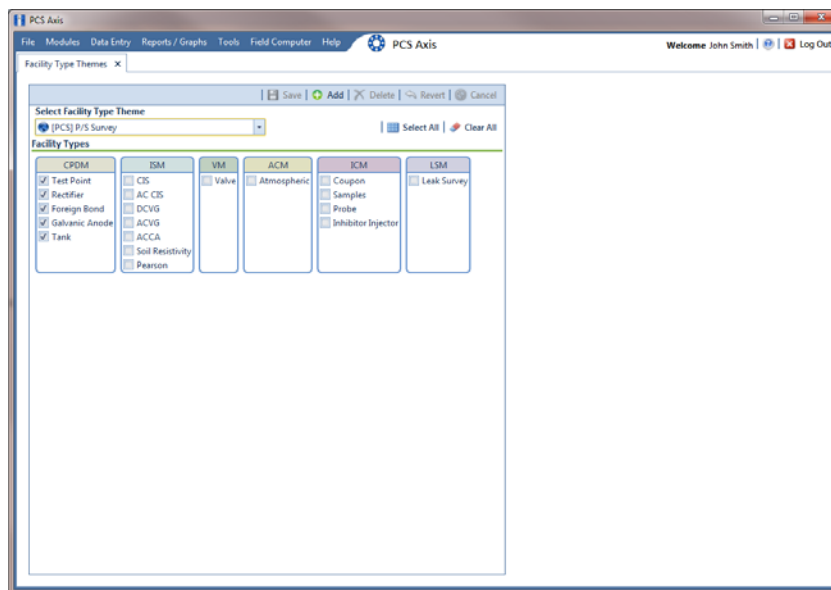
Figure 13-1. Facility Type Themes

3 To add one or more facility types in an installed theme:

- Click the check box for each facility type you want to add, then click 💾 **Save**. A check mark inside a check box indicates a selection (Figure 13-1).

4   To remove one or more facility types in an installed theme:

   •   Click the check box to clear the check mark for each facility type you want to remove. Click 💾 **Save** to save changes.

5   To revert a facility type theme and restore settings prior to editing:

   •   Click 🐟 **Revert**, then click ✅ **Yes** when the *Confirm Revert* message displays (Figure 13-2).
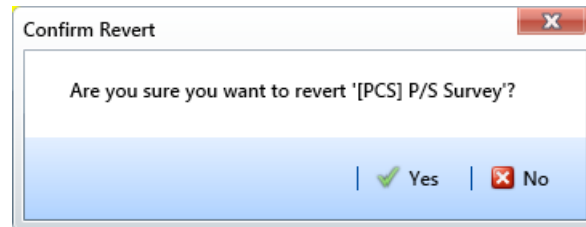
Figure 13-2. Confirm Revert

Adding a Facility Type Theme Addition

To add a facility type theme addition, follow these steps:

1   If the *Facility Type Themes* window is not open, click **Tools** > **Facility Type Themes** (Figure 13-3).
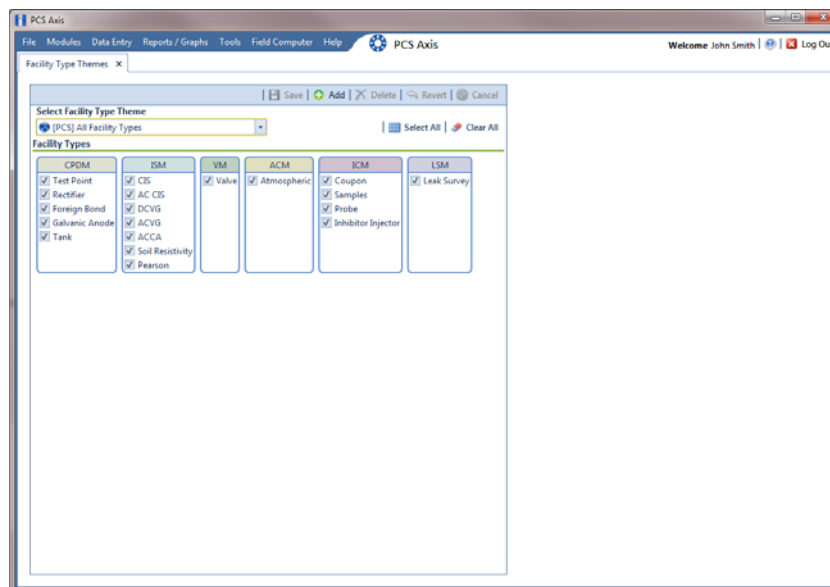
Figure 13-3. Facility Type Themes Management

2 Click ⊕ **Add** to open the *New Facility Type Theme* dialog box (Figure 13-4, page 522).

3 Type a name for the new theme in the field **Enter Theme Name**.
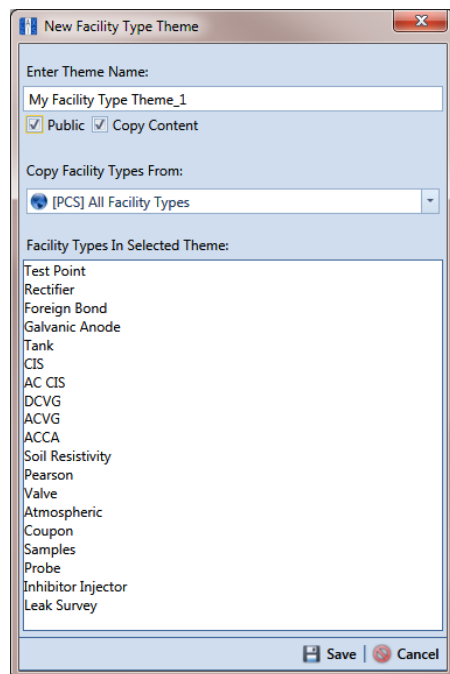
Figure 13-4. New Facility Type Theme

4 Select the **Public** check box if you want the new theme available to all PCS Axis users.

When a theme is not public, it is a private theme. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

5 Click the down arrow in **Copy Facility Types From** and select an existing facility type theme with facility types you want to copy to the new theme.

6 Click 💾 **Save** to save changes and close the dialog box.

7 To add one or more facility types in the new theme:

• Click the check box for each facility type you want to add.

Clicking ⊞ **Select All** adds all facility types in the new theme. A check mark inside a check box indicates a selection (Figure 13-5, page 523).

8 To remove one or more facility types from the new theme:

* Click the check box to clear the check mark for each facility type you want to remove.

 Clicking ![icon] **Clear All** removes all facility types in the new theme.

9 Click ![icon] **Save** to save changes.

 The facility type theme is now available for selection in *Define Routes* (page 283) and *Field Computer Send* (page 473).
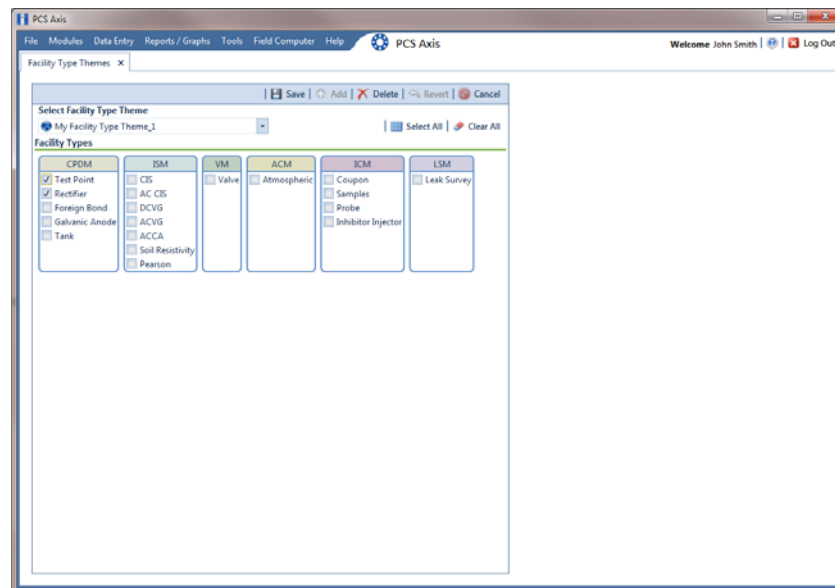
Figure 13-5. Facility Types

Editing a Facility Type Theme Addition

The following procedure describes how to add and remove facility types in a facility type theme addition and how to delete a facility type theme addition.

Complete the following steps:

1   If the *Facility Type Themes* window is not open, click **Tools** > **Facility Type Themes** (Figure 13-6).

2   Click the down arrow in **Select Facility Type Theme** and select a facility type theme addition.
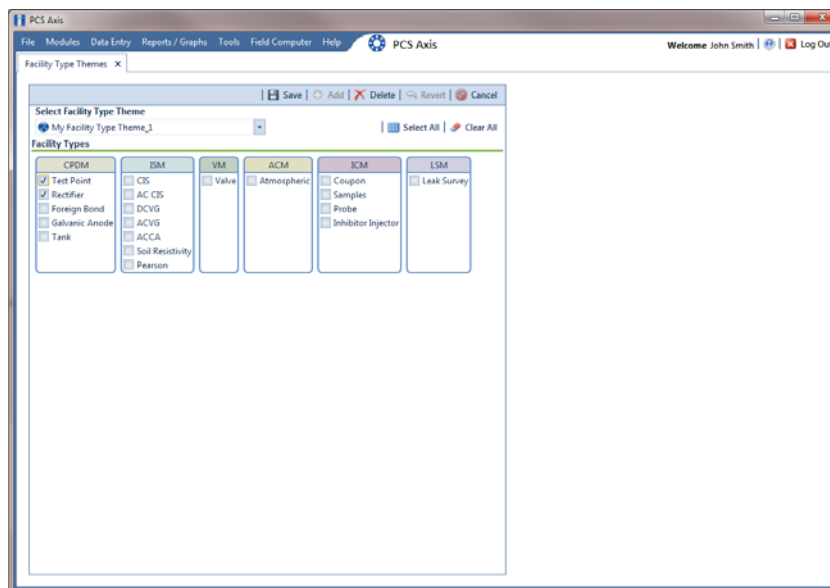
Figure 13-6. Facility Type Themes Management

3   To add one or more facility types:

   •   Click the check box for each facility type you want to add. Clicking ⊞ **Select All** adds all facility types. A check mark inside a check box indicates a selection. Click ▣ **Save** to save changes.

4   To remove one or more facility types:

   •   Click the check box to clear the check mark for each facility type you want to remove. Clicking 🧽 **Clear All** clears all selections. Click ▣ **Save** to save changes.

5   To revert a facility type theme and restore settings prior to editing:

- Click **Revert**, then click **Yes** when the *Confirm Revert* message displays.

6   To delete a facility type theme addition:

- Click **Delete** and then click **Yes** when the *Confirm Delete* message opens.

Managing Themes

Themes Management allows you to perform the following tasks for any PCS Axis installed and user-created theme in the system:

- change the *Based On* method for working with facility records

- rename a theme

- change a theme from *Public* to *Private* and vice versa

- assign a *Private* theme to a user

- delete a theme

To manage themes in the system, follow these steps:

1   Click **Tools** > **Themes Management** to open the *Themes Management* window (Figure 13-7, page 526).

2   Open a grid with the theme you want to edit. For example, to edit a grid layout theme, click the **Editing** tab and then the **Grid Column Themes** tab.

3   To edit the *Based On* method for a theme:

a   Select a theme in the grid. In the following example, a *Test Point Inspections* theme addition is selected (Figure 13-7, page 526).

b   Select a mode for displaying facility records in a data entry grid, report, or survey file sent to the Allegro Field PC. Click the **Based On** field and then select one of the following options in the selection list: *Selected ROWs*, *Route*, *Schedule*, or *Exported*.

4   To rename a theme:

- Select a theme in the grid and then type a name in the **Theme** field.

5 To change a theme from *Public* to *Private*:

    a Select a theme in the grid and then click the check box **Is Public** to remove the check mark.

    b Assign the *Private* theme to a user. Click the **Assigned To** field and select a user name in the selection list.

6 To change a theme from *Private* to *Public*:

    • Select a theme in the grid and then click the check box **Is Public** to place a check mark inside the check box. PCS Axis automatically removes the user name associated with the private theme in the *Assigned To* field.

7 To delete a theme, select a theme in the grid and then click ✕ **Delete**. When the *Confirm Delete* message opens, click **Yes**.
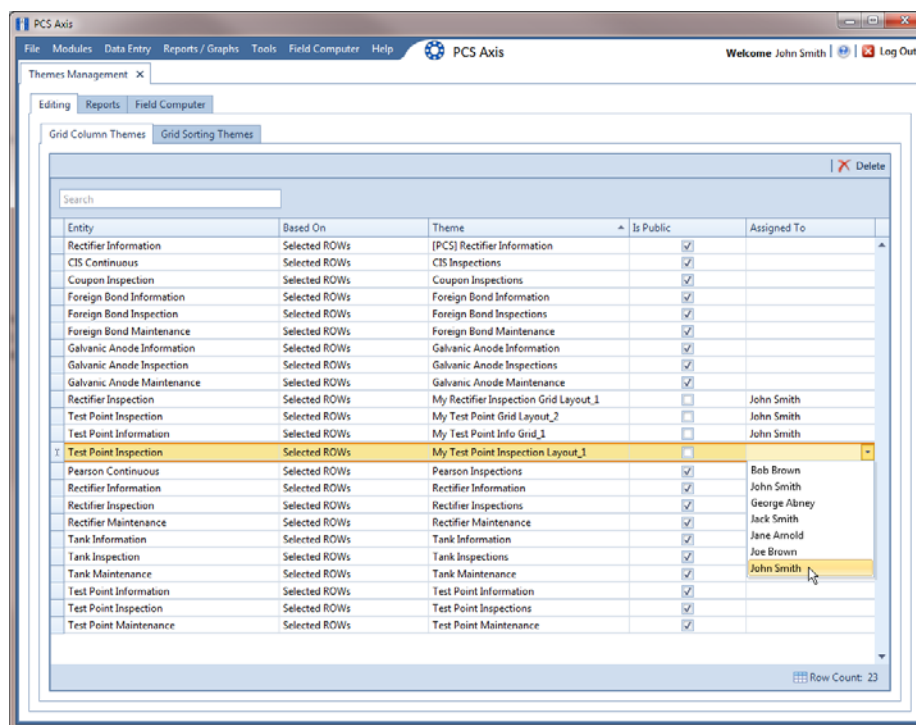
Figure 13-7. Themes Management

Notes

14

Using Reports and Graphs

Information in this chapter explains how to generate and use PCS Axis reports and graphs. The information is intended for PCS Axis users with SysAdmin, User, and Read Only user permissions unless noted otherwise. Topics in this chapter include those in the following list:

- *Considering the Value of PCS Axis Reports*

- *Overview of Reports* (page 531)

- *Quick Start* (page 552)

- *Adding a Custom Report* (page 562)

- *Working with Report Themes and Filter Groups* (page 566)

Considering the Value of PCS Axis Reports

PCS Axis reporting supports a variety of business applications. A few of these include managing data collection and data entry; reviewing the quality of cathodic protection (CP) data; providing information for an audit; and examining the effectiveness of a maintenance program.

The following list describes how you can use PCS Axis reporting in your business:

- Manage data collection and data entry.

  Provide a printed copy of the *Survey Report* or *Data Collection Report* to technicians and vendors for recording CP data in the field. Update the PCS Axis database using completed reports submitted by technicians and vendors. Using PCS Axis reports in this manner allows you to verify consistent data collection and data entry in PCS Axis.

- Review data quality.

    Use PCS Axis reporting to check the quality of survey data submitted by vendors. The quickest method is to view the *Survey Report* to determine which facilities have not been surveyed. Blank report fields indicate no survey data. If a vendor is using the Allegro Field PC to collect survey data, view the Field Computer Log to determine which facilities have not been surveyed.

    Another method for checking the quality of survey data is to generate an *Exceptions* or *Comparisons* report. The *Exceptions* report allows you to compare surveys from previous years. Look for dramatic changes between surveys. You can also use the *Exceptions* report to check for data entry mistakes. This is helpful when range checking is not used or when personnel enter data using survey data recorded in a printed form. The *Comparisons* report compares multiple years of survey data. Use the *Comparisons* report to review changes in data and check for mistakes that might have been made during data entry.

- Provide information for an audit.

    The *Survey Report* and facility *Inspections Graph* contain most of the information needed for an audit. When an audit requires more specific information, create a custom facility report using a columnar, summary, or graph report style.

    To prepare for an audit, generate a *Delinquency Report* to help with creating a plan for bringing a pipeline system into compliance. Another method for preparing for an audit is to generate a *Survey Report* or any custom summary report to provide data for an audit. All other PCS Axis reports are also beneficial in providing information for an audit.

- Determine the effectiveness of a maintenance program.

    PCS Axis reporting provides several reports and graphs that help with determining the effectiveness of a maintenance program. For example, use the *CPDM Rectifier Output History Report* to review the output of a rectifier over time. Look for changes in the rectifier output and any survey remarks or permanent comments that identify reasons for the change. Another method for determining a maintenance program's effectiveness is to generate the *Survey Report* and review the number of inspection readings for a particular survey period. Also look for changes among facilities.

Overview of Reports

Information in this section provides an overview of the report types and styles available in PCS Axis, including a description of each PCS Axis report. Topics include those in the following list:

- *Types of PCS Axis Reports*

- *Description of PCS Axis Reports* (page 532)

- *Report Styles* (page 548)

- *Understanding the Summary Drilldown Report* (page 551)

Types of PCS Axis Reports

The types of reports available in PCS Axis include those in the following list.

- *Compliance*: This type of report includes statistics, such as: number of test points; number of test points surveyed; missing test points; delinquent test points; and test points below criteria. Each one provides a concise data summary. Compliance reports are a key report typically used for auditing purposes.

- *Delinquency*: A delinquency report includes information about facilities that are currently delinquent or have been delinquent based on regulatory survey intervals. This type of report includes both interval violations and calendar year violations.

- *Exceptions*:   Report includes survey data and other related information only for facilities that fail to meet certain criteria. For example, based on filter options selected in *Exception Filters*, the report can include facilities with missing structure readings; structure readings less negative than –0.85; or structure readings more negative than –2.0. This type of report is helpful when trying to quickly locate a problem in the maintenance of a pipeline.

- *Facility Schedules*: A list of facilities (such as test points, rectifiers, bonds, and galvanic anodes) that need to be surveyed based on the last survey date and target survey month.

- *Survey*: All data collected for each facility for a specific survey period.

Description of PCS Axis Reports

PCS Axis organizes reports in categories, such as PCS Axis reports, module survey reports, facility type reports, pipeline reports, and continuous survey reports. Most reports in each of these categories are available for set up as a columnar, summary, or graph report style. If you frequently use one or more reports, you can designate these reports as a "favorite" to have them listed in the *Favorite Reports* menu for quicker access.

For a description and an example of the different types of PCS Axis reports, continue with the topics in the following list:

- *PCS Axis Reports* (page 532)

- *Module Survey Report* (page 536)

- *Facility Type Reports* (page 538)

- *ROW Reports* (page 542)

- *Continuous Survey Reports* (page 544)

PCS Axis Reports

Reports available for selection include those in the following list:

- *PCS Axis Schedule Report* (page 533)

- *PCS Axis Delinquency Report* (page 534)

- *PCS Axis Inspections Graph* (page 535)

PCS Axis Schedule Report

The *PCS Axis Schedule Report* lists facilities that require inspection using the schedule definition selected for the report. The schedule definition and a calculation based on the last inspection date and target survey month determine which facilities the report includes. Information is presented in a columnar report style in two formats; as a monthly calendar overview and as a detailed list (Figure 14-1).

Figure 14-1. Example of PCS Axis Schedule Report

PCS Axis Delinquency Report

The *PCS Axis Delinquency Report* is a compliance report that identifies delinquent facilities based on a survey schedule. Information is presented in a columnar style with a list of delinquent facilities; missing and surveyed facilities; facilities not included in a survey; and facilities below criteria (Figure 14-2).

When the report is customized using the *Summary* report style, it is a statistical status report with a concise summary of the cathodic protection system. It includes the number of delinquent facilities, missing and surveyed facilities, and facilities below criteria. As an option, the report also provides drilldown functionality for further analysis of delinquent facilities.

Figure 14-2. Example of PCS Axis Delinquency Report

PCS Axis Inspections Graph

This report is a graph of inspection readings in a facility survey or survey readings in a continuous survey based on property settings in the *Graph* tab. Property settings include selection of one or more band fields, survey folders, and graph options. Band fields are equivalent to data fields in a data entry grid, such as *Structure P/S* in the *Edit CPDM Data* grid and *CIS Structure P/S* in the *Edit ISM Data* grid.

Areas of the graph with spikes indicate areas where survey data should be reviewed closely (Figure 14-3). Locations in the graph marked with the letter "C" indicate *Casing P/S*. Those marked with the letter "F" indicate *Foreign Bond*. Hovering the mouse over either of these captions displays a yellow tooltip with measurement data as shown in the next example. To toggle these and other captions on or off when viewing the graph, click *Options* and then click a check box labeled with the caption you want to toggle on or off, such as *Show Casing P/S*.
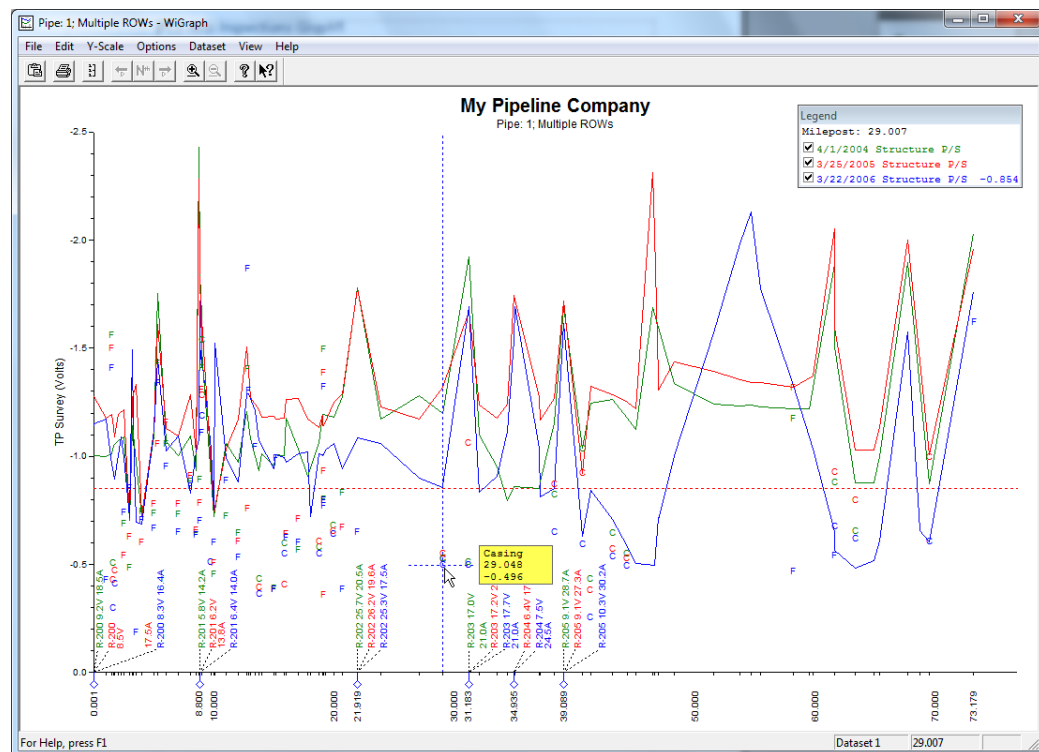
Figure 14-3. Example of PCS Axis Inspections Graph

Module Reports

Reports available for selection include those in the following list:

- *Module Survey Report* (page 536)

- *Module Data Collection Report* (page 537)

Module Survey Report

The survey report includes survey information by module, such as the *CPDM Survey Report*. It is available in a columnar, summary, or graph report style. The report includes all facility data in the survey period selected for the report, such as facility data in a survey period for the *CPDM Survey Report* (Figure 14-4).

Figure 14-4. Example of CPDM Survey Report

Module Data Collection Report

The data collection report is a blank report used by technicians and vendors to record survey readings in the field. It is available for selection in all modules except ISM. The report uses a columnar report style and includes survey information by module, such as the *CPDM Data Collection Report*. Based on the survey type selected when setting up the report, it includes a list of facilities and other optional data, such as previous survey readings (Figure 14-5).

Figure 14-5. Example of CPDM Data Collection Report

Facility Type Reports

Reports available for selection in any module except ISM include those in the following list:

- *Facility Type Information Report*

- *Facility Type Inspections Report* (page 539)

- *Facility Type Maintenance Report* (page 540)

- *Facility Type Exceptions Report* (page 541)

Facility Type Information Report

A report based on the columnar report style that includes information entered in the *Information* data entry grid for a facility type, such as the *Test Point Information* report. Depending on how the report is set up, it can include information for user-selected fields such as ROW Name and Code, Milepost number, Effective Date, Active/Inactive status, Protection Criteria, and so on. The report does not include survey readings (Figure 14-6).

My Pipeline Company
Test Point Information Report
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401
Options: Based On: Selected ROWs

ROW Code and Pipe	Milepost	Location Description	Effective Date	Facility Active	Test Point Protection Criteria	Activate Structure P/S	Activate Casing P/S	Activate Foreign P/S	Activate Insulator P/S	Permanent Comments
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401		**ROW Name:** College Station to Austin								
T-1401	0.000	Bethel Station		Yes	.85 On	Yes	No	No	No	
	0.001	Rectifier R-200		Yes	.85 On	Yes	No	No	No	
	1.000	Alderman #1		Yes	.85 On	Yes	No	Yes	No	
	1.500	Williford E #1		Yes	.85 On	Yes	No	Yes	No	
	1.627	FM 321		Yes	.85 On	Yes	Yes	No	No	
	1.750	Park Rd. 64		Yes	.85 On	Yes	Yes	No	No	
	2.000	Texas 84		Yes	.85 On	Yes	Yes	No	No	
	2.250	County Rd.		Yes	.85 On	Yes	No	No	No	
	2.500	Fryer B		Yes	.85 On	Yes	No	Yes	No	
	3.000	Whitaker #1		Yes	.85 On	Yes	No	Yes	No	
	3.218	County Road		Yes	.85 On	Yes	No	No	No	
	3.250	Old Meter Riser		Yes	.85 On	Yes	No	No	No	
	3.500			Yes	.85 On	Yes	No	Yes	No	
	4.000	Mills #1		Yes	.85 On	Yes	No	Yes	No	
	5.000	Richard - Wynn		Yes	.85 On	Yes	No	Yes	No	
	5.275	Eastex Trans.		Yes	.85 On	Yes	No	Yes	No	
	6.000	FM 27		Yes	.85 On	Yes	No	Yes	No	
	7.000	Layton #1		Yes	.85 On	Yes	No	Yes	No	
	8.000	4" Riser		Yes	.85 On	Yes	No	Yes	No	
	8.500	Gas Unit #4		Yes	.85 On	Yes	No	Yes	No	
	8.717	Valve		Yes	.85 On	Yes	No	No	No	
	8.800	Rect R-200		Yes	.85 On	Yes	No	No	No	
	8.830	Big Brown Plant		Yes	.85 On	Yes	No	Yes	No	
	8.957	Valve		Yes	.85 On	Yes	No	No	No	
	8.979	Big Brown Plt R		Yes	.85 On	Yes	Yes	No	No	
	9.000	Gas Unit #3		Yes	.85 On	Yes	No	Yes	No	

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Figure 14-6. Example of CPDM Test Point Information Report

Facility Type Inspections Report

The inspections report includes information entered in the Inspection data entry grid for a particular facility type. It is available as a columnar, summary, or graph report. For example, the *Test Points Inspection* report includes all survey data collected at a test point but does not include other facility types such as rectifiers and bonds. Rectifier and bonds are included in a report specific to these facility types (Figure 14-7).

My Pipeline Company
Test Point Inspection Report
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401
Filter Settings: Survey Is equal to '2006 Annual Survey'
Options: Based On: Selected ROWs; Only include facilities with inspections during the reporting time period; Filter Options: All inspections that meet the filter criteria; Indicate missing inspection readings

ROW Code and Pipe	Milepost	Effective Date	Inspection Date	Survey	Structure P/S	Casing P/S	Foreign P/S	Insulator P/S	Technician	Inspection Remarks
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401	**ROW Name:** College Station to Austin									
T-1401	0.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.141					Misc. piping -1.324 (Paint good)
	0.001		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.150					
	1.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.173		-0.428			
	1.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.963		-1.410			
	1.627		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.922	-0.298				
	1.750		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.895	-0.412				
	2.000		3/22/2006 12:00:00 AM	2006 Annual Survey		-0.635				No TP.
	2.250		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.091					
	2.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.996		-0.739			
	3.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.717		-0.852			
	3.218		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.492					
	3.250		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.118					
	3.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.694		-0.184			
	4.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.686		-0.707			Isolated at main - Bare line
	5.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.116		-0.665			
	5.275		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.451		-1.339			Meter needs painting, County Road.
	6.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.024		-0.954			
	7.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.094		-0.648			Rd casing abandoned
	8.000		3/22/2006 12:00:00 AM	2006 Annual Survey	-0.831		-0.862			Mainline tie in
	8.500		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.020		-0.638			
	8.717		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.080					East edge of Big Brown (Needs paint). BV-F76B
	8.800		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.720					KWA meter # bad.
	8.830		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.514		-0.700			paint OK, plant side needs painting
	8.957		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.422					West of Big Brown tie-in. BV-F76.
	8.979		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.409	-1.186				

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Figure 14-7. Example of CPDM Test Point Inspections Report

Facility Type Maintenance Report

A report based on the columnar report style that includes information entered in the *Maintenance* data entry grid for a facility type. For example, the *Test Points Maintenance* report includes a detail listing of all current, pending, and completed repairs for test points (Figure 14-8).

My Pipeline Company

Test Point Maintenance Report

Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403

Options: Based On: Selected ROWs; Filter Options: All maintenance that meet the filter criteria

ROW Code and Pipe	Milepost	Effective Date	Repair Found Date	Test Point Repair Code	Repair Initiated Date	Repair Corrected Date	Reference Number	Repair Priority	Repair Remarks
Region: TRANSMISSION									
System: TRANSMISSION SYSTEMS									
ROW Code: T-1403	**ROW Name:** Dallas to Houston								
T-1403	0.000	12/31/2003	1/5/2006	23			3257	High	
	0.507		1/5/2006	4	1/5/2006	1/5/2006	3701	Crit	
	0.607		1/8/2011	5			3291	Low	Needs paint
	1.059		3/8/2011	6			2621	Crit	Destroyed
	2.703		1/5/2006	3	1/5/2006	1/5/2006	7226	Med	
			3/8/2008	4			1306	Med	
			3/8/2010	5			6921	Low	
			3/8/2011	6			1032	Low	
	2.705								
	2.753		3/8/2003	15	3/6/2011	3/8/2011	9434	Crit	Replaced leads
		3/23/2005	3/8/2011	24			9925	Med	
	2.798								
	5.869		3/8/2011	36			433	High	
	7.872		1/5/2006	1		1/5/2006	6529	Low	
	8.877		1/5/2006	20		2/9/2006	2114	High	
	10.190								
	10.191								
	12.850		3/8/2011	7			5797	Low	Leads are loose
	15.000								
	20.990		3/8/2011	15			3033	Low	
	20.995								
	23.762								
	25.778								
	25.779								
	29.812								
	32.490								

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Figure 14-8. Example of CPDM Test Point Maintenance Report

Facility Type Exceptions Report

A report based on the columnar report style that includes survey data and other related information only for facilities that fail to meet certain criteria. For example, based on filter options selected in *Exception Filters*, the report can include facilities with missing structure readings; structure readings less negative than –0.85; or structure readings more negative than –2.0. This type of report is helpful when trying to quickly locate a problem in the maintenance of a pipeline (Figure 14-9).

Figure 14-9. Example of CPDM Test Point Exceptions Report

ROW Reports

Reports available for selection in any module except ISM include those in the following list:

- *ROW Information Report*

- *ROW Maintenance Report* (page 543)

ROW Information Report

A report based on the columnar report style that includes pipeline system information entered in the *Edit ROW Detail Information* grid. Depending on how the report is set up, it includes information for user-selected fields such as pipeline name and size, total footage, default location format, surface area, and so on (Figure 14-10).

Figure 14-10. Example of ROW Information Report

ROW Maintenance Report

A report based on the columnar report style that includes pipeline system information entered in the *Edit ROW Detail Maintenance* grid. It includes a detail listing of all current, pending, and completed repairs (Figure 14-11).

Figure 14-11. Example of ROW Maintenance Report

Continuous Survey Reports

Reports available for selection include those in the following list:

- *PCS Axis Inspections Graph* (page 535)

- *Continuous Survey Report* (page 544)

- *Continuous Survey Folders Report* (page 546)

- *CIS Criteria Report (Continuous Survey)* (page 547)

Continuous Survey Report

A report based on the columnar or graph report style that includes station numbers with associated survey readings for a selected survey folder and pipeline segment(s) selected in the *Select ROW* window. See Figure 14-12 and Figure 14-13, page 545.

My Pipeline Company
CIS Survey Report
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403
Filter Settings: CIS Structure P/S Is less negative than '-0.95'
Options: Based On: Selected ROWs; Select Continuous Survey: T-1403 3/14/2006 On- Off Survey

ROW Code and Pipe	Station Number	CIS Structure P/S	CIS Structure IRF	Indication Score	Indication Classification	Longitude	Latitude	Plot This Point	Surveyor	Survey Remarks
T-1403	136+00	-0.753						Yes		Foreign Line Xing
T-1403	140+70	-0.948						Yes		
T-1403	189+30	-0.943						Yes		
T-1403	198+80	-0.848						Yes		
T-1403	202+10	-0.921						Yes		
T-1403	213+00	-0.930						Yes		
T-1403	213+10	-0.924						Yes		
T-1403	213+40	-0.914						Yes		
T-1403	213+50	-0.713						Yes		
T-1403	263+72	-0.800	-0.760					Yes		TS 284+05 -0.798 Retie
T-1403	263+80	-0.832	-0.767					Yes		
T-1403	263+90	-0.851	-0.778					Yes		
T-1403	264+00	-0.881	-0.796					Yes		
T-1403	264+10	-0.890	-0.796					Yes		
T-1403	264+20	-0.892	-0.797					Yes		
T-1403	264+30	-0.900	-0.802					Yes		
T-1403	264+40	-0.889	-0.792					Yes		
T-1403	264+42	-0.884	-0.785					Yes		CL Caliche Rd
T-1403	264+50	-0.894	-0.794					Yes		
T-1403	264+60	-0.902	-0.800					Yes		
T-1403	264+70	-0.903	-0.802					Yes		
T-1403	264+71	-0.900	-0.797					Yes		Line Marker
T-1403	264+80	-0.899	-0.798					Yes		
T-1403	264+90	-0.896	-0.795					Yes		
T-1403	265+00	-0.887	-0.791					Yes		
T-1403	265+10	-0.885	-0.789					Yes		
T-1403	265+20	-0.882	-0.789					Yes		
T-1403	265+30	-0.883	-0.786					Yes		
T-1403	265+40	-0.891	-0.789					Yes		
T-1403	265+50	-0.892	-0.788					Yes		
T-1403	265+60	-0.892	-0.788					Yes		
T-1403	265+70	-0.887	-0.785					Yes		

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Figure 14-12. Example of Continuous Survey Report (Columnar Report Style)

The next figure shows an example of the *Continuous Survey Report* using the graph report style (Figure 14-13).
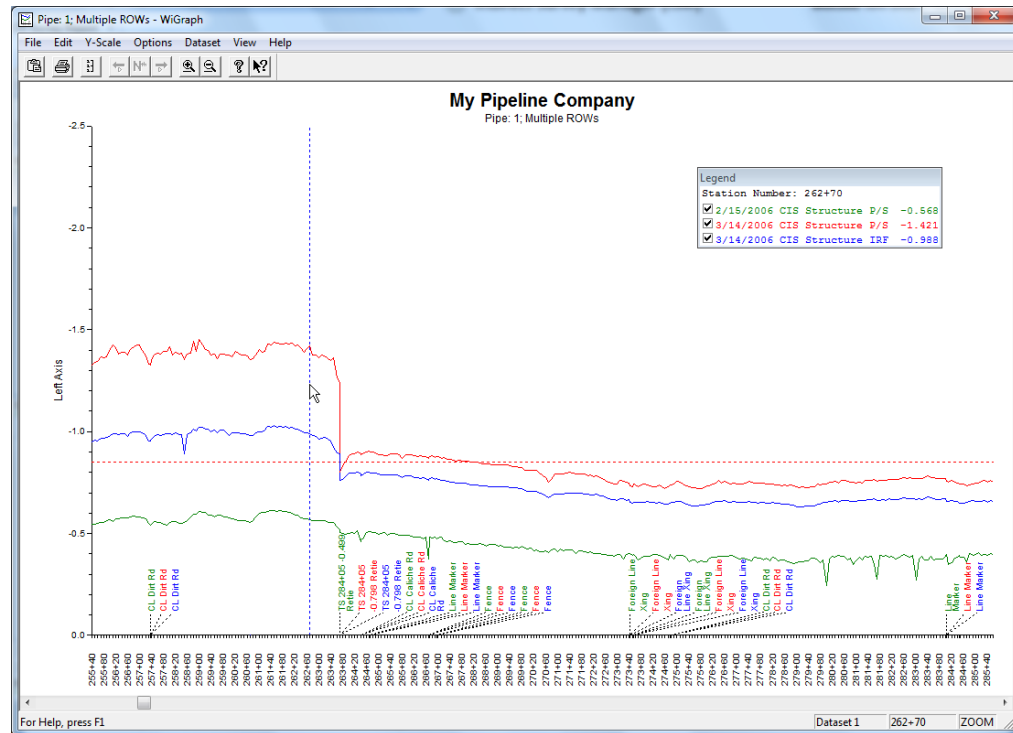
Figure 14-13. Example of Continuous Survey Report (Graph Report Style)

Continuous Survey Folders Report

A report based on the columnar report style that lists all survey folders associated with the currently selected pipeline segment in the *Select ROWs* window. The report includes the survey folder name, start date, and total number of survey readings for each survey folder included in the report (Figure 14-14).

Figure 14-14. Example of Continuous Survey Folders Report

CIS Criteria Report (Continuous Survey)

A report based on the columnar report style that lists survey data for on/off and native state surveys.

The *CIS Criteria Report* allows you to include or exclude survey readings based on the following fields: native (no cathodic protection); on potential (cathodic protection system on); and instant off (regular timed interruptions from the current source). If other report information is required, you can create a custom criteria report that meets those requirements. Report information also allows you to quickly determine if survey readings are out of specification or were recorded incorrectly (Figure 14-15).

My Pipeline Company
CIS Criteria Report
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403
Filter Settings: Reading does not meet the .85 On Criteria; Reading does not meet the .85 IRF Criteria; Reading does not meet the 100mV Criteria
Options: Based On: Selected ROWs; Selected On Off Survey: T-1403 2/15/2006 Native Survey; Selected Native Survey: T-1403 2/15/2006 Native Survey

Station Number	CIS Structure P/S	CIS Structure IRF	CIS Native P/S (CIS Criteria)	Meets .85 On Criteria	Meets .85 Off Criteria	Meets 100mV Criteria	Number of Readings in Survey	Plot This Point	Survey Remarks	Surveyor
29+48	-0.580			No			21674	Yes	Pipe Enters Ground	
29+50	-0.602			No			21674	Yes	ok	
29+51	-0.615			No			21674	Yes	Fence	
29+60	-0.641			No			21674	Yes		
29+70	-0.630			No			21674	Yes		
29+80	-0.666			No			21674	Yes		
29+90	-0.666			No			21674	Yes		
30+00	-0.676			No			21674	Yes		
30+10	-0.683			No			21674	Yes		
30+20	-0.700			No			21674	Yes		
30+30	-0.696			No			21674	Yes		
30+40	-0.686			No			21674	Yes		
30+50	-0.683			No			21674	Yes		
30+60	-0.690			No			21674	Yes		
30+70	-0.696			No			21674	Yes		
30+80	-0.689			No			21674	Yes		
30+90	-0.676			No			21674	Yes		
31+75	-0.596			No			21674	Yes	Csg -0.302	
31+80	-0.563			No			21674	Yes		
31+84	-0.527			No			21674	Yes	Line Marker	
31+90	-0.548			No			21674	Yes		
32+00	-0.585			No			21674	Yes		
32+10	-0.608			No			21674	Yes		
32+20	-0.623			No			21674	Yes		
32+22	-0.594			No			21674	Yes	Fence to Seadrift PL Station	
32+30	-0.633			No			21674	Yes		
32+40	-0.637			No			21674	Yes		
32+50	-0.634			No			21674	Yes		
32+60	-0.642			No			21674	Yes		
32+64	-0.632			No			21674	Yes	Line Marker,PI Right	
32+70	-0.664			No			21674	Yes		
32+80	-0.678			No			21674	Yes		

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Figure 14-15. Example of CIS Criteria Report (Continuous Survey)

Report Styles

Available PCS Axis report styles include columnar, summary, and graph. Information in this section describes reporting characteristics for each of these styles. Topics include those in the following list:

- *Columnar Report Style*

- *Summary Report Style* (page 549)

- *Graph Report Style* (page 550)

Columnar Report Style

The columnar report style is similar to a spreadsheet with report data organized in columns and rows (Figure 14-16). There are as many rows of data as there are records returned from the PCS Axis database. You can set up the columnar report style with a layout, sorting, and filtering theme, as well as setting paper and print options.

Figure 14-16. Example of Columnar Report Style

Summary Report Style

The summary report allows you to analyze large amounts of pipeline data easily in a familiar spreadsheet format. The report provides a summary of totals, subtotals, and aggregated numeric data (counts, sums, and percentages) for facilities on a pipeline. For example, you can use the report to easily determine the total number of facilities on a pipeline; total number and percentage of surveyed facilities; and total number and percentage of surveyed facilities above criteria (Figure 14-17).

Figure 14-17. Example of Summary Report Style

The summary report style provides an optional *Drilldown* feature for viewing summary data in a pivot table. You can add, remove, and arrange data columns in the pivot table to obtain a desired report of summary data. Double-clicking a field in the grid opens a window with drilldown information as shown in the following example (Figure 14-18).

Figure 14-18. Summary Drilldown Report

Graph Report Style

A graph report presents data in a line graph format. The report shows survey data versus distance or time. As an option you can set up the report to graph several bands of survey data. Each band includes an X-axis, Y-axis, and survey readings.
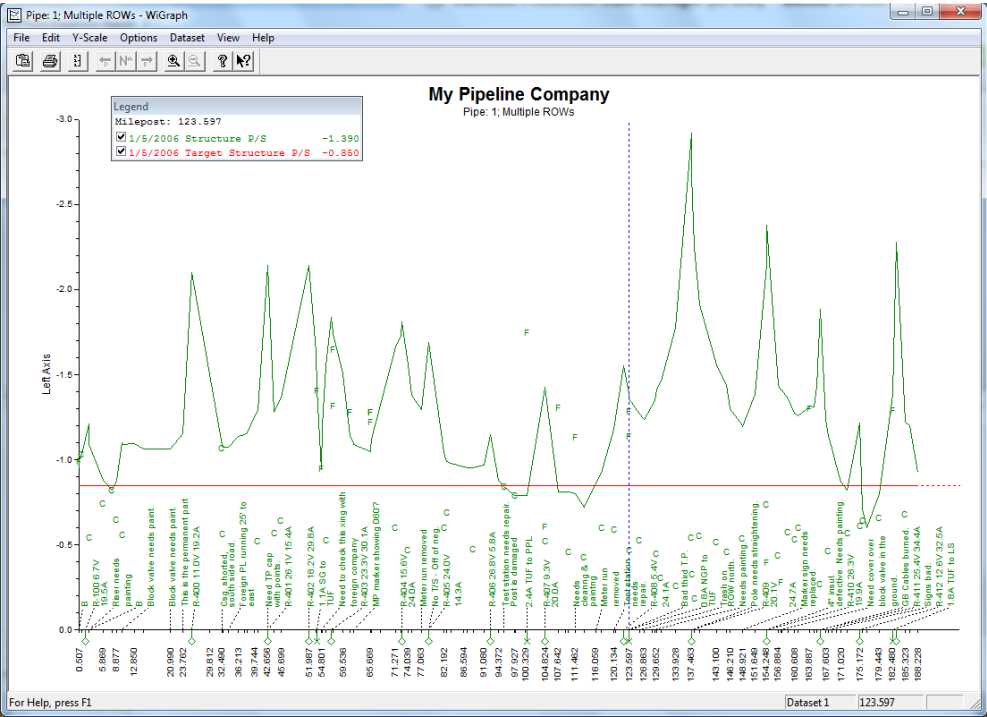
Figure 14-19. Example of Graph Report Style

Understanding the Summary Drilldown Report

The *Summary* report includes the *Drilldown* option for displaying data in an interactive pivot table format (Figure 14-20). This feature allows you to display different representations of the same summary data. You can add, remove, and rearrange filters to display a subset of summary data for easier analysis of large amounts of data. Double-clicking a field opens a window with detailed drilldown information for the selected summation type (Figure 14-18). Percentage drill downs are currently unavailable. The following list describes operations you can perform in a pivot table:

- *Arranging Column Fields in the Grid*: The arrangement of filter buttons correspond to the arrangement of column fields in the grid. Dragging a filter button to a different position within the group of buttons subsequently rearranges column fields in the grid. Hovering the mouse over a filter button displays a tooltip with the filter name.

- *Removing Column Fields in the Grid*: Dragging a filter button to the area of the pivot table labeled "Drop Column Fields Here" removes the selected column from the grid.

- *Removing Filters from Calculations*: Dragging a filter button to the area of the pivot table labeled "Drop Filter Fields Here" removes the selected filter from calculations.

- Double-click a total or sub-total to view or print details in a drilldown table.
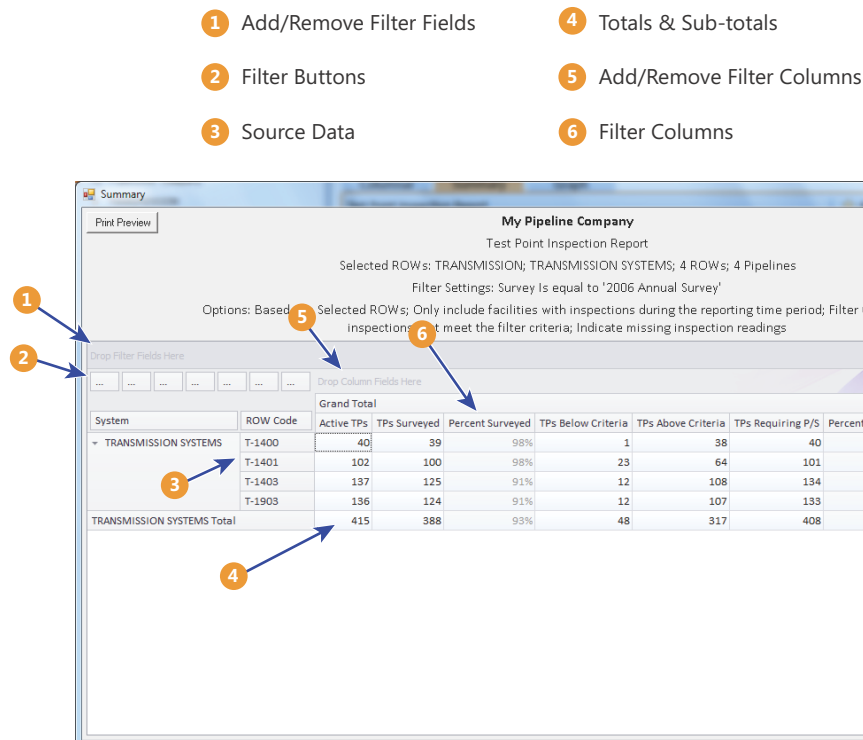
Figure 14-20. Summary Drilldown

Quick Start

Information in this section includes procedures for setting up and printing a report based on the Columnar and Summary report styles. Report set up includes selecting a report layout and sorting method, as well as selecting optional filters for filtering data.

Topics in this section include those in the following list:

- *Working with a Report Based on the Columnar Report Style*

- *Working with a Report Based on the Summary Report Style* (page 556)

- *Working with a Report Based on the Graph Style* (page 560)

Working with a Report Based on the Columnar Report Style

Complete the following steps to set up and print or export a report based on the *Columnar* report style:

Complete the following steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the report. Click ![save icon] **Save** to close the window.
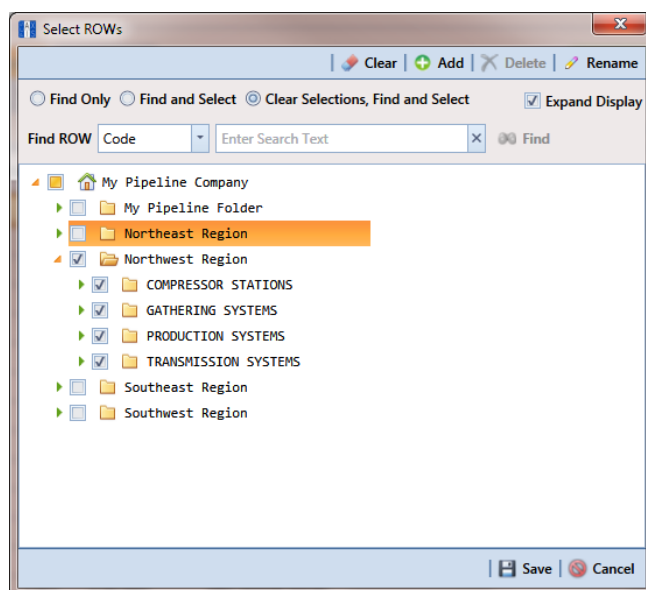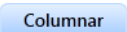
Figure 14-21. Select ROWs

2 Click **Reports/Graphs** and then select a report in the menu to open a window with report property settings. If the *Columnar* property settings window is not visible, click the **Columnar** tab Columnar to open the window (Figure 14-22, page 554).

The following figure shows an example of the *Columnar* property settings window for the *Test Point Inspection Report* (Figure 14-22, page 554).

3 Select one of the following options to choose which facility records to include in the report:

    a Click the option **Selected ROWs** to include facilities associated with the pipeline selection(s) in the *Select ROWs* window.

    b Click the **Route** option and then select a route to include facilities associated with the selected route.

4 Click the down arrow in the field **Select Layout Theme** and choose a layout theme in the selection list. The layout theme determines which fields are included in the report; paper and font settings; and additional print options such as including a signature line in the report.

5 Click the down arrow in the field **Select Sort Theme** and choose a sorting theme in the selection list. The sorting theme determines how PCS Axis sorts report data.

6 Choose a method for sorting inspection dates. Click **Oldest First** or **Newest First** in **Sort Dates** to sort records with the oldest or newest inspection dates first.

7 Choose an option for inserting a line between different groups of report data. Click the down arrow in the field **Insert Lines Between Groups** and choose an option in the selection list.

8 Choose an option that determines where a page break occurs in the report. Click the down arrow in the **Page Breaks** field and select an option in the selection list.
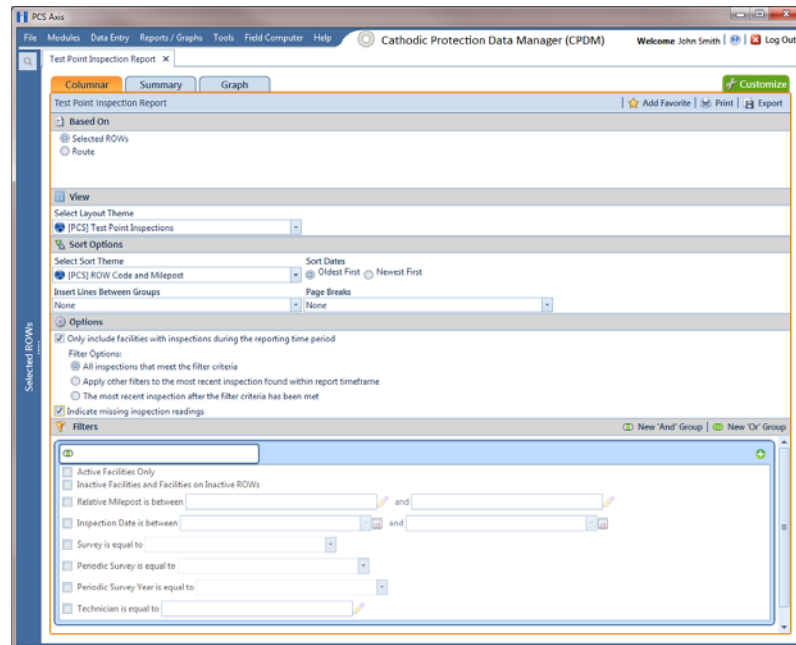
Figure 14-22. Test Point Inspection Report

9 Select one or more of the following options as needed in the *Options* group box. Date range in filter criteria is determined by considering all time frame filters, such as inspection date, survey, and periodic survey filters.

- *Only include facilities with inspections during the reporting time period*: When time frame filters are not selected in the *Filters* group box, such as inspection date, survey, or periodic survey filters, the report includes all inspections using the inspection date and time as the reporting time period.

  If one or more time frame filters are selected in the *Filters* group box, the report only includes inspections for the selected time frame filter(s).

- *All inspections that meet the filter criteria*:   Report includes all inspections that meet filter criteria based on selections in the *Filter* group box.

- *Apply other filters to the most recent inspection found within report timeframe:*   This option finds the latest inspection within the reporting time frame first, and then applies all other filters selected in the *Filter* group box. The report only includes inspections for facilities when the latest record within the date range meets other filters.

- *The most recent inspection after the filter criteria has been met:*   This option applies all filter criteria first based on selections in the *Filter* group box, and then finds the latest inspection.

- *Indicate missing inspection readings:*   This option includes an empty box in the report for each missing inspection reading.

10 Select one or more options in the *Filters* group box to filter report data according to your filter selection(s). For example, click **Active Facilities Only** to only include active facilities in the report.

NOTE: PCS Axis disables the option *Only show facilities with inspection records* when the *Columnar* report includes any of the following filter settings: Inspection Date is between, Survey is equal to, Periodic Survey is equal to, or Periodic Survey Year is equal to.

When adding a date filter, such as **Inspection Date is between**, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the ▦ calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

11 If you want to add the report in *Favorite Reports* (Reports/Graphs > Favorite Reports), click ⭐ **Add Favorite**.

NOTE: If you want to remove a favorite report listed in *Favorite Reports*, open the report and then click ⭐ **Remove Favorite** in the report options window.

---

12 To export the report:

a Click 🖫 **Export** to open the *Export File* dialog box.

b Choose an export file type. Click the down arrow in the **Save as type** field and select one of the following file types:

- Excel files (*.xlsx)

- Text files (*.txt, *.csv)

- XML files (*.xml)
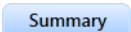
13 To print the report:

a Click ![printer icon] **Print** to open the report in a preview window.

b To print the report using the default printer set up in Windows, click the ![icon] **Quick Print** button. To select a printer other than the default printer, click the ![icon] **Print** button.

Working with a Report Based on the Summary Report Style

The following procedure explains how to set up and print or export a report based on the *Summary* report style. Also included are instructions for using the optional *Drilldown* feature.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the report. Click ![save icon] **Save** to close the window (Figure 14-21, page 552).

2 Click **Reports/Graphs** and then select a report in the menu to open a window with report property settings. If the *Summary* property settings window is not visible, click the **Summary** tab ![Summary] to open the window.

The following figure shows an example of the *Summary* property settings window for the *Test Point Inspection Report* (Figure 14-23, page 557).

3 Select an option to choose which facility records to include in the report. Click **Selected ROWs** to include facilities associated with the pipeline selection(s) in the *Select ROWs* window. Or, click **Route** and then select a route to include facilities associated with the selected route.

4 Click the down arrow in the field **Select Layout Theme** and choose a layout theme in the selection list. The layout theme determines which fields are included in the report.

5 Complete the following steps in the *Sort Options* group box:

a Click the down arrow in the field **Select Sort Theme** and choose a sorting theme in the selection list. The sorting theme determines how PCS Axis sorts report data.

b Choose a method for sorting inspection dates. Click **Oldest First** or **Newest First** in **Sort Dates** to sort records with the oldest or newest inspection dates first.

c Choose an option for inserting a line between different groups of report data. Click the down arrow in the field **Insert Lines Between Groups** and choose an option in the selection list.

d Choose an option that determines where a page break occurs in the report. Click the down arrow in the **Page Breaks** field and select an option in the selection list.

Figure 14-23. Test Point Inspection Report (Summary)

6 Select one or more of the following options as needed in the *Options* group box. Date range in filter criteria is determined by considering all time frame filters, such as inspection date, survey, and periodic survey filters.

- *Only include facilities with inspections during the reporting time period*: When time frame filters are not selected in the *Filters* group box, such as inspection date, survey, or periodic survey filters, the report includes all inspections using the inspection date and time as the reporting time period.

  If one or more time frame filters are selected in the *Filters* group box, the report only includes inspections for the selected time frame filter(s).

- *All inspections that meet the filter criteria*: Report includes all inspections that meet filter criteria based on selections in the *Filter* group box.

- *Apply other filters to the most recent inspection found within report timeframe*: This option finds the latest inspection within the reporting time frame first, and then applies all other filters selected in the *Filter* group box. The report only includes inspections for facilities when the latest record within the date range meets other filters.

- *The most recent inspection after the filter criteria has been met*: This option applies all filter criteria first based on selections in the *Filter* group box, and then finds the latest inspection.

7 Select one or more of the following survey filters in the *Filters* group box. The *Summary* report requires at least one of these filter settings (Figure 14-24):

- Survey is equal to

- Periodic Survey is equal to

- Periodic Survey Year is equal to

NOTE: PCS Axis disables the option *Only show facilities with inspection records* when the *Summary* report includes any of the following filter settings: Inspection Date is between, Survey is equal to, Periodic Survey is equal to, or Periodic Survey Year is equal to.

Figure 14-24. Test Point Inspection Report (Summary)

8   Select additional filters in the *Filters* group box as required. For example, click **Active Facilities Only** to only include active facilities in the report.

When adding a date filter, such as **Inspection Date is between**, set a date range using a calendar or dynamic dates in the following manner:

- •   To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- •   To set a date range using dynamic start and end dates, click the 🖩 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

9   If you want to add the report in *Favorite Reports*, click ⭐ **Add Favorite**.

NOTE: Once a report has been added as a favorite, you can remove the favorite report by opening the report and clicking ⭐ **Remove Favorite** in the report options window.

---

10 If you want to work with report data in an interactive pivot table, click 🖼 **Drilldown** to open the report in a new window.

See *Understanding the Summary Drilldown Report* (page 551) for a description of operations you can perform in the pivot table.

11 To print the report:

a   Click 🖨 **Print** to open the report in a preview window.

b   To print the report using the default printer set up in Windows, click the 🖨 **Quick Print** button. To select a printer other than the default printer, click the 🖨 **Print** button.

Working with a Report Based on the Graph Style

Complete the following steps to set up and print or export a report based on the *Graph* report style:

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the graph. Click 🖫 **Save** to close the window.
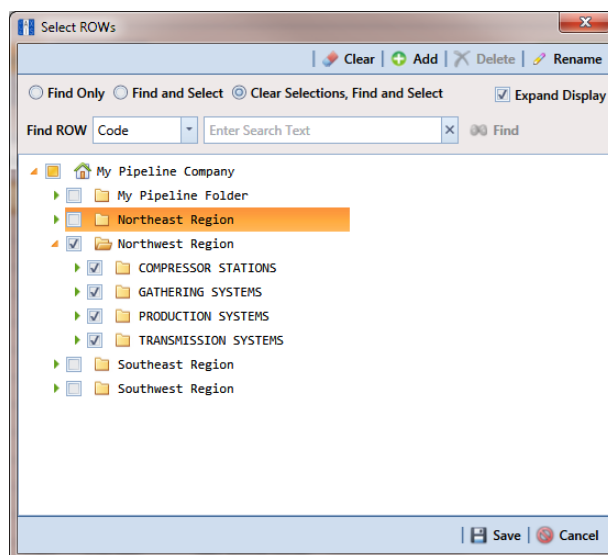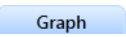
Figure 14-25. Select ROWs

2 Click **Reports/Graphs** and select a report in the menu.

3 Click the **Graph** tab ⟨ Graph ⟩ to open a property settings window. For example, the next figure shows the property settings window for the *Test Point Inspection* graph (Figure 14-26, page 561).

4 Click the down arrow in the field **Select Layout Theme** and choose a layout theme in the selection list.

5 In the **Band Fields** group box, click the check box for more or more types of survey data you want to include in the graph.

6 Select one or more *Facility Surveys* in the **Survey Selections** group box. To select facility surveys in sequential order, press **Shift** and then click each survey. To select facility survey in non-sequential order, press **Ctrl** and then click each survey.

7 To include all parallel pipelines on one page, click the check box **Include all parallel pipes on one page**.

A check mark inside the check box indicates a selection. To clear the selection, click the check box again to remove the check mark.

8 To combine all selected pipelines on one page, click the check box **Combine all selected ROWs** on one page.

9 Select one or more options in the **Filters** group box to filter graph data according to your filter selection(s). For example, click **Active Facilities Only** to only include active facilities in the graph.
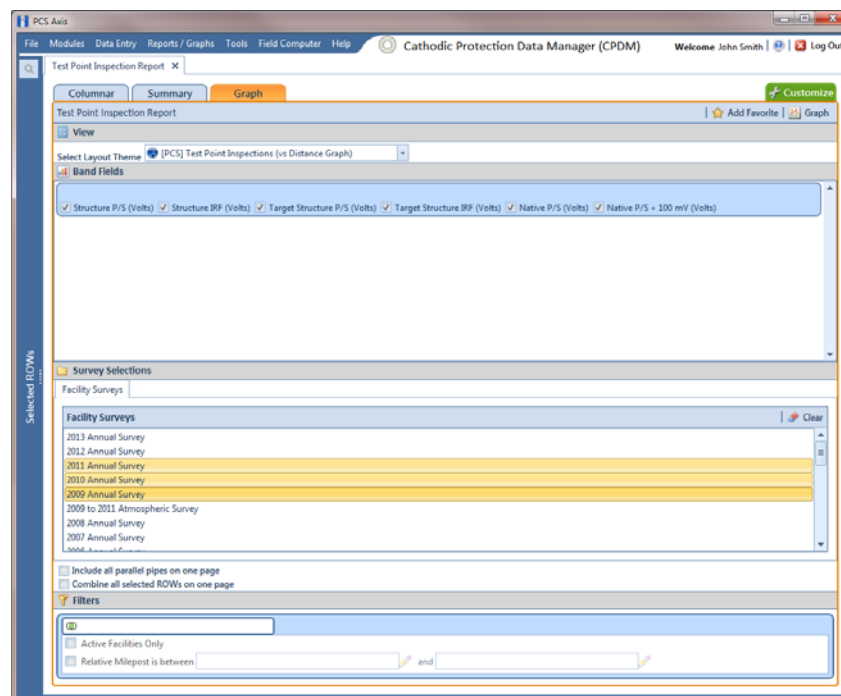
Figure 14-26. Test Point Inspection Graph Report

10 If you want to add the graph in *Favorite Reports*, click ⭐ **Add Favorite**.

NOTE: If you want to remove a favorite report listed in *Favorite Reports*, open the report and then click ⭐ **Remove Favorite** in the report options window.

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11 To view the graph, click 📊 **Graph** to open the graph in a preview window. Then click the 🖨 **Print** button to print the graph.

Adding a Custom Report

The following procedure explains how to add a custom report and set up report options. For information about deleting a custom report or changing a custom report from *Public* to *Private* and vice versa, refer to the instructions in *Managing Themes* (page 519).

Complete the following steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the report. Click ![Save icon] **Save** to close the window (Figure 14-27).
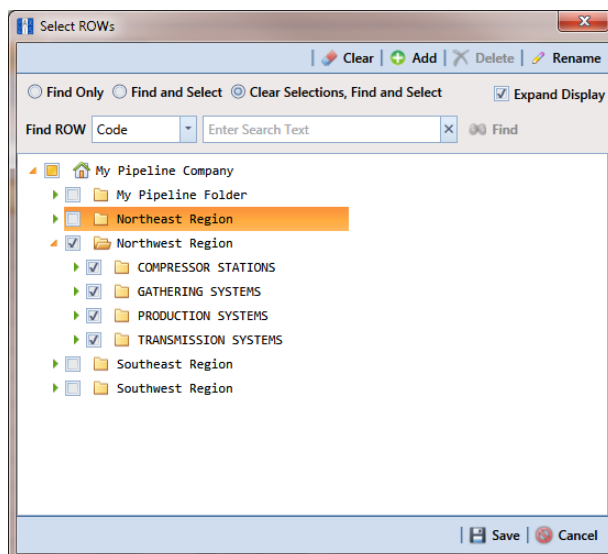
Figure 14-27. Select ROWs

2   Click **Reports/Graphs**, navigate to a report in the list, then click ![Add icon] **Add Report** to open the *Add Custom Report* dialog box (Figure 14-28, page 563).

For example, click *Reports/Graphs > Test Point Inspection > Add Report*.

3   Type a name for the report in the **Name** field.

4   If you want to add information about the report, type the information in the **Description** field.

5   Select the **Public** check box if you want the report available to all PCS Axis users. When a report is not public, it is a private report available only to the user who creates it.

6   Click ![Save icon] **Save**.

Figure 14-28. Add Custom Report

7   When the report options window opens, select one of the following options to choose which facility records to include in the report (Figure 14-29):

a   Click the option **Selected ROWs** to include facilities associated with the pipeline selection(s) in the *Select ROWs* window.

b   Click the **Route** option and then select a route to include facilities associated with the selected route.

Figure 14-29. Report Options

8 Click the down arrow in the field **Select Layout Theme** and choose a layout theme in the selection list. The layout theme determines which fields are included in the report.

> **NOTE:** For information about adding new report themes, such as a report layout theme, sorting theme, and filter theme, refer to *Working with Report Themes and Filter Groups* (page 566).

9 Complete the following steps in the *Sort Options* group box (Figure 14-29, page 563):

a Click the down arrow in the field **Select Sort Theme** and choose a sorting theme in the selection list. The sorting theme determines how PCS Axis sorts report data.

b Choose a method for sorting inspection dates. Click **Oldest First** or **Newest First** in *Sort Dates* to sort records with the oldest or newest inspection dates first.

c Choose an option for inserting a line between different groups of report data. Click the down arrow in the field **Insert Lines Between Groups** and choose an option in the selection list.

d Choose an option that determines where a page break occurs in the report. Click the down arrow in the **Page Breaks** field and select an option in the selection list.

10 Select one or more of the following options as needed in the *Options* group box. Date range in filter criteria is determined by considering all time frame filters, such as inspection date, survey, and periodic survey filters (Figure 14-29, page 563).

• *Only include facilities with inspections during the reporting time period*: When time frame filters are not selected in the *Filters* group box, such as inspection date, survey, or periodic survey filters, the report includes all inspections using the inspection date and time as the reporting time period.

If one or more time frame filters are selected in the *Filters* group box, the report only includes inspections for the selected time frame filter(s).

• *All inspections that meet the filter criteria*: Report includes all inspections that meet filter criteria based on selections in the *Filter* group box.

- *Apply other filters to the most recent inspection found within report timeframe*: This option finds the latest inspection within the reporting time frame first, and then applies all other filters selected in the *Filter* group box. The report only includes inspections for facilities when the latest record within the date range meets other filters.

- *The most recent inspection after the filter criteria has been met*: This option applies all filter criteria first based on selections in the *Filter* group box, and then finds the latest inspection.

- *Indicate missing inspection readings*: This option includes an empty box in the report for each missing inspection reading.

11 Select optional filters in the *Filters* group box as required. For example, click **Active Facilities Only** to only include active facilities in the report.

When adding a date filter, such as **Inspection Date is between**, set a date range using a calendar or dynamic dates in the following manner:

- To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

- To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

12 If you want to add the report in *Favorite Reports*, click ⭐ **Add Favorite**.

NOTE: If you want to remove a favorite report listed in *Favorite Reports*, open the report and then click ⭐ **Remove Favorite** in the report options window.

13 To print the report:

a Click 🖨 **Print** to open the report in a preview window.

b To print the report using the default printer set up in Windows, click the 🖨 **Quick Print** button. To select a printer other than the default printer, click the 🖨 **Print** button.

Working with Report Themes and Filter Groups

A theme is a group of named settings saved for later use, such as a report layout or sort theme. Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

Several installed themes are provided with the PCS Axis software installation. PCS Axis installed themes are public themes available to all PCS Axis users. These themes are identified with a globe icon and PCS in brackets [PCS], such as **[PCS] Test Point Inspections**.

A filter group is a named set of one or more filters that affect the data output of a report. PCS Axis provides two types of filter groups you can define and include in the property settings of a report. These include the AND and OR filter groups.

When you add a filter group, you define filter conditions that determine which records to include or exclude in a report. Adding an AND filter group produces a subset of records that meet *all* filter conditions. Adding an OR filter group produces a subset of records that meet *any* filter condition. When you generate the report, PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

The following sections describe how to add a report layout theme, sort theme, and an optional filter group. Topics include those in the following list:

- *Adding a Columnar Report Layout Theme* (page 567)

- *Adding a Summary Report Layout Theme* (page 570)

- *Adding a Report Sort Theme* (page 575)

- *Adding an AND Filter Group* (page 580)

- *Adding an OR Filter Group* (page 583)

- *Editing and Arranging Filter Groups* (page 586)
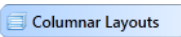
Adding a Columnar Report Layout Theme

A columnar report layout theme is a group of report settings saved in a theme for later use. Settings include choosing which fields to include in the report, paper settings, and print options. The following procedure applies to a columnar report layout theme for any columnar report in PCS Axis.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the report. Click ![save] **Save** to close the window (Figure 14-27, page 562).

2 Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report in the list.

For example, click *Reports/Graphs > Test Point Inspection Report*.

3 Click the **Customize** tab ![Customize] then the **Columnar Layouts** button ![Columnar Layouts] to open the *Layouts* page (Figure 14-30).
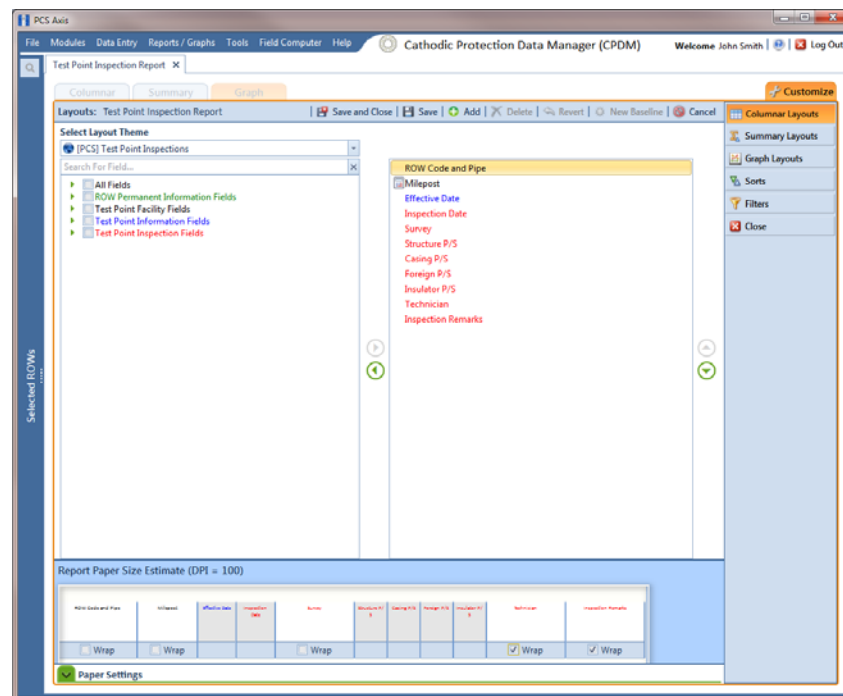
Figure 14-30. Layouts

NOTE: Setting up a *Graph Layouts* theme is unavailable in the current release of the PCS Axis software.

4 Click ⊕ **Add** to open the *New Layout Theme* dialog box (Figure 14-31).
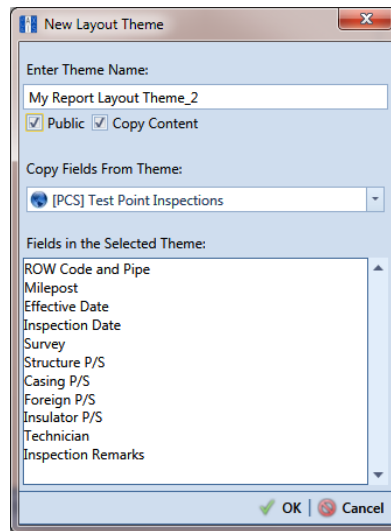
Figure 14-31. New Layout Theme

5 Type a name for the layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

---

6 Select a layout theme with fields you want to copy to the new layout theme. Click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

7 Click ✔ **OK** to save changes and return to the *Layouts* page.

8 Complete the following steps to add and remove fields in the report layout theme as needed (Figure 14-32, page 569):

a Click the toggle arrow ▶ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▶ **All Fields**.

b Double-click a field in the left pane to move it to the right pane. Repeat this step as needed. The report layout theme includes all fields in the right pane of the *Layouts* page.

c To remove a field in the layout theme, double-click a field in the right pane to move it to the left pane. Repeat this step as needed.

d To change the order of fields in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⊙ or down ⊙ button.

9 Click the **Wrap** check box in *Report Paper Size Estimate* for each field you want text to wrap, such as *Inspection Remarks*.

10 Click ⊻ **Paper Settings** to open the property settings panel (Figure 14-32).

11 Set options as needed in the *Paper Settings* and *Print Options* group boxes. Adjusting the **Min** and **Max** settings in the *Font* group box allows you to increase or decrease the font size.

12 To adjust the width of report columns, follow these steps:

a Place the mouse over a column boundary to change the cursor to a horizontal resize cursor ⟺ (Figure 14-32).

b Click and drag a column boundary to adjust the width of the report column.

c If the adjustment extends report columns outside of the page, a red "out of bounds" message displays as shown in the following example. Click and drag the column boundary to make adjustments as needed to clear the message.

13 Click the **Wrap** check box in the group box labeled *Report Paper Size Estimate* for each field you want text to wrap, such as *Inspection Remarks*.
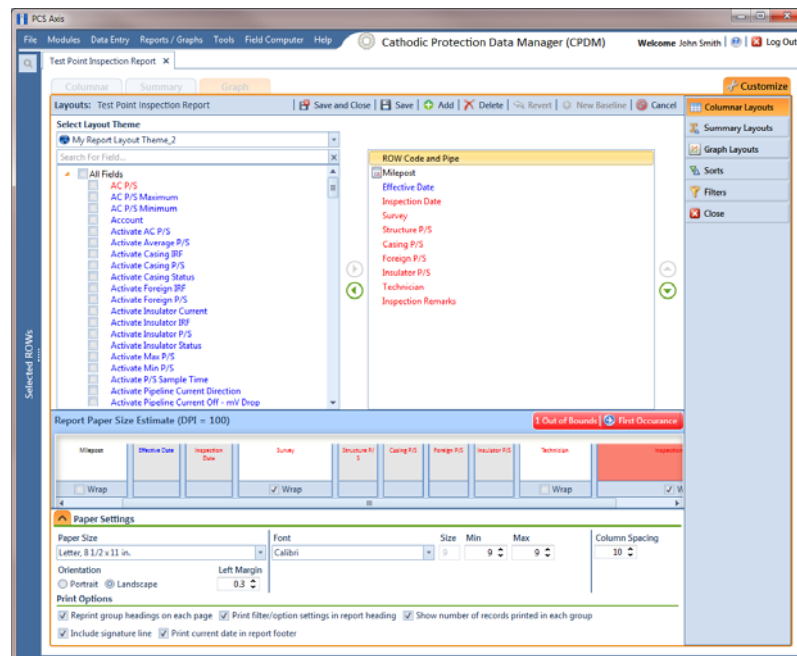
Figure 14-32. Columnar Layouts
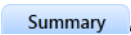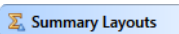
14 Click **Save and Close** to save changes and return to the report options window.

15 To apply the layout theme to the report, click the down arrow in **Select Layout Theme** and select the new layout theme in the selection list.

Adding a Summary Report Layout Theme

A layout theme is a group of named settings saved for later use. You can define a *Summary* layout theme with report settings that define the table row, column, and data fields as well as the aggregate functions (average, sum, count, and percentage) used to calculate data fields in a *Summary* report. Summation fields, field operators, filters, drilldown fields, drilldown sorting fields, horizontal and vertical field groupings, as well as paper settings can all be saved in a *Summary* layout theme.

A *Summary* report presents data in a cross tab table view. It provides a "big picture" of pipeline and facility data by summarizing and analyzing the data. You can control how PCS Axis summarizes the data, for example by sum, average, count, or percentage. Using a *Summary* report can help with analyzing data, making comparisons, and detecting patterns in the pipeline system.

To add a *Summary* layout theme, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the report. Click **Save** to close the window (Figure 14-27, page 562).

2 Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report, such as the **Test Point Inspection Report**.

3 Click the **Summary** tab , then the **Customize** tab .

4 Click the **Summary Layouts** button to open the *Summaries* page (Figure 14-33, page 571).
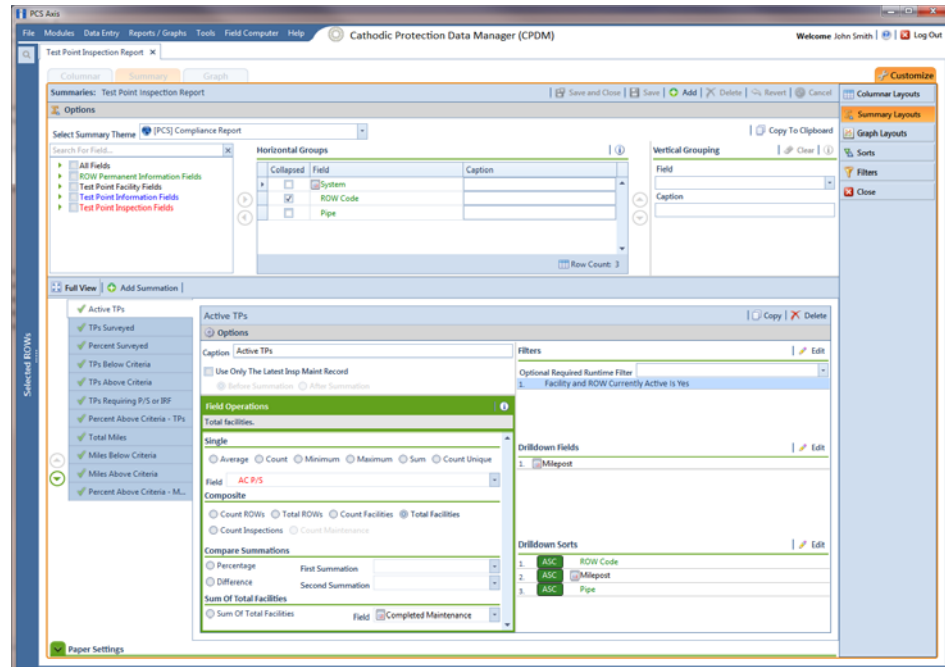
Figure 14-33. Summary Layouts

5   Click ⊕ **Add** to open the *New Summary* dialog box (Figure 14-34).
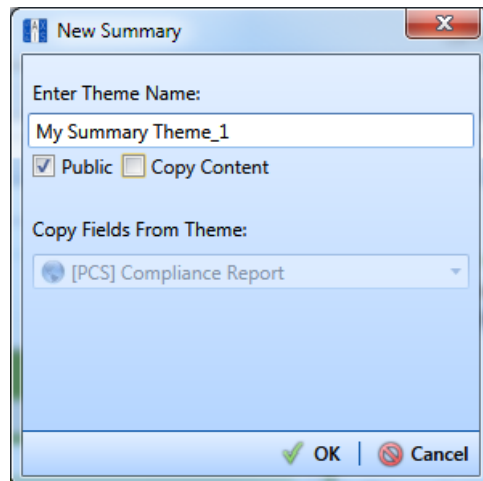
Figure 14-34. New Summary

6 Type a name for the *Summary* layout theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the summary theme saves as a *private* theme.

> **NOTE:** Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

7 If you want to copy fields from another Summary layout theme, click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

8 Click ✔ **OK** to save changes and return to the *Summaries* page.

9 Complete the following steps to select one or more PCS Axis fields to be used as horizontal table rows in the report. Field selections display in the *Horizontal Groups* panel. In a *Summary* report, these fields display horizontally on the left side of the report.

    a Click the toggle arrow ▶ for a field category in the *Search For Field* panel to view a list of fields available for selection. For example, click ▶ **All Fields**.

    b Double-click a field in the *Search For Field Panel* to move it to the *Horizontal Groups* panel. Repeat this step as needed.

    As an example, when selecting *System* and *ROW Code*, each time a *System* table row is included in the report, a *ROW Code* table row is also included.

    c If you want the data collapsed for a table row when you first open the *Summary* report, click the **Collapsed** check box for that table row in the *Horizontal Groups* panel. An expand/collapse button is available when viewing the report to expand and collapse data as needed.

    d If you want to rename the caption of a table row, type a name in the **Caption** field for that table row. When this field is empty, the caption of the table row uses the default PCS Axis description.

> **NOTE:** Clicking the ⓘ information button in the *Horizontal Groups*, *Vertical Grouping*, or *Field Operations* panel opens a window with information related to current property settings.

    e To change the order of fields in the Horizontal Groups panel and subsequently in the Summary report, click and drag a field to a new position in the grid. Or, select a field and then click the up ⬆ or down ⬇ button.

10 *Vertical Grouping* is an optional setting. It allows you to group horizontal table rows by a vertical column. For example, selecting *Inspection Date* displays data by *Month*, *Quarter*, or *Year* based on the *Data Group Interval* option you select.

To group horizontal table rows by a vertical column, complete the following steps in the *Vertical Grouping* panel:

a Choose a PCS Axis field you want to use as the vertical column. Click the down arrow in **Field** and select a field in the selection list.

b If you want to use a different caption other than the name of the selected PCS Axis field, type a name in the Caption field.

11 Click **Full View** to hide the field selection, *Horizontal Groups*, and *Vertical Grouping* panels. Clicking *Full View* again displays these panels.

12 Identify how you want data calculated. Set up one or more summations in the following manner:

a Click **Add Summation**.

b Choose an aggregate function used to calculate data fields (average, sum, count, or percentage). Click an option in any of the following group boxes: *Single*, *Composite*, or *Sum Of Total Facilities*.

c If you selected an option in the group box labeled *Single* or *Sum Of Total Facilities*, click the down arrow in **Field** and select the PCS Axis field you want to use in the calculation.

d If you want to compare two summations, select **Percentage** or **Difference** in the *Compare Summations* group box. Then click the down arrow in the field **First Summation** and select a summation. Click the down arrow in the field **Second Summation** and select the second summation.

e Repeat steps "a" through "d" as needed to add additional summations.

NOTE: To delete a summation, select a summation tab and then click **Delete.** Click **Yes** when the *Delete* message displays.

---

13 If you want to filter the data output in the report, click the down arrow in the field **Optional Required Runtime Filter** and select a PCS Axis field in the selection list. Or, click **Edit** to set up an *AND* or *OR* filter group. See *Working with Report Themes and Filter Groups* (page 566) for related information.

14 Click **Edit** in the *Drilldown Fields* group box and select one or more fields you want to use as drilldown fields. When viewing the report in PCS Axis, clicking a drilldown field displays another data view with more information about the field.

15 Click **Edit** in the *Drilldown Sorts* group box and select one or more fields that determine how data sorts. Click **ASC** ASC to sort data in ascending order or **DESC** DESC to sort in descending order.

16 Click ⌄ **Paper Settings** and set paper, font, and print options as needed.

17 Click 💾 **Save**.

Adding a Report Sort Theme

A sort theme determines how PCS Axis sorts and groups records in the report. Adding a sort theme allows you to choose which field(s) to sort and group records by, such as sorting by name or ROW code. A sort theme also allows you to set options for sorting records alphanumerically in either ascending or descending order. Including a group filter in the sorting theme allows you to organize records in a group for easier analysis.

To add a report sort theme, follow these steps:

1   Select one or more pipeline segments in the *Select ROWs* window. Choose pipeline segment(s) with facilities you want to include in the report. Click ![save icon] **Save** to close the window (Figure 14-27, page 562).

2   Choose the report you want to work with in the *Reports/Graphs* menu. Click **Reports/Graphs** and then select a report to open the report options window (Figure 14-35).

For example, click *Reports/Graphs > Test Point Inspection Report* to open a report options window similar to the following example.
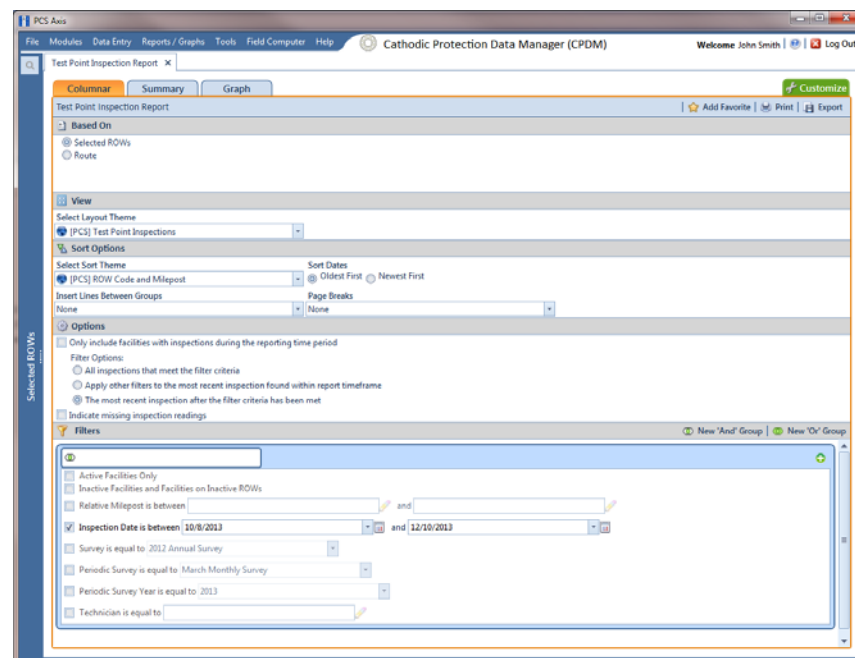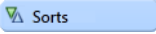
Figure 14-35. Report Options

3 Click the **Customize** tab ![Customize] then the **Sorts** button ![Sorts] to open the *Sorts* page (Figure 14-36).
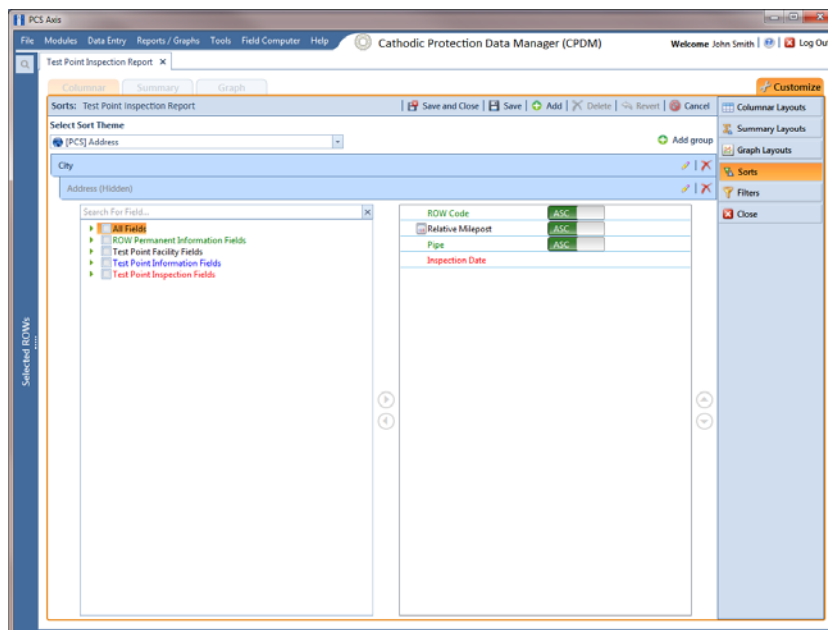
Figure 14-36. Sorts

4 Click ![Add icon] **Add** to open the *New Sort Layout* dialog box (Figure 14-37).
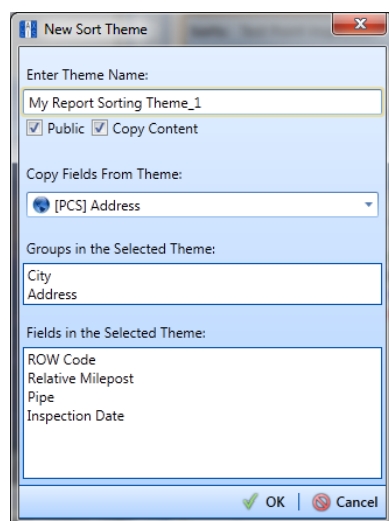
Figure 14-37. New Sort Layout

5   Type a name for the sorting theme in the field **Enter Theme Name**. If you want to create a *public* theme, click the **Public** check box to place a check mark inside the check box. When the check box is empty, the layout saves as a *private* theme.

NOTE: Themes are either public or private. A public theme is available for use by all PCS Axis users. A private theme is available only to the user who creates it.

---

6   Select a theme with fields you want to copy to the new theme. Click the **Copy Content** check box and then click the down arrow in **Copy Fields From Theme** and select a theme in the selection list.

7   Click ✔ **OK** to save changes and return to the *Sorts* page.

8   To choose one or more fields for sorting records in the report, follow these steps:

a   Click the toggle arrow ▸ for a field category in the left pane of the window to view a list of fields available for selection. For example, click ▸ **All Fields**.

b   Double-click a field listed in the left pane to move it to the right pane. Repeat this step as needed. The sorting theme includes all fields listed in the right pane.

c   If you want to remove a field in the sorting theme, double-click a field listed in the right pane to move it to the left pane. Repeat this step as needed.

9   Select a sorting method for each field listed in the right pane. To sort grid records in ascending order, click the toggle button to select **ASC** `ASC`. To sort in descending order, click the toggle button to select **DESC** `DESC`.

10 To change the order of fields listed in the right pane and subsequently in the grid, click and drag a field to a new position in the list. Or, select a field and then click the up ⬆ or down ⬇ button.

11 Complete the following steps to add a new group with one or more fields that determine how records sort in the report:

a Click ⊕ **Add group** to add a new group (Figure 14-38, page 579).

NOTE: Clicking the 🖉 edit icon for an existing group (such as *City*) opens a group box with current settings you can edit if needed.

---

b Select which PCS Axis field starts the new group when that field's value changes. Click the down arrow in the field **Start a new group when this value changes** and select a field in the list.

c If you want to add another field in the group, click ⊕ **Add Additional Field**. Then click the down arrow and select a field in the selection list. The title bar of group includes the name of each field (Figure 14-38, page 579).

d Choose a sorting method for the new group. To sort the group in ascending order, click the toggle button to select **ASC** `ASC`. To sort in descending order, click the toggle button to select **DESC** `DESC`.

e To change the position of the new group within the set of other groups in the theme, click the up ⏶ or down ⏷ button. PCS Axis processes groups in descending order beginning with the group at the top of the set.

f To apply optional settings to the new group, click the check box for the following options as needed:

- Click the check box **Print group field in group header** to have the group name print as a heading at the beginning of each group.

- Click the check box **New page for each group** to have each group print on a new page.

- Click the check box **Print sums in group footer** to have the total number of records in a group print at the end of each group.

g   Choose which fields to include in the new group. Click the toggle arrow ▶ for a field category in the left pane of the window to view fields available for selection. For example, click ▶ **All Fields**.

h   Double-click a field listed in the left pane to move it to the right pane, such as *Facility ID* shown in the next figure. Repeat this step as needed. The theme includes all fields listed in the right pane.

i   Choose a sorting method for each field added in the new group. To sort fields in ascending order, click the toggle button to select **ASC** `ASC`. To sort in descending order, click the toggle button to select **DESC** `DESC`.

j   To change the position of fields in the new group, click the up ▲ or down ▼ button.

12 Click 🖫 **Save and Close** to save changes and return to the report options window.

13 To apply the sorting theme to a report, click the down arrow in **Select Sort Theme** and select the sorting theme in the selection list.
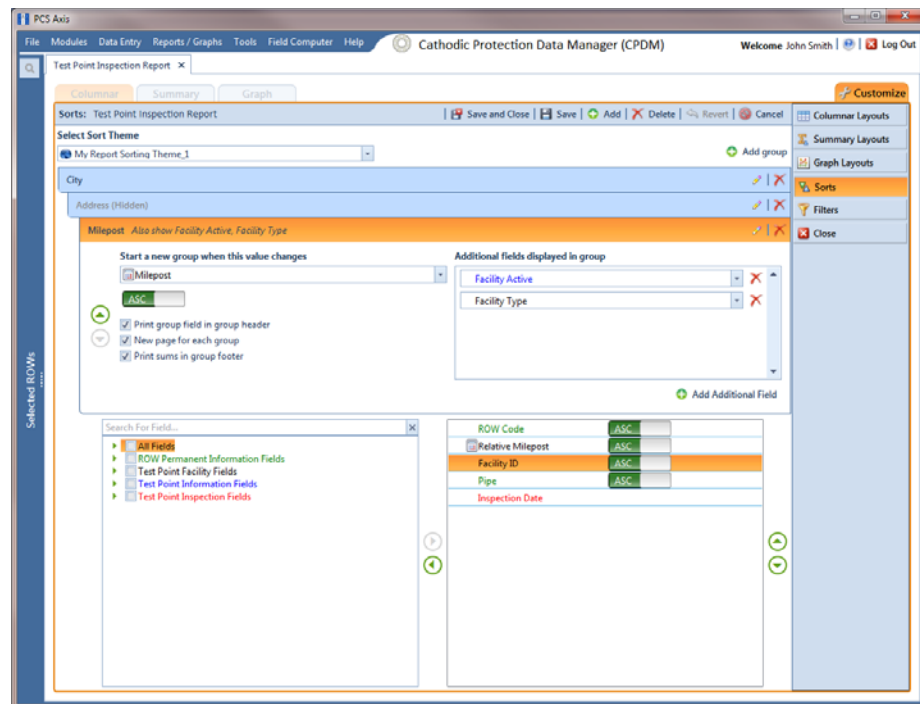
Figure 14-38. Sort Theme Groups

Adding an AND Filter Group

An AND filter group is a named set of one or more filters that affect the data output of a report. Adding an AND filter group produces a subset of records that meet *all* filter conditions. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an AND filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![save] **Save** to close the window (Figure 14-27, page 562).

2 Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report to open the report options window (Figure 14-39).

For example, click *Reports/Graphs > Test Point Inspection Report* to open a report options window similar to the following example.
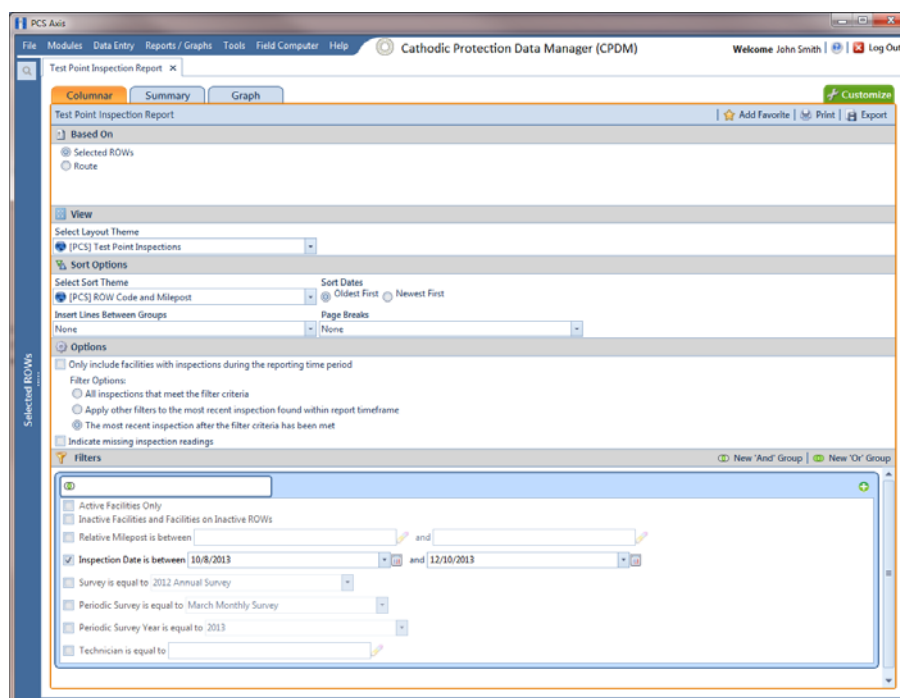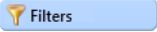
Figure 14-39. Report Options

3   Click the **Customize** tab then the **Filters** button to open the *Filters* page (Figure 14-40).
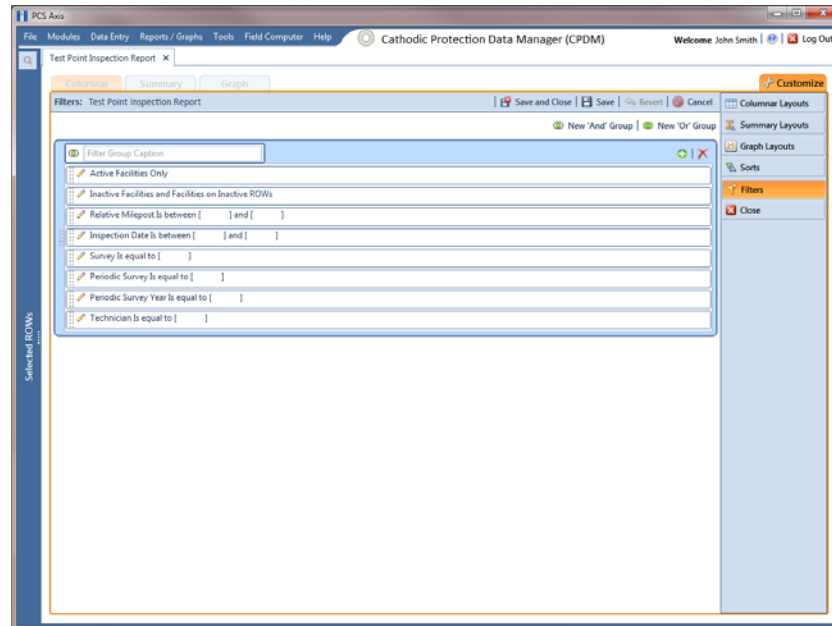
Figure 14-40. Filters

4   Click **New 'And' Group** to open the filter properties group box (Figure 14-41).
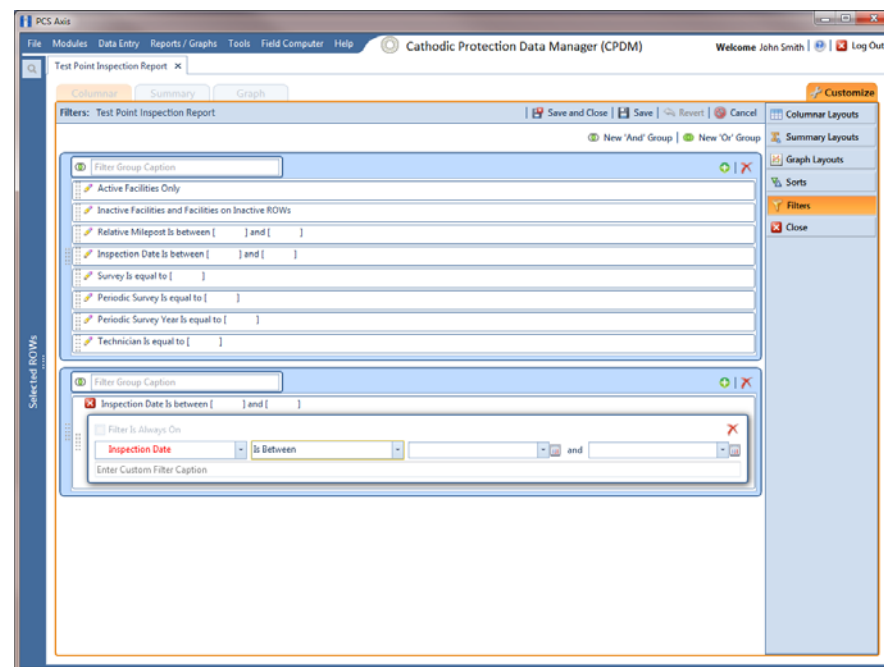
Figure 14-41. New 'And' Filter Group

5 Type a name for the filter group in the field **Filter Group Caption**.

6 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

7 When adding a date filter, such as *Inspection Date Is Between*, set a date range using a calendar or dynamic dates in the following manner (Figure 14-41, page 581):

a To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

b To set a date range using dynamic start and end dates, click the 🖩 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

8 If you want the filter to remain on for all sessions of the report, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the report options page using the filter's check box.

9 Type a name for the filter in the field **Enter Custom Filter Caption**.

10 If you want to set up additional filter criteria for the filter group:

a Click ➕ **Add** to open another filter properties group box.

b Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps 5 through 9 to set up filter criteria.

11 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

a Point the mouse at the filter handle ⠿ to change the cursor to a vertical resize cursor ↕.

b Drag and drop the filter or the filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

---

12 Click 💾 **Save and Close** to return to the report options window.

Adding an OR Filter Group

An OR filter group is a named set of one or more filters that affect the data output of a report. Adding an OR filter group produces a subset of records that meet *any* filter condition. PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group.

To add an OR filter group, follow these steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ![save] **Save** to close the window (Figure 14-27, page 562).

2 Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report to open the report options window (Figure 14-42).

For example, click *Reports/Graphs > Test Point Inspection Report* to open a report options window similar to the following example.
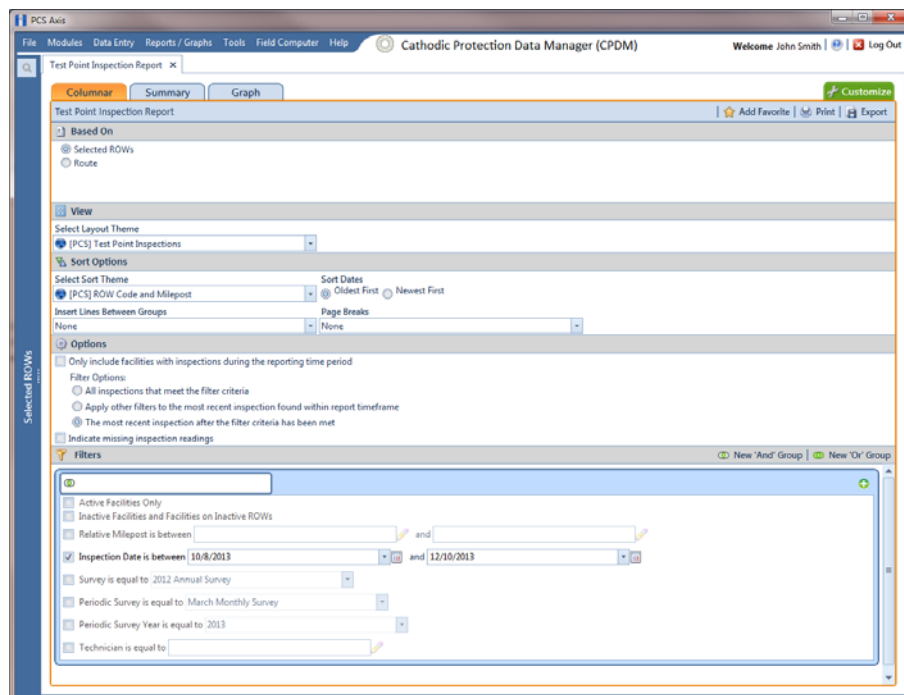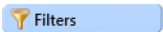
Figure 14-42. Report Options

3 Click the **Customize** tab [Customize] then the **Filters** button [Filters] to open the *Filters* page (Figure 14-43).
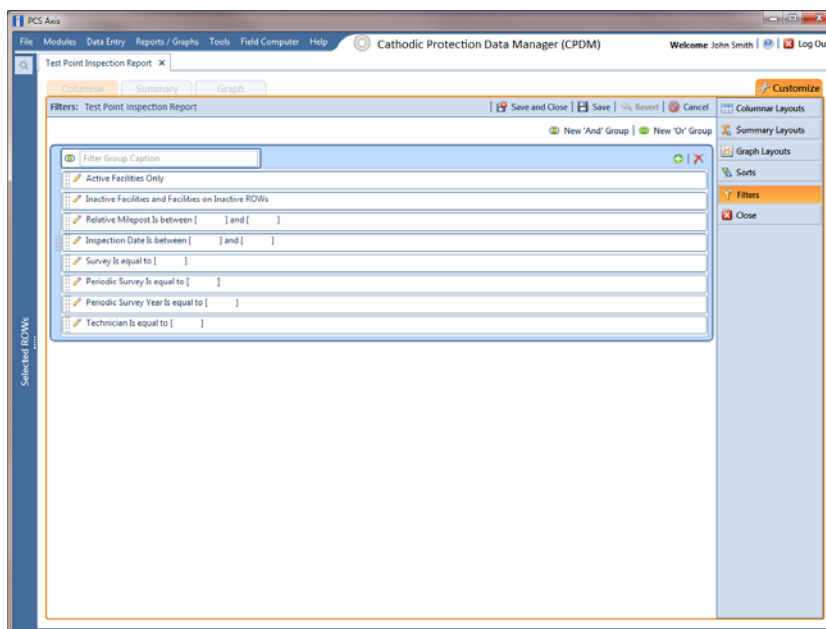
Figure 14-43. Filters

4 Click [icon] **New 'Or' Group** to open a filter properties group box (Figure 14-44).
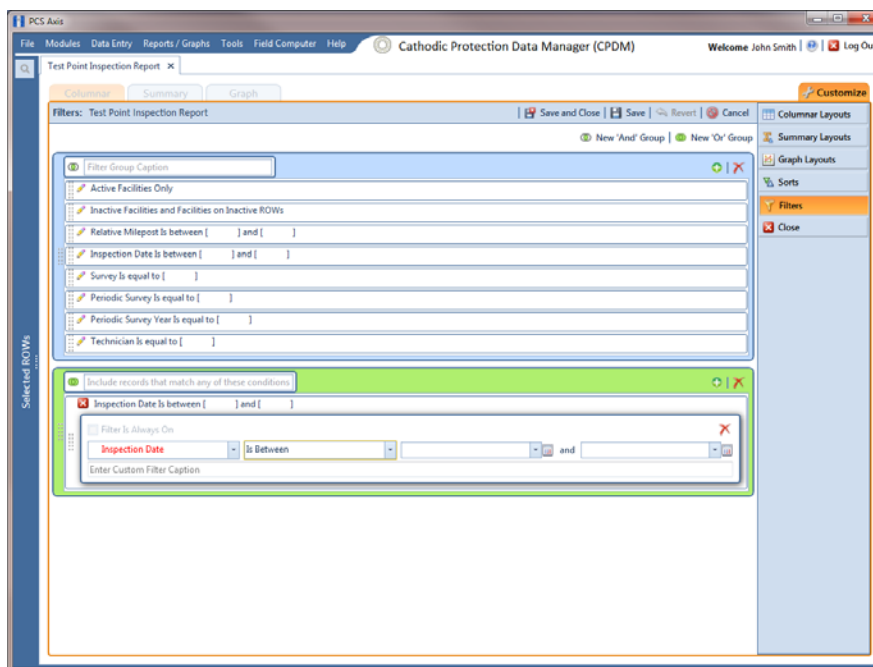
Figure 14-44. New 'Or' Filter Group

5 Type a name for the filter group in the field **Include records that match any of these conditions**.

6 Use filter selection fields to set up filter criteria. Select a PCS Axis field, operator, and one or more filter conditions.

7 When adding a date filter, such as *Inspection Date Is Between*, set a date range using a calendar or dynamic dates in the following manner (Figure 14-44, page 584):

   a To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

   b To set a date range using dynamic start and end dates, click the calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

8 If you want the filter to remain on for all sessions of the data entry grid, select the check box **Filter is Always On**. When this check box is not selected, toggle the filter on and off in the options page using the filter's check box.

9 Type a name for the filter in the field **Enter Custom Filter Caption**.

10 If you want to set up additional filter criteria for the filter group:

   a Click **Add** to open another filter properties group box.

   b Type a name for the filter in the field **Enter Custom Filter Caption**. Then repeat steps 5 through 9 to set up filter criteria.

11 To move a filter to a different position in the filter group or a filter group to a different position in a group of filters:

   a Point the mouse at the filter handle to change the cursor to a vertical resize cursor .

   b Drag and drop the filter or the filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

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12 Click **Save and Close** to return to the report options window.

Editing and Arranging Filter Groups

PCS Axis processes filters in a filter group in descending order beginning with the filter at the top of the filter group. Information in this section explains how to edit filter property settings and also how to arrange filters in a group of filters.

Complete the following steps:

1 Select one or more pipeline segments in the *Select ROWs* window. Click ⊟ **Save** to close the window (Figure 14-27, page 562).

2 Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report to open the report options window (Figure 14-45).

For example, click *Reports/Graphs > Test Point Inspection Report* to open a report options window similar to the following example.
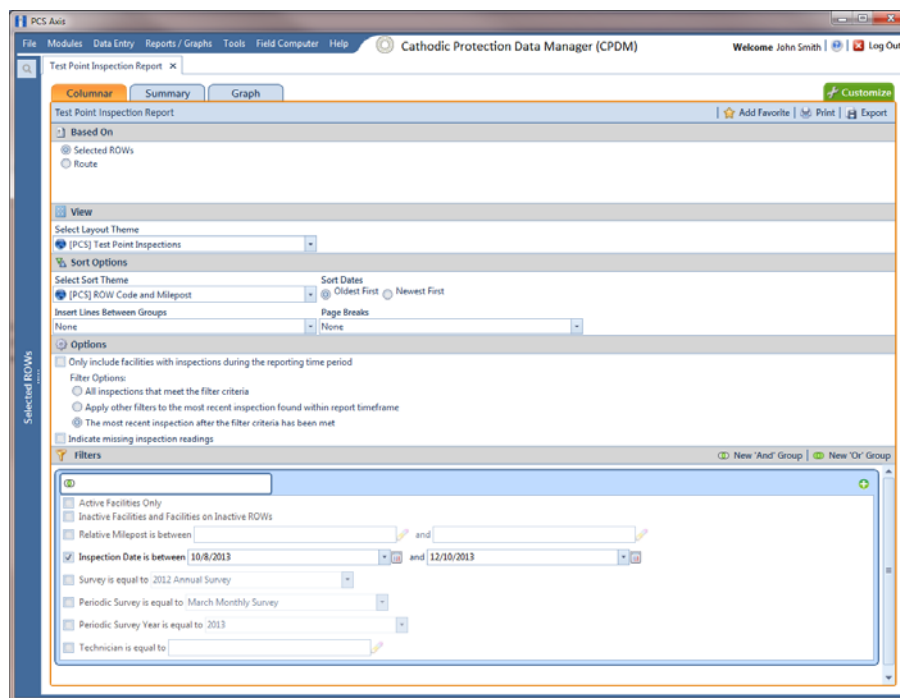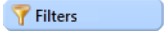
Figure 14-45. Report Options

3   Click the **Customize** tab [🔧 Customize] then the **Filters** button [🔽 Filters] to open the *Filters* page (Figure 14-46).
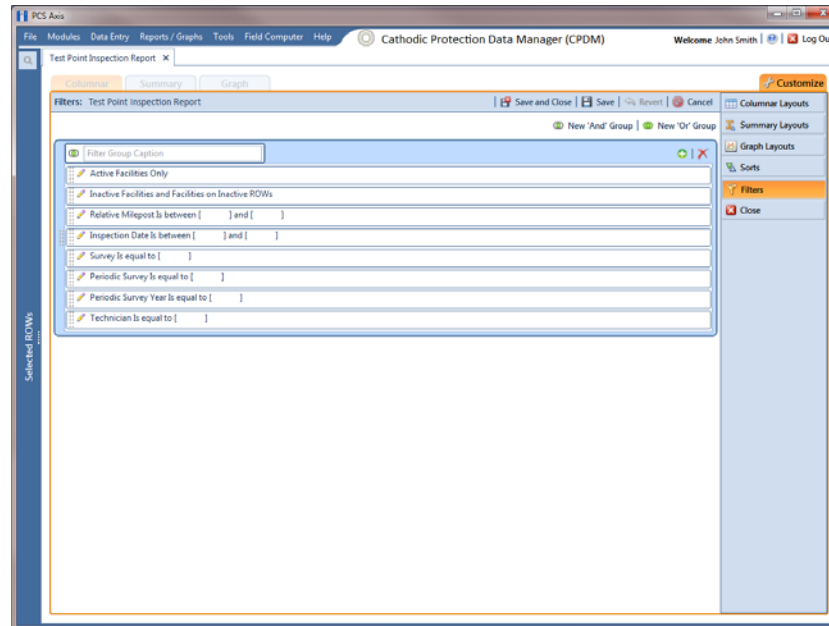
Figure 14-46. Filters

4   Click the edit icon 🖊 to display a filter's property settings. In the following example, property settings for *Inspection Data Is between* are visible (Figure 14-47, page 588).

5   To delete a filter in a filter group, click the ✖ delete button.

6   To rename the filter, type a description in the field **Enter Custom Filter Caption**.

7   To change filter criteria, use filter selection fields to select a PCS Axis field, operator, and one or more filter conditions. When adding a date filter, such as *Inspection Date Is Between*, set a date range using a calendar or dynamic dates in the following manner:

   a   To set a date range using a calendar, click the down arrow in the start date field to open a calendar and select a date. Repeat this step for the end date field.

   b   To set a date range using dynamic start and end dates, click the 🖩 calculator button in the start date field and set up dynamic date properties. Repeat this step for the end date field. Clicking the calculator button opens and closes dynamic date property fields.

8 To enable the filter for all sessions of the report, click the check box **Filter is Always On** to place a check mark inside the check box. When this check box is not selected, toggle the filter on and off in the report options page using the filter's check box.

9 Click the ❌ close button to close the filter's property settings group box.

10 To move a filter to a different position in a filter group, or to move a filter group to a different position, follow these steps:

a Point the mouse at the handle ⦙ of a filter or filter group to display a vertical resize cursor ↕.

b Drag and drop the filter or filter group to a new location.

NOTE: PCS Axis processes filters in descending order beginning with the filter at the top of the filter group.

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11 Click 💾 **Save and Close** to return to the report options window.
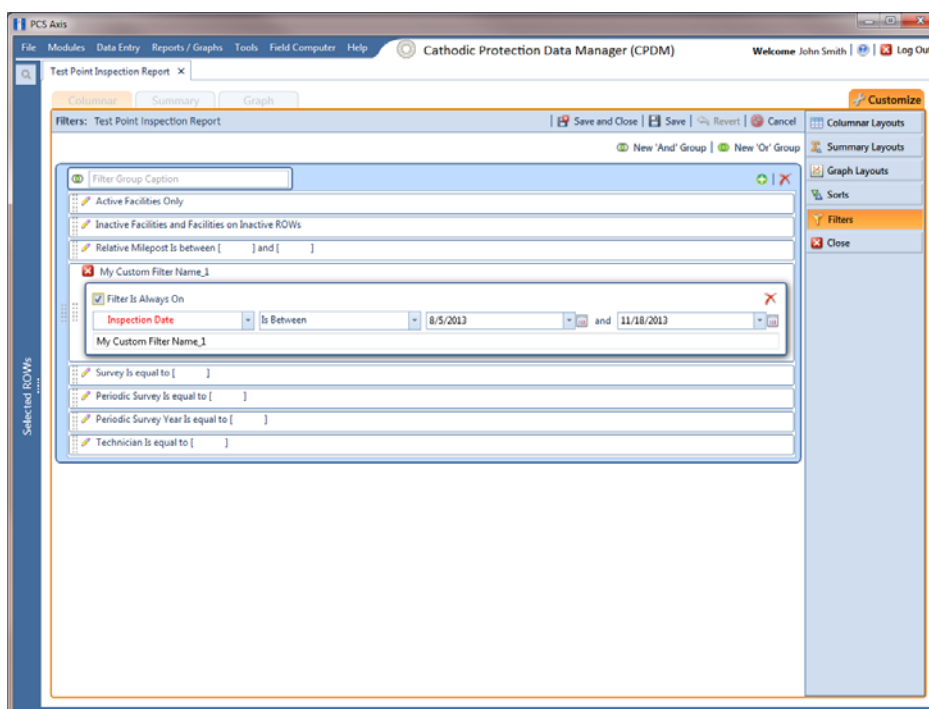
Figure 14-47. Inspection Date Is Between

Notes

Using Synchronization

Information in this chapter explains how to set up and work with PCS Axis synchronization. The information is intended for your company's *Database System Administrator* and PCS Axis users with *SysAdmin*, *User*, and *Read Only* permissions.

Topics in this chapter include those in the following list:

About Synchronization

Synchronization uses a Microsoft SQL Server publisher/subscriber database model. The publisher database is the primary database on a network server or host computer (central database server). Each subscription database is a copy of the publication database. Remote users who do not have access to the publication database can update data in a subscription database on their local computer. Frequent synchronization between the publication and subscription databases ensures all PCS Axis users are working with the same data (Figure 15-1).

Synchronization supports one publisher with multiple subscribers running in a client-server network. Synchronizing data between the publisher and subscribers is achieved using merge/pull replication. Merge replication is used with the publisher database. Pull replication is used with subscriber databases. After the initial snapshot of the publisher database is replicated, subsequent synchronizations only replicate data that has changed since the last synchronization.

IMPORTANT: To avoid data conflicts, it is important to synchronize data between the publisher and each subscriber at *frequent intervals*. The subscriber must establish a reliable high-speed connection to the publisher to successfully synchronize data.
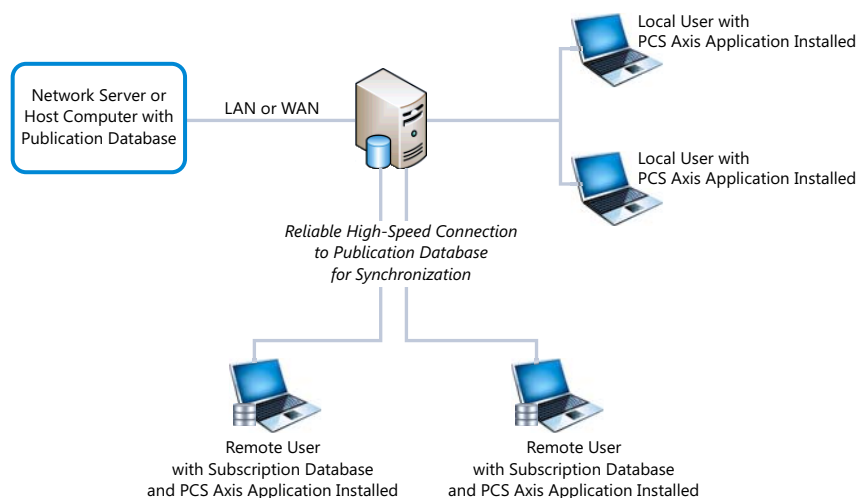
Figure 15-1. Typical Publisher/Subscriber Configuration

NOTE: *Hierarchy Rights* set up for a user in *User Management* determines which pipeline segments the user has access. This also applies to remote users with a subscription database on their local computer. See *Setting Up User Management* (page 127) for more information.

PCS Axis Features Unavailable in a Subscription

Items in the following table identify PCS Axis features unavailable to a remote user with a subscription database (Table 15-1):

Table 15-1. PCS Axis Features Unavailable in a Subscription

Select ROWs window:

- Add hierarchy levels
- Add, delete, and rename ROWs

Modules menu:

Custom Module Management

NOTE: Creating a custom module is disabled at the subscription level. A custom module created on the publisher is available to synchronized subscriptions however.

Data Entry menu:

- Define Routes
- Define Schedules
- Edit Schedule Settings
- Edit ROW Detail
- Survey Folder Maintenance

Tools menu:

- Bridge Bullhorn
- Fields and UDF Customizations
- Email Notification
- Themes Management
- Facility Type Themes
- User Management
- Options

Creating the Publication

PCS Axis supports one publication with multiple subscriptions for data replication and synchronization. Creating a publication is a function performed by your company's *Database System Administrator*. Adding subscription users is a function performed by the *PCS Axis System Administrator* or a user with PCS Axis *SysAdmin* permissions.

Information in this section explains how to complete the following tasks:

- *Confirming Share Folder Access*

- *Creating the Publication* (page 595)

Confirming Share Folder Access

Before creating the publication, verify the items in the following list are available to ensure successful creation of the publication and subscription databases:

- *Share Folder*: Confirm with your company's database administrator (DBA) or IT group that a share folder has been added on the server for the publication snapshot files. These files are a "snapshot" of the PCS Axis database and are created at the time you create the publication. They are also updated when changes in the database structure are detected by the Snapshot Agent.

- *Share Folder Access and Permissions*: Confirm with your company's DBA or IT group that the share folder is accessible to any Windows domain user who will be configuring a subscription. These users require read/write permissions set up for the share folder on the server.

   NOTE: The path and name of the server and share folder are needed later when creating the publication. The format for this information appears as: *\\ServerName\SnapshotShareFolder*

- *Snapshot Agent Security*: Confirm with your company's DBA or IT group that the Snapshot Agent is set up on the publication to run as a process under a Windows domain account. This requirement is set in the *Agent Security* page when using SQL Server Management Studio (SSMS). It allows PCS Axis to re-initialize a subscription that has expired.

   NOTE: An expired subscription occurs when a subscriber does not synchronize within the publication retention period, also referred to as subscription expiration period. The publication retention period is set in the field *Subscription expiration* in the *General* page when using SQL Server Management Studio.

Creating the Publication

Information in this section explains how to create the publication on the server (central database server). The information is intended for your company's *Database System Administrator*.

To create the publication, follow these steps:

1   Click **Tools** > **Synchronization** > **Create Publication** to open the *Create Publisher* dialog box (Figure 15-2).

2   Type the server path to the share folder in the field **Enter Snapshot Path** using the format *\\ServerName\SnapshotShareFolder*.

3   Click ![save icon] **OK** to create the publication and add snapshot files in the share folder.

NOTE: During the process of creating the publication and adding snapshot files, status messages and a percentage completed display in the dialog box.
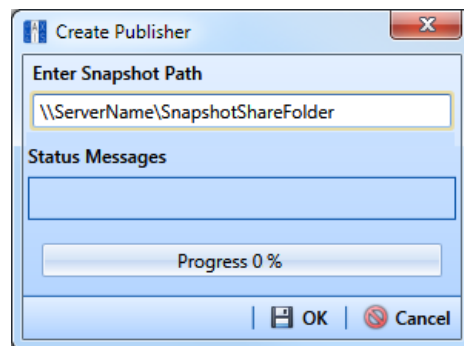
Figure 15-2. Create Publisher

4   Click ![check icon] **OK** when the message *Publisher Creation Complete* displays.
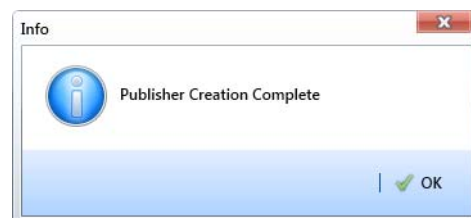
Figure 15-3. Publisher Creation Complete

To view information for the current server and database connection, as well as the PCS Axis software version, click *Help > About PCS Axis*. For more information, see *Viewing Information About PCS Axis* (page 14).

Adding Subscribers

The following information explains how to add one or more subscribers (remote users) who will set up and use a subscription database on their local computer. Information in this section is intended for the *PCS Axis System Administrator* or a PCS Axis user with *SysAdmin* permissions.

To add one or more subscribers, follow these steps:

1   Click **Tools** > **Synchronization** > **Synchronization Configuration** to open the *Synchronization Configuration* window (Figure 15-4).

NOTE: A list of users previously added as a subscriber display in the *Subscribers* panel of the *Synchronization Configuration* window. Information in the *Subscription Name* field identifies whether or not a subscription has been set up on a subscriber's local computer. When a subscription has been set up, the name of the subscriber's computer and subscription display in the field. Otherwise, *Unconfigured* displays as shown in the next figure (Figure 15-4, page 596).
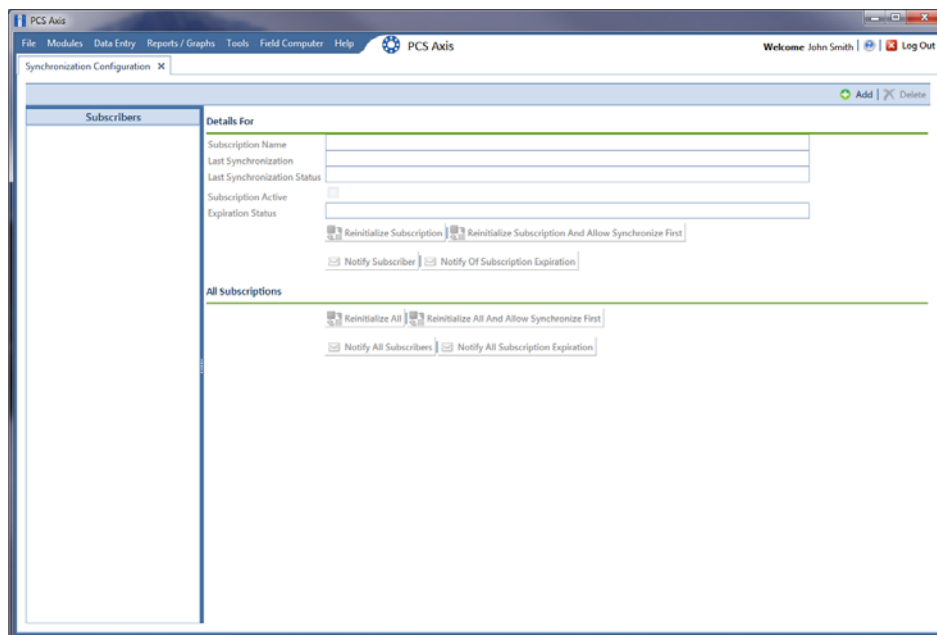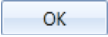
Figure 15-4. Synchronization Configuration

2   Click ⊕ **Add** to open the *Add Subscription* dialog box (Figure 15-5, page 597).

The dialog box includes a list of PCS Axis users available for set up as a *Subscriber*. Users are also set up as an *Active* user in *User Management* (*Tools > User Management*).

3 Select the user you want to add as a subscriber. Then click **OK** [OK] to close the dialog box.

4 Repeat steps "3" and "3" to add additional subscribers as needed. When you finish, click the ✖ close button to close the *Synchronization Configuration* window.

Subscribers can now configure a subscription on their local computer. See *Configuring a Subscription* (page 598) for more information.
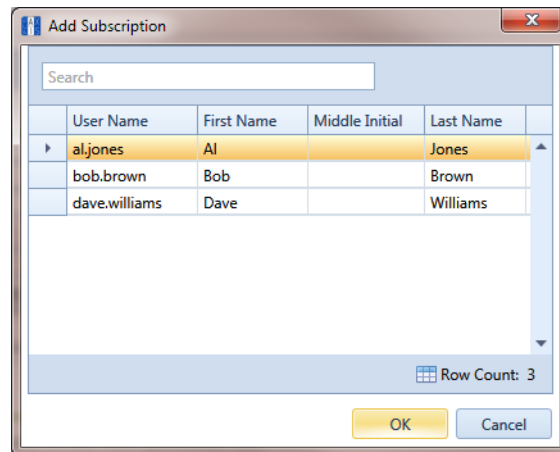
Figure 15-5. Add Subscription

Configuring a Subscription

Information in this section explains how to set up a subscription on the local computer of a PCS Axis user who has previously been added as a subscriber in *Synchronization Configuration* (page 594). The information is intended for PCS Axis users with *User* or *SysAdmin* permissions.

IMPORTANT: Because the configuration process transfers a full copy of the publication snapshot to the subscriber's computer, it's recommended that a high-speed reliable connection to the server be available when configuring the subscription. Subsequent synchronizations only update data that has changed between the publication and subscription databases.

To configure a subscription on a subscriber's computer, follow these steps:

1 Log on to the computer using the subscriber's login credentials. Then start the PCS Axis software (*Start > American Innovations > PCS Axis*).

2 Click **Tools** > **Configure Subscription** to open the *Configure Subscriber* dialog box (Figure 15-6, page 599).

3 PCS Axis provides the name of the subscriber's computer in the field **Enter Instance Name**. Include the name of the local SQL server instance in this field using the following format:

ComputerName\LocalSQLServerInstanceName

NOTE: To view the name of the local SQL server instance using Microsoft SQL Server Management Studio (SSMS):
(1) Start SSMS and connect to the server.
(2) Right-click the server instance in *Object Explorer* and select *Properties*.
(3) On the *General* page, view the SQL server instance name in the *Name* field.

---

4 If you want to use a different subscription database name than the default name set up previously in system Options (*Tools > Options > General*), type a name in the field **Enter Subscription Database Path**.

5 Click ![save icon] **OK** to create the subscription database.
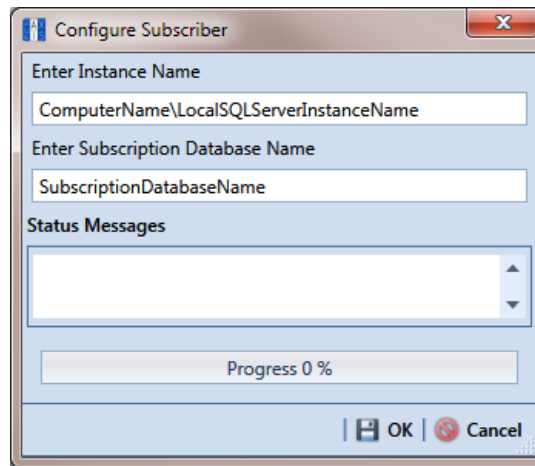
Figure 15-6. Configure Subscriber

6 Click ![checkmark] **OK** when the message *Subscription Complete Restart* displays (Figure 15-7).

When the process completes, the PCS Axis software automatically restarts and then connects the user to the subscription database on the local computer. In SQL Server Management Studio, the name of the subscription database is added in the *Replication/Local Subscriptions* folder in *Object Explorer*.
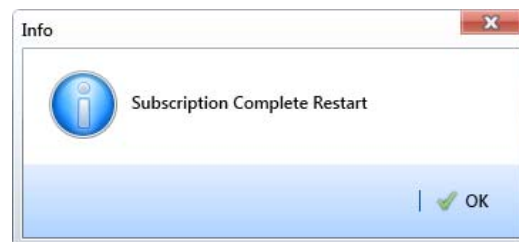
Figure 15-7. Subscription Complete Restart

NOTE: To view information for the current server and database connection, as well as the software version of PCS Axis, click **Help** > **About PCS Axis**. The *About* dialog box displays the current server and database connection in the *Connection* field. The *Version* field identifies the current database and software version. See *Viewing Information About PCS Axis* (page 14).

Synchronizing a Subscription

Information in this section explains how a subscriber (remote user) can synchronize the subscription database on their local computer with the publication database on the network server. When a subscription database is about to expire, PCS Axis displays a message to notify the subscriber (Figure 15-8).
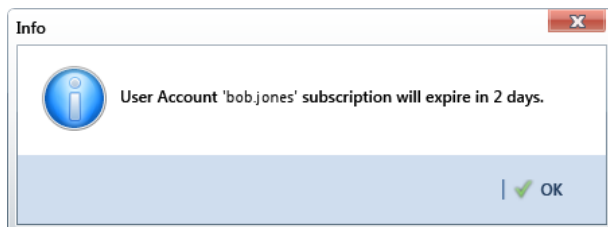
Figure 15-8. Pending Subscription Expiration

IMPORTANT: To avoid data conflicts, it is important to synchronize data between the publisher and each subscriber at *frequent intervals*. The subscriber must establish a reliable high-speed connection to the publisher to successfully synchronize data.

To synchronize a subscription, follow these steps:

1   Click **Tools** > **Synchronize Now** to open the *Synchronize Now* dialog box. Then click **Start** (Figure 15-9).
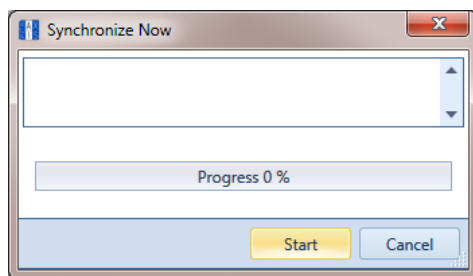
Figure 15-9. Synchronize Now

2   Click ✔ **OK** when the message *Synchronization Complete* displays to complete the process (Figure 15-10).
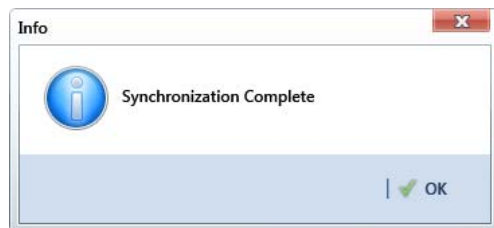
Figure 15-10. Synchronization Complete

Reinitializing a Subscription

When a subscription database has expired, PCS Axis displays a message on the local computer of the subscriber informing the user their subscription has expired (Figure 15-11). The procedure in this section explains how a subscriber can re-initialize the expired subscription on their local computer when a connection to the publication database has been established.

IMPORTANT: Unsynchronized data is lost when re-initializing a subscription. To avoid losing unsynchronized data, first use Bridge to export data. Then use Bridge again to import data after re-initialization is complete. See *Using Bridge* (page 387) for more information.

Figure 15-11. Expired Subscription

IMPORTANT: Because the re-initialization process transfers a full copy of the publication snapshot to the subscriber's computer, it's recommended that a high-speed reliable connection to the publication server be available when re-initializing the subscription.

To re-initialize an expired subscription, follow these steps:

1 Establish a high-speed reliable connection to the publication server.

2 Click **Tools** > **Subscription Configuration** to open the *Subscription Configuration* dialog box (Figure 15-12, page 602).

3 Complete one of the following steps:

   a If the subscription database has updated records that have not been synchronized with the publication database, click **Reinitialize Subscription And Allow Synchronize First**.

   –or–

b If the subscription database does not need to be synchronized with the publication database, click ⬛ **Reinitialize Subscription**.

NOTE: The server name, database name, and publication name for the subscription display in the field *Subscription Name* (Figure 15-12, page 602).
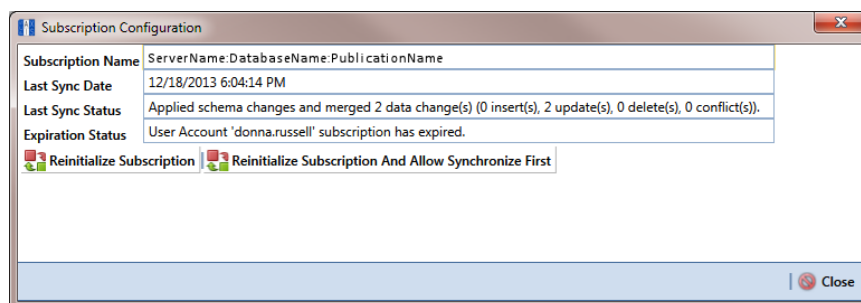
Figure 15-12. Subscription Configuration/Re-initialize Subscription

4 Click ✔ **Yes** when the message *Reinitialize Subscription* displays (Figure 15-13).

The message includes the following information for the subscription: name of the server, primary database, and publication. This is shown in the following figure as *ServerName:DatabaseName:PublicationName*.
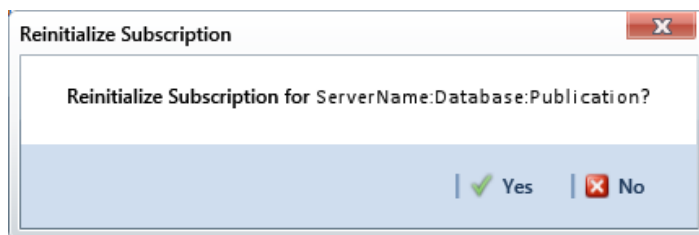
Figure 15-13. Reinitialize Subscription

5 Click ✔ **OK** when the message *Subscription Reinitialized* displays (Figure 15-14). Then click 🚫 **Close** to close the *Subscription Configuration* dialog box (Figure 15-12, page 602).
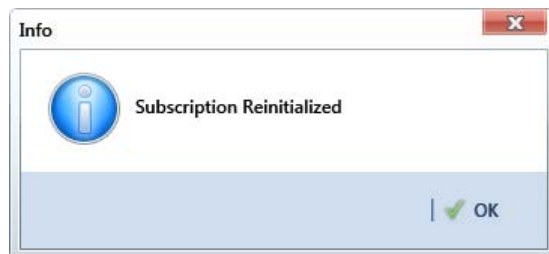
Figure 15-14. Subscription Reinitialized

Switching Database Connections

Subscribers have the option of switching database connections when logging into the PCS Axis software. This feature allows a subscriber to connect either to the subscription database on their local computer or the publication database on the company network server. It is intended for subscribers working from the company main office instead of a remote field office.

IMPORTANT: Before switching database connections, the subscriber must first synchronize data between the publication and subscription databases.

To switch database connections, follow these steps:

1 Synchronize data between the subscription and publication databases. Click **Tools** > **Synchronize Now** (Figure 15-15).
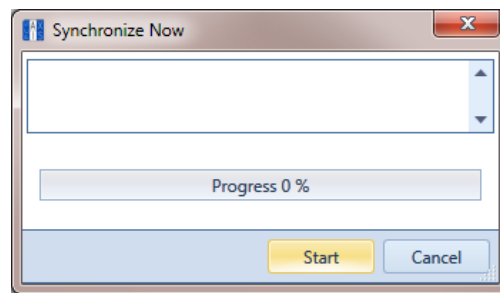
Figure 15-15. Synchronize Now

2 Click ✔ **OK** when the message *Synchronization Complete* displays to complete the process (Figure 15-16).
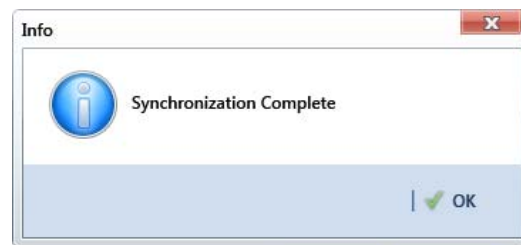
Figure 15-16. Synchronization Complete

3 Click ❌ **Log Out** in the main menu. Then click ✔ **Yes** when the *Logout* message displays.

4 When the *Login* window displays, type your Windows password in the **Password** field and then complete one of the following steps to switch database connections (Figure 15-17):

    a To switch to the publication, click the check box **Use Subscription** to clear the check mark.

    –or–

    b To switch to your subscription, click the check box **Use Subscription** to place a check mark inside the check box.

5 Click the login button ➡ to start PCS Axis.

Figure 15-17. PCS Axis Login

Notes

A

System Field Descriptions

Information in this chapter includes a description of PCS Axis fields. Fields that include Activate in the field name share the same description as their counterpart, such as Activate AC Power and AC Power. The Activate AC Power field must be added in the Information grid to enter data in the AC Power field in the Inspections grid.

NOTE: The menu path included in some field descriptions may include the placeholder text *<module>*, such as *Data Entry > Edit <module> Data*. The placeholder text indicates the field description applies to more than one module, such as CPDM, VM, ACM, ICM, or LSM.

Table A-2. System Field Descriptions

Name	Description
AC Input	Alternating Current Input. Voltage coming into the rectifier from a power source. See CPDM module, *Data Entry > Edit CPDM Data > Rectifier Information* grid *> Customize > Layouts*.
AC P/S (Volts)	Alternating Current Pipe-to-Soil. Potential measurement in volts. AC measurements are recorded using a voltmeter when conducting an AC CIS survey to determine AC interference from sources such as overhead power transmission lines near the pipeline. Also see AC CIS definition in *Appendix B* (page 635).
	See ISM, *Data Entry > Edit ISM Data > AC CIS*.

Table A-2. System Field Descriptions (continued)

Name	Description
AC Power	Alternating Current Power. Power consumed by a rectifier from a power source (watts). This value is system-supplied and calculated as follows: *AC Power = 3600 x Kh Factor x $\frac{Revolutions}{Seconds}$* If the value for Kh Factor, Revolutions, or Seconds is unknown, the value for AC Power can be entered. The value can be up to six digits of resolution. Meter Kh carries to Kh Factor field when a reading is created. Add and enable Activate AC Power in the Rectifier Information grid to allow data entry in the Inspections grid. See CPDM module, *Data Entry > Edit CPDM Data > Rectifier Information* and *Inspections* grid > *Customize > Layouts*.
AC Service	Alternating Current Service. History information field that identifies the complete source of incoming AC power; such as data for AC voltage, AC current, number of phases and so on. See CPDM module *Data Entry > Edit CPDM Data > Rectifier Inspections* grid > *Customize > Layouts*.
Manufacturer	Manufacturer of the rectifier being installed. See CPDM module, *Data Entry > Edit CPDM Data > Rectifier Inspections* grid > *Customize > Layouts*.
Account	Power company account number. Can also be the customer's account number for gas service. See CPDM module, *Data Entry > Edit CPDM Data > Rectifier Inspections* grid > *Customize > Layouts*.
Activate Cardinal Points	Add this field in the Tank Information grid, then enable the field's check box to allow data entry in the Tank Inspection grid for the following fields: North P/S, South P/S, East P/S, and West P/S. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids > *Customize > Layouts*.
Activate Center P/S	Activate Center Pipe-to-Soil Add this field in the Tank Information grid, then enable the field's check box to allow data entry in the field Center P/S in the Tank Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Activate Intercardinal Points	Add this field in the Tank Information grid, then enable the field's check box to allow data entry in the Tank Inspection grid for the following fields: NE P/S, SE P/S, NW P/S, and SW P/S. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids > *Customize > Layouts*.
Activate Mid P/S	Activate Mid Pipe-to-Soil. Add this field in the Tank Information grid, then enable the field's check box to allow data entry in the field Mid P/S in the Tank Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids > *Customize > Layouts*.
Activate Secondary Intercardinal Points	Add this field in the Tank Information grid, then enable the field's check box to allow data entry in the Tank Inspection grid for the following fields: ENE P/S, ESE P/S, NNE P/S, NNW P/S, SSE P/S, WNW P/S, and WSW P/S. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids > *Customize > Layouts*.
Address	System calculated field based on information entered in the following fields: Address Post-Direction; Address Pre-Direction; Address Street; Address Street Number; and Address Suffix. This field is available for use in all modules and can be added in the Information grid. See *Data Entry > Edit <module> Data > Information* grid *> Customize > Layouts*.
Address Pre-Direction	Tag at the beginning of a street name used to indicate direction, such as 125 E Grand Bluff St. NW, where E is the pre-direction. This field is available for use in all modules and can be added in the Information grid. See *Data Entry > Edit <module> Data > Information* grid *> Customize > Layouts*.
Alignment Sheet Number	Record number assigned to an alignment sheet for a pipeline right-of-way. Add this field in either the Rectifier Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grids > *Customize > Layout*.
Allegro Survey Information	System-generated field showing properties in a close interval survey file transferred from the Allegro. Properties include configuration settings, ROW code, survey date, surveyor, type of survey, and so on.

Table A-2. System Field Descriptions (continued)

Name	Description
Anomaly Direction	If survey readings were taken at regular intervals during an ACVG survey, use this field to indicate if the anomaly is in front of or behind the surveyor. This field does not apply to ACVG surveys that only record an ACVG point at the anomaly. Typical entries for this field are *Forward* or *Reverse*. See ISM, *Data Entry > Edit Indirect Survey Data > ACVG* grid.
APB (Ppm)	Acid Reducing Bacteria parts-per-million. Measurement of APB in parts-per-million (Ppm). Add Activate APB (Ppm) in the Information grid to allow data entry in the Inspections grid. See ICM, *Data Entry > Edit ICM Data > Samples > Information* and *Inspection* grids > *Customize > Layouts*.
Apparent Leak Location	Leak location. See LSM, *Data Entry > Edit LSM Data > Maintenance* grid > *Customize > Layouts*.
Attached Documents	Use this field to attach or link a document to a record in the grid. This field is available in all modules. See *Attaching a Document to a Grid Record* (page 250).
Average P/S	Average Pipe-to-Soil. Reading measured in volts. Add the field Activate Average P/S in the Test Point Information grid to enable data entry in the Average P/S field in the Test Point Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point Information* and *Inspection* grid > *Customize > Layouts*.
Bond Current Adjusted	Click the check box to indicate a change was made to the bond current. This field works in conjunction with the fields Bond Current Found and Bond Current Left when the Activate field for both of these fields has been added in the Information grid. When adjusting the bond current (1) click the *Bond Current Adjusted* check box; (2) enter the pre-adjusted value (in amps) in the field *Bond Current Found*; and then (3) enter the adjusted value (in amps) in the field *Bond Current Left*. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Bond Current Found	Bond current measured during an inspection (in Amps). This field works in conjunction with the fields Bond Current Adjusted and Bond Current Left when the Activate field for both of these fields has been added in the Foreign Bond Information grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.
Bond Current Left	Bond current measured after an inspection (in Amps). This field works in conjunction with the fields Bond Current Adjusted and Bond Current Found when the Activate field for both of these fields has been added in the Foreign Bond Information grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.
Bond Shunt Factor	Multiplying factor measured in Amps. Used in converting the voltage drop across the shunt to current. Voltage drop and shunt resistance are used to calculate the current. Add the Bond Shunt Factor field in either the Foreign Bond Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.
Bond Shunt Rating	Shunt size measured in millivolts and Amps (mV/A). Add the field in either the Foreign Bond Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.
Bond Shunt Resistance	Shunt resistance measured in Ohms. Add the field in either the Foreign Bond Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.
Bond Type	Type of bond, such as resistance or direct. Add the field in either the Bond Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* and *Inspection* grid > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Casing IRF	Casing IR free (IRF) reading. Voltage measurement indicating the potential of the casing relative to the soil with interrupted rectifier current. Add the field Activate Casing IRF in the Test Point Information grid to enable data entry in the Casing IRF field in the Test Point Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point Information* and *Inspection* grid > *Customize > Layouts*.
Casing IRF Minimum and Maximum	Minimum and maximum value allowed for data entry in the Casing IRF field. Add the fields Casing IRF Minimum and Casing IRF Maximum in either the Test Point Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point Information* or *Inspection* grid > *Customize > Layouts*.
Casing P/S	Casing Pipe-to-Soil. Voltage measurement indicating the potential of the casing relative to the soil. Add the field Activate Casing P/S in the Information grid to enable data entry in the Casing P/S field in the Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point Information* and *Inspection* grid > *Customize > Layouts*.
Casing P/S Minimum and Maximum	Minimum and maximum value allowed for data entry in the Casing P/S field. Add the fields Casing P/S Minimum and Casing P/S Maximum in either the Test Point Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point Information* or *Inspection* grid > *Customize > Layouts*.
Casing Status	Status of the casing, such as short, not short, electrolytic, or metallic. Add the field Activate Casing Status in the Information grid to enable data entry in the Casing Status field in the Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point Information* and *Inspection* grid > *Customize > Layouts*.
Center P/S	Center Pipe-to-Soil. Structure reading in volts when a half-cell is under the center of the tank. Add the field Activate Casing P/S in the Information grid to enable data entry in the Casing P/S field in the Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Tank Information* and *Inspection* grid > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Center P/S Minimum and Maximum	Minimum and maximum value (voltage reading) allowed for data entry in the Center P/S field. Add the fields Center P/S Minimum and Center P/S Maximum in either the Tank Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Tank Information* or *Inspection* grid > *Customize > Layouts*.
City	City where a facility is located. This field is available for use in all modules; add the field in either the Information or Inspection grid. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid > *Customize > Layouts*.
Close Direction	Direction the valve wheel turns to close the valve. Enter data such as CW for clockwise or CCW for counter clockwise. See VM, *Data Entry > Edit VM Data > Information* or *Inspection* grid > *Customize > Layouts*.
Coating	Type of coating applied to the pipeline, such as tape or epoxy. Add this field in either the Information or Inspection grid. See ACM, *Data Entry > Edit ACM Data > Information* or *Inspection* grid > *Customize > Layouts*.
Coating Condition	Description of coating condition. See ACM, *Data Entry > Edit ACM Data > Inspection* grid > *Customize > Layouts*.
Coke Breeze Type	Type of coke breeze, such as metallurgical and petroleum-based. See CPDM, *Data Entry > Edit CPDM Data > Rectifier Information*, *Inspection*, or *Maintenance* grid > *Customize > Layouts*.
Coke Breeze Type	Type of coke breeze such as metallurgical and petroleum-based. Add this field in either the Rectifier Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grids > *Customize > Layout*.
Completed Maintenance	Total number of maintenance records for a facility that have the field Completed Date populated. This is a read-only, facility level calculated field. Add this field in the Rectifier Information, Inspection, or Maintenance grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier >* Information, *Inspection,* or *Maintenance* grids > *Customize > Layouts.*

Table A-2. System Field Descriptions (continued)

Name	Description
Conductivity	Numeric field supporting decimal numbers with up to 7 digits resolution, including two numbers after the decimal. Use this field to record conductivity measurements as measured by the inspection tool during a *Soil Resistivity* survey. Measurements are in microSiemens (µS), a metric unit of measurement for conductivity. See *ISM module, Data Entry > Edit ISM Data > Soil Resistivity*.
Connection Type	Type of connection used to secure a valve to the pipeline. See VM, *Data Entry > Edit VM Data > Information* or *Inspection* grid > *Customize > Layouts*.
Contact	Name of a contact person at the company responsible for the foreign bond. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information* grid > *Customize > Layouts*.
Creation Date	Date a facility record was created in a grid. Add this field in either the Rectifier Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier >* Information or *Inspection* grids > *Customize > Layouts*.
Critical Bond	Check box for indicating if a bond is critical based on location and connection. Critical bond is used in scheduling. Click to place a check mark inside the check box if the bond is considered a critical bond. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond Information, Inspection,* or *Maintenance* grid > *Customize > Layouts*.
Days Since First Bad Reading	Derived field showing the number of days since the first bad reading (reading does not meet criteria). Field available in all modules in the *Information* or *Inspection* data entry grid. See *Working with Derived Fields* (page 165).
Days Since Last Good Reading	Derived field showing the number of days since the last good reading (reading meets criteria). Field available in all modules in the *Information* or *Inspection* data entry grid. See *Working with Derived Fields* (page 165).

Table A-2. System Field Descriptions (continued)

Name	Description
Days Until Delinquent	Read-only, system calculated field. Number of days until a facility inspection becomes delinquent. Field is available in all modules. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layouts*.
Decibel Reading (dB)	Decibel reading measured in millibels (mB, decibel microvolts) by the inspection tool using the A-Frame method during an ACVG survey. See ISM, *Data Entry > Edit ISM Data > ACVG*.
Default Location Format	Read-only field showing the format used in numbering facilities on a pipeline segment. Default Location Format is set up before adding or linking facilities to a pipeline segment. Valid entries are: *Metric Milepost*, *Milepost (4 decimals)*, *Location ID*, *Milepost (3 decimals)*, *Miles/Station Number*, *Reading Number*, and *Station Number*. Default Location Format is available in all modules. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layout*.
Depth	Pipeline depth in inches as measured by the PCM inspection tool during an ACCA survey. See ISM, *Data Entry > Edit ISM Data > ACCA*.
Depth	Numeric field supporting decimal numbers with up to 6 digits resolution, including two numbers after the decimal. Use this field to enter the pipeline depth reading in inches as measured by the PCM inspection tool during an ACCA survey. See ISM, *Data Entry > Edit ISM Data > ACCA*.
Diameter	Distance from wall to wall across a tank. See CPDM, *Data Entry > Edit CPDM Data > Tank Information*, *Inspection* or *Maintenance* grid *> Customize > Layouts*.
Diode Rating	Amperage rating of the diode in the rectifier. See CPDM, *Data Entry > Edit CPDM Data > Information* or *Inspection* grid *> Customize > Layout*.

Table A-2. System Field Descriptions (continued)

Name	Description
Due Date From Schedule	Date a facility is scheduled for survey based on settings in Edit Schedule Settings (*Data Entry >Edit Schedule Settings*). This field is available for use in all modules; add the field in either the Information or Inspection grid. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid > *Customize > Layouts*.
Due Date From Schedule	Read-only field showing the date a facility is due for inspection based on scheduling properties set up in Edit Schedule Settings (*Data Entry > Edit Schedule Settings*). This field is available in all modules. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid > *Customize > Layout*.
East P/S	East Pipe-to-Soil. Structure reading in volts when a half-cell is placed near the east side of a tank. Add and enable Activate Cardinal Points in the Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids > *Customize > Layouts*.
East P/S Maximum/ Minimum	Maximum and minimum voltage value allowed for data entry in the field East P/S in the Tank Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* or *Inspection* grid > *Customize > Layouts*.
Effective Date	Required system field automatically present in all grids. Effective Date is the date a history record becomes effective. New history records are created when important permanent information changes, such as when the protection criteria value changes for a test point. When this happens, (1) create a new test point history record in the Test Point Information grid; (2) then change the protection criteria value in the new history record. This method allows you to know when the protection criteria value changed and what the previous value was prior to the change. Use Effective Date to indicate when a facility/device becomes inactive or is taken out of service. Generally any active facility/device, such as a test point or rectifier, should not have an effective date.

Table A-2. System Field Descriptions (continued)

Name	Description
Efficiency	System-provided value that is calculated using the formula shown below. A value can be manually entered, but is not recommended. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grid *> Customize > Layouts*. $$\frac{\textit{Rectifier Output Volts Left x Rectifier Output Current Left x 100}}{\textit{AC Power (Watts)}}$$
Efficiency Filter	Check box for indicating whether or not a rectifier is using an efficiency filter. Click to place a check mark inside the check box when an efficiency filter is present. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grid *> Customize > Layouts*.
Elevation	Elevation in feet for a facility, survey point, or anomaly on a pipeline as reported by a GPS device. This field is available for use in all modules. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layouts*.
End Date	Last day of a start and end date range, such as a start date of 05/04/2012 and an end date of 08/06/2012. A date range is typically used when generating a schedule or when defining a survey folder. This field is available in all modules. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layout*.
Facility Active	Check box to indicate whether or not a facility is active or inactive according to survey status. Add this field in either the Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Information* or *Inspection* grid *> Customize > Layouts*.
Facility and ROW Currently Active	Read-only system field showing the status of linked facilities on a ROW. Check box indicates whether or not a facility and ROW are active or inactive based on survey status. Add this field in either the Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Information* or *Inspection* grid *> Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Facility Attached Document	Field for attaching a file (document or image) or Internet link to a facility or ROW. File attachment or link can be previewed or edited in PCS Axis with the appropriate viewer or file editor if installed locally on the computer. Use this field to link or embed a file attachment and detach an attached file. This field is available in all modules and can be added in the Information, Inspection, and Maintenance grids. See any module, *Data Entry > Edit <module> Data > Information*, *Inspection*, or *Maintenance* grid *> Customize > Layout*.
Facility Delinquent Date	Date a facility is considered to be past due for inspection. This is a PCS Axis calculated field based on schedule settings set up in Edit Schedule Settings (*Data Entry > Edit Schedule Settings*). Available for use in all modules; add the field in either the Information or Inspection grid. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layouts*.
Facility ID	Identification code that identifies a facility. This field is available for use in all modules; add the field in either the Information or Inspection grid. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layouts*.
Foreign IRF	Foreign IR free reading. Voltage measurement indicating the potential of a foreign line at a foreign line crossing relative to the soil with interrupted rectifier current. Add and enable Activate Foreign IRF in the Test Point Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Information* and *Inspection* grids *> Customize > Layouts*.
Foreign P/S	Foreign Pipe-to-Soil. Potential reading of foreign line at a foreign line crossing relative to the soil. Use this field to enter pipe-to-soil "on" measurements taken at a site with all DC sources operational. Add and enable Activate Foreign P/S in the Test Point Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Information* and *Inspection* grids *> Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Galvanic Anode Initial Current	Initial current output at install. Additional readings should be recorded in the field Galvanic Current in the Galvanic Anode Inspection grid.
	To record data in the Galvanic Current field in the Inspection grid: (1) add Activate Galvanic Current in the Information grid, then enable the field's check box, (2) add the field Galvanic Current in the Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* and *Inspection* grids > *Customize > Layouts*.
Galvanic Anode Shunt Factor	Amperage value of the galvanic anode shunt factor. Shunt factor includes the value in this field and the millivolt/amperage (mV/A) value entered in the Galvanic Anode Shunt Rating field.
	Add the fields Galvanic Anode Shunt Factor and Galvanic Anode Shunt Rating in either the Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* or *Inspection* grids > *Customize > Layouts*.
Galvanic Anode Size	Weight in pounds (lbs) of sacrificial anode. Add this field in either the Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* or *Inspection* grids > *Customize > Layouts*.
Galvanic Anode To Soil	Driving potential of the anode relative to the soil. Value entered in volts. Add this field in either the Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* or *Inspection* grids > *Customize > Layouts*.
Galvanic Anode Type	Type of anode such as magnesium, aluminum, or zinc. Add this field in the Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* or *Inspection* grids > *Customize > Layouts*.
Galvanic Current Maximum/Minimum	Maximum and minimum current output. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* or *Inspection* grids > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Galvanic Number of Anodes	*Rectifier facilities*: Number of impressed current anodes at a rectifier/ground bed installation. If there are multiple ground beds at a rectifier, this will be the total number of anodes associated with that rectifier. *Galvanic Anodes*: Number of sacrificial anodes at a galvanic anode installation. See CPDM, *Data Entry > Edit CPDM Data > Galvanic Anode > Information* or *Inspection* grids > *Customize > Layouts*.
Gas Indicator Leak Test	Remark field in the LSM module for describing the condition of the valve coating at inspection. To record data in the field Gas Indicator Leak Test in the Inspection grid: (1) add the field Activate Gas Indicator Leak Test in the Information grid, then enable the field's check box, (2) add the field Gas Indicator Leak Test in the Inspection grid. See LSM, *Data Entry > Edit LSM Data > Information* and *Inspection* grids > *Customize > Layouts*.
Holiday	Use this field to indicate a survey location with a pipeline coating anomaly (hole) as detected by the inspection tool during an ACVG survey. A check mark inside the check box indicates a survey location with a holiday. To remove the check mark, click the check box again. See ISM module, *Data Entry > Edit ISM Data > ACVG*.
Indication Classification	Use this field to classify or prioritize the severity of an indication. For example, classifications such as minor, moderate, severe, immediate, scheduled, or monitored might be used to prioritize the severity of indications. Typical indications include coating faults, holidays, corrosion activity, electrical shorts, interference, geologic current shielding, and other types of anomalies that have been discovered during an aboveground, indirect survey. If your company uses a coding system for describing the severity of indications, you can type the code in the field; select the code and its description from a drop-down list if a picklist has previously been setup in *Field and UDF Customizations* (page 44); or import the code in PCS Axis using Bridge (page 387).
Indication Score	Alphanumeric field that accepts up to two characters, numbers, or a combination of both. Use this field to rank, prioritize, quantify the actual size, or grade the severity of an indication classification.

Table A-2. System Field Descriptions (continued)

Name	Description
Inspection Remarks	Survey comment associated with a facility, anomaly, or landmark. Field is available for use in all modules. See any module, *Data Entry > Edit <module> Data > Inspection > Customize > Layouts*.
Insulator IRF	Insulator IR Free. Voltage measurement indicating the potential of an insulated flange relative to the soil with interrupted rectifier current. Add and enable Activate Insulator IRF in the Test Point Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Information* and *Inspection* grids > *Customize > Layouts*.
Insulator P/S	Insulator Pipe-to-Soil. Potential reading for the other side of an insulated flange, relative to the soil. Also referred to as an "insulator-to-soil" potential reading. Add and enable Activate Insulator P/S in the Test Point Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Information* and *Inspection* grids > *Customize > Layouts*.
Insulator Shunt Factor	Amperage value of the insulator shunt factor. Shunt factor consists of the value in this field and the value (mV/A) in the field Insulator Shunt Rating. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Information* or *Inspection* grid > *Customize > Layouts*.
IR (percentage)	Numeric field supporting a 5 digit decimal number, including two numbers after the decimal. Use this field to enter a value that represents the estimated size or severity of a holiday as a percentage. The value you enter is the difference between the over-the-line (OTL) to remote earth (RE) readings divided by the signal strength (SS) of the voltage gradient at the anomaly. IR (percentage) = (OTL – RE or RE – OTL) ÷ SS at anomaly See *ISM, Data Entry > Edit ISM Data > DCVG*.
KWH Meter	Kilowatt hours (KWH) recorded from a power meter for rectifier power usage. Add and enable Activate KWH Meter in the Rectifier Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* and *Inspection* grid > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Latitude	Numeric field that accepts up to twelve digits. Use this field to enter data that identifies the GPS latitude coordinate (north/south) for a test point, rectifier, bond, anomaly, or other location type on a pipeline. Field is available in all modules.
Level 1 Name through Level 5 Name	User setting for the names of the system hierarchy levels. PCS Axis supports up to five hierarchy levels. See *Tools > Customize > Hierarchy*.
Locate Current (mA)	Use this field to enter a current reading in milliamps (mA) as measured by the PCM inspection tool for survey points located directly over the pipeline during an ACCA survey. See ISM, *Data Entry > Edit ISM Data > ACCA*.
Location Code	Alphanumeric code assigned to a pipeline segment. The field accepts up to five alphanumeric characters. Location Code is available for use in all modules and can be added in either the Information or Inspection grid. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid *> Customize > Layouts*.
Log Number	Numeric field that supports up to 6 digits. This field is typically used for sequential log numbers generated by a PCM (pipeline current mapper) data logger for survey readings taken during an ACCA survey. See ISM, *Data Entry > Edit ISM Data > ACCA*.
Longitude	Numeric field that accepts up to twelve digits. Use this field to enter data that identifies the GPS longitude coordinate (east/west) for a test point, rectifier, bond, anomaly, or other location type on a pipeline. Field is available in all modules.
Loss per Distance (dB/Ft)	Numeric field supporting positive or negative decimal numbers with up to 5 digits resolution, including 2 numbers after the decimal. Use this field to enter the "dB loss per foot" value as calculated by the PCM inspection tool during an ACCA survey. The calculated value indicates the "current loss per distance ratio". See ISM, *Data Entry > Edit ISM Data > ACCA*.

Table A-2. System Field Descriptions (continued)

Name	Description
Milepost	Number representing a testing or facility location on a pipeline such as 23+123. May also be referred to as station number, milepost marker, or station marker. See *Tools > Customize > General > User Location Name*.
Native P/S	Native Pipe-to-Soil. Voltage reading taken prior to any current placed on the pipeline. Also referred to as depolarized or static potential.
Negative Shunt Factor	Amperage value of the negative shunt factor. This field is available in the Rectifier Negative Inspections mini-grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier Inspections* grid > *Rectifier Negative Inspections* mini-grid.
Number of Crossings	PCS Axis calculated field showing the total number of crossings, such as road crossings, railroad crossings, foreign pipeline crossings, and fence lines. See CPDM, *Data Entry > Edit CPDM Data* > Test Point > *Information* or *Inspection* grid > *Customize > Layouts*.
Number of Leaks	Numeric field for entering the number of leaks. Add the field Activate Number of Leaks in the Information grid to allow data entry in the Inspection grid. See LSM, *Data Entry > Edit LSM Data > Information* and *Inspection* grid > *Customize > Layouts*.
Number of Negatives	PCS Axis calculated field in either the Rectifier Information or Inspection grid. This field shows the number of negatives in the Rectifier Negative Information mini-grid. See CPDM, *Data Entry > Edit CPDM Data* > Rectifier > *Information* or *Inspection* grid > *Customize > Layouts*.
Number of Readings in Survey	A derived field showing the total number of survey readings in a continuous survey. See continuous survey types CIS, AC CIS, DCVG and so on in Indirect Survey Manager (ISM). Also see *Working with Derived Fields* (page 165).
Number of Turns	Number of turns to open a valve. Add the field Activate Number of Turns in the Information grid to allow data entry in the Inspection grid. See VM, *Data Entry > Edit VM Data > Information* and *Inspection* grid > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Original Station Number	The initial or original station number before re-aligning station numbers using the Rubber Banding feature in *Survey Maintenance*. See ISM, *Data Entry > Edit ISM Data > Survey Maintenance*.
OTL to Remote Earth (mV)	Over-the-Line to Remote Earth. Use this field to enter a value in millivolts (mV) that represents the sum of all side drain measurements taken during a DCVG survey for a survey point on the pipeline. See ISM, *Data Entry > Edit ISM Data > DCVG*.
P/S Offset	Pipe-to-Soil Offset.l Offset added to a pipe-to-soil (P/S) reading collected on the Allegro field computer. Use this field when using a permanent reference cell other than copper-copper sulfate. PCS Axis uses the value to convert the reading to the equivalent copper-copper sulfate reading. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Information* or *Inspection* grid > *Customize > Layouts*.
Parallel Line	Two (2) pipelines within the same ROW (right-of way) and parallel to each other. Use the fields *Pipeline Code* and *Pipeline Name* in *Select ROWs* to identify a parallel pipeline. Also see *Pipe*, *Pipeline Code*, and *Pipeline Name*.
PBN Dial Reading	Measurement reading taken at inspection. Add the field Activate PBN Dial Reading in the Information grid to allow data entry in the Inspection grid. See ICM, *Data Entry > Edit ICM Data > Probe > Information* and *Inspection* grid > *Customize > Layouts*.
PCM Current (dB)	Numeric field that supports decimal numbers with up to 6 digits resolution, including two numbers after the decimal point. Use this field to enter the PCM current reading as measured in mA and dB by the PCM inspection tool during an ACCA survey. See ISM, *Data Entry > Edit ISM Data > ACCA*.
Pearson	Continuous (indirect) survey that uses an electrical method for locating holidays in the pipeline coating by applying an AC signal on the pipeline and the reception of the signal by two surveyors wearing metal cleats and connected to a Pearson receiver. See ISM, *Data Entry > Edit ISM Data > Pearson*.

Table A-2. System Field Descriptions (continued)

Name	Description
Periodic Survey	A survey conducted more often than every 12 months, such as monthly or bi-monthly rectifier surveys. See CPDM, *Data Entry > Edit CPDM Data* > Rectifier > *Inspection* grid > *Customize > Layouts*.
Periodic Survey Year	Year a periodic survey is performed. See CPDM, *Data Entry > Edit CPDM Data* > Rectifier > *Inspection* grid > *Customize > Layouts*.
Permanent Comments	Comments permanently associated with a facility. This type of comment does not typically change during each survey year. This field is available for use in all modules and can be added in the Information grid. See *Data Entry > Edit <module> Data > Information* grid > *Customize > Layouts*. **NOTE:** Comments that apply to a particular survey should be entered in the Survey Remarks field.
Phone Number	Phone number of the person to contact at another company about a foreign bond. See CPDM, *Data Entry > Edit CPDM Data* > Foreign Bond > *Information* or *Inspection* grid > *Customize > Layouts*.
Pipe	Two digit alphanumeric code used to identify a parallel pipeline in a common ROW with an existing pipeline. Also see *Pipeline Code*, *Pipeline Name*, and *Parallel Line*.
Pipeline Code	Two digit alphanumeric code used to identify a parallel pipeline in a common ROW with an existing pipeline. Also see *Pipe*, *Pipeline Name*, and *Parallel Line*.
Pipeline Name	Name of a parallel pipeline in a common ROW with an existing pipeline. Also see *Pipe*, *Pipeline Code*, and *Parallel Line*.
Plot This Point	Use this field to include or exclude continuous survey readings in reports and graphs. To include a survey reading, click the check box to place a check mark in the check box. To exclude a survey reading, clear the check mark by clicking the check box. This field is enabled by default with all survey readings included in reports and graphs. See ISM, *Data Entry > Edit ISM Data* > any survey type.

Table A-2. System Field Descriptions (continued)

Name	Description
Polarity	Direction of current flow at a foreign bond. Add the field Activate Polarity in the Information grid to allow data entry in the Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Foreign Bond > Information* and *Inspection* grid > *Customize > Layouts*.
Power Company Phone Number	Phone number of the power company for a rectifier installation site. See CPDM, *Data Entry > Edit CPDM Data* > Rectifier > *Information* or *Inspection* grid > *Customize > Layouts*.
Pre-Install P/S	Pipe-to-soil reading taken before installation of galvanic anodes. See CPDM, *Data Entry > Edit CPDM Data* > Galvanic Anode > *Information* or *Inspection* grid > *Customize > Layouts*.
Property Rights	Code that identifies any property rights that might impact inspection or access to a pipeline. The field supports up to 10 alphanumeric characters including spaces, such as B #1234567. See LSM, *Data Entry > Edit LSM Data > Maintenance* grid > *Customize > Layouts*.
Rectifier Anode Size	Dimensions of impressed current anodes such as 3 x 60. Add the field in either the Rectifier Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grids > *Customize > Layouts*.
Rectifier Anode Type	Type of anode such as graphite or high silicon material. Add the field in either the Rectifier Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grids > *Customize > Layouts*.
Rectifier Current Adjusted	Check box for indicating a change was made to the rectifier current at inspection. When a change is made (1) click to add a check mark in the Rectifier Current Adjusted check box, (2) enter the adjusted reading in the fields Rectifier Output Volts Left and Rectifier Output Current Left. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Inspection* grids > *Customize > Layouts*.
Rectifier Current Density	A calculated report field indicating the amount of current required per square foot to change a structure's potential to –0.85 volts.

Table A-2. System Field Descriptions (continued)

Name	Description
Rectifier Current Distributions	Number of pipelines receiving current from a rectifier. This field is generated by PCS Axis as current distributions are added. See CPDM module, *Reports/ Graphs > Survey Report*.
Rectifier Output Current Found	Initial rectifier reading at inspection measured in Amps. Add the field Activate Rectifier Output Current Found in the Information grid to allow data entry in the Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* and *Inspection* grids > *Customize > Layouts*.
	NOTE: PCS Axis multiplies the initial rectifier reading by the rectifier shunt factor when the fields *Rated Rectifier Output Volts* and *Rated Rectifier Output Current* are populated in the Rectifiers Information grid.
Rectifier Output Current Found Maximum/ Minimum	Maximum and minimum value (measured in Amps) allowed for data entry in the field Rectifier Output Current Found. Add the fields in either the Rectifier Information or Inspection grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* or *Inspection* grids > *Customize > Layouts*.
Rectifier Output Current Left	Rectifier reading after making adjustments to the rectifier output current at inspection (measured in Amps). Also see description for Rectifier Output Current Found. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Inspection* grids > *Customize > Layouts*.
Rectifier Output Shunt Factor	Amperage value of the anode shunt factor. Refers to the shunt used to measure the output current of each anode in a positive junction box. Shunt factor includes the value in this field and the value entered in the field Rectifier Output Shunt Rating. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information or Inspection* grids > *Customize > Layouts*.
Rectifier Output Volts Found	Initial rectifier reading at inspection measured in volts. Add and enable the field Activate Rectifier Output Volts Found in the Rectifier Information grid to allow data entry in the Inspections grid. Also refer to the description Rectifier Current Adjusted. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* and *Inspection* grids > *Customize > Layout*.
Rectifier Output Volts Found Maximum/ Minimum	Maximum and minimum voltage value allowed for data entry in the field Rectifier Output Volts Found. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information or Inspection* grids > *Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Rectifier Output Volts Left	See description for Rectifier Current Adjusted.
Repair Priority	Code number for identifying how soon repair work should begin. The field accepts up to five alphanumeric characters including spaces, such as A #123. This field is available for use in all modules. See *Data Entry > Edit <module> Data > Maintenance grid > Customize > Layouts*.
Revolutions	Number of times a power meter wheel has rotated in a specific time period. This field is used to calculate the value in the Efficiency field. Add and enable the field Activate Revolutions in the Rectifier Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* and *Inspection grids > Customize > Layout*.
RFID	Radio-frequency identification number populated either by transferring an Allegro Periodic Survey (PS) to PCS Axis or manual entry in a grid. This field is available for use in all modules. See *Data Entry > Edit <module> Data > Information, Inspection, or Maintenance grid > Customize > Layouts*.
ROW Currently Active	Check box for indicating when a pipeline is active or inactive according to survey status. Field is available for use in all modules. See *Data Entry > Edit <module> Data > Information grid*.
Seconds	Amount of time in seconds that has elapsed for the number of Revolutions. This field is used to calculate the value in the Efficiency field. Add and enable the field Activate Seconds in the Rectifier Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* and *Inspection grids > Customize > Layout*.
Signal Strength	Signal strength of the voltage gradient (IR drop) at survey points along the pipeline as measured in millivolts (mV) by a voltmeter during a DCVG survey. See ISM, *Data Entry > Edit ISM Data > DCVG*.
Soil Resistivity (Ohm/cm)	Use this field to record soil resistivity measurements along the pipeline. Measurements are in Ohm-centimeters (Ohm/cm). See ISM, *Data Entry > Edit ISM Data > Soil Resistivity*.

Table A-2. System Field Descriptions (continued)

Name	Description
South P/S	Structure reading in volts when a half-cell is placed near the east side of a tank. Add and enable Activate Cardinal Points in the Tank Information grid to allow data entry in the Inspections grid.
	See CPDM, *Data Entry > Edit CPDM Data > Tank > Information* and *Inspection* grids *> Customize > Layouts*.
South P/S Maximum/ Minimum	Maximum and minimum voltage value allowed for data entry when entering a structure reading in the South P/S field.
SRB	Amount of sulfate-reducing bacteria (SRB) measured as parts per million (Ppm). Add and enable Activate SRB in the Samples Information grid to allow data entry in the Inspections grid. See ICM, *Data Entry > Edit CPDM Data > Samples > Information* and *Inspection* grids *> Customize > Layouts*.
Start Date	First day of a start and end date range, such as a start date of 05/04/2012 and an end date of 08/06/2012. A date range is typically used when generating a schedule or when defining a survey folder. This field is available in all modules. See *Data Entry > Edit <module> Data > Information* or *Inspection* grid.
Station Marker	See description for Milepost.
Station Number	Use this field to enter testing or facility location numbers on a pipeline (such as 23+124). Station numbers are also referred to as milepost, milepost marker, or station marker.
Station Number Maximum	A derived field showing the highest station number from survey readings in a continuous survey. See continuous survey types CIS, AC CIS, DCVG and so on in Indirect Survey Manager (ISM). Also see *Working with Derived Fields* (page 165).
Station Number Minimum	A derived field showing the lowest station number from survey readings in a continuous survey.

Table A-2. System Field Descriptions (continued)

Name	Description
Structure IRF and Structure IRF-CIS	Potential of the pipe, relative to the soil, with interrupted rectifier current (measured in volts). Use this field to enter pipe-to-soil "off" measurements taken at a site with all DC sources interrupted.
	See ISM, *Data Entry > Edit ISM Data > CIS*.
	In CPDM, add and enable *Activate Structure IRF* in the *Test Point Information* grid to allow data entry in the *Inspections* grid.
Structure P/S and Structure P/S-CIS	Potential of the pipe relative to the soil measured in volts. Use this field to enter pipe-to-soil "on" measurements taken at a site with all DC sources operational.
	See ISM, *Data Entry > Edit ISM Data > CIS*.
	In CPDM, add and enable the field *Activate Structure P/S* in the *Test Point Information* grid to allow data entry in the *Inspections* grid.
Surface Area	Total length and width of the pipeline expressed in feet. This field is used to determine *Efficiency* in the *Current Density* report. See any module > Data Entry > Edit ROW Detail.
Surface Condition	Surface condition of the pipeline. The field accepts up to five alphanumeric characters. See LSM, *Data Entry > Edit LSM Data > Maintenance* grid > *Customize > Layouts*.
Surface Covering	Type of coating or covering on the pipeline. See LSM, *Data Entry > Edit LSM Data > Maintenance* grid > *Customize > Layouts*.
Survey Date	Date an inspection or survey reading was taken.
Survey Interval	Potential measurements taken at regular intervals for assessing the level of cathodic protection (CP). The system default is 2.5 feet for DC and AC close interval surveys (CIS and AC CIS) in ISM.
Survey Name	Identifies the survey folder a survey reading is assigned to. Field is available for use in all modules. See *Data Entry > Edit <module> Data > Inspection* grid > *Customize > Layouts*. For periodic survey readings in CPDM, use the fields Periodic Survey and Periodic Survey Year instead.

Table A-2. System Field Descriptions (continued)

Name	Description
Survey Remarks	Remark or comment associated with a test point, rectifier, bond, anomaly, or landmark for a particular survey.
Surveyor	Name of person conducting a survey.
Tap Settings	Coarse or fine tap settings for rectifier output adjustment, such as C2F3. Add and enable Activate Tap Settings in the Rectifier Information grid to allow data entry in the Inspections grid. See CPDM, *Data Entry > Edit CPDM Data > Rectifier > Information* and *Inspection* grids *> Customize > Layouts*.
Total Footage	Total number of feet for pipeline segment.
User IR Correction	When a value is entered in User IR Correction, PCS Axis uses the value to calculate Target P/S instead of using the absolute difference between Structure P/S and Structure IRF. See CPDM, *Data Entry > Edit CPDM Data > Test Point > Inspection* grid *> Customize > Layouts*.
Valve Coating	Condition of valve coating at inspection. Add and enable Activate Valve Coating in the Information grid to allow data entry in the Inspections grid. See VM, *Data Entry > Edit VM Data > Information* and *Inspection* grids *> Customize > Layouts*.
Valve Condition	General condition of valve at inspection. Add and enable Activate Valve Condition in the Information grid to allow data entry in the Inspections grid. See VM, *Data Entry > Edit VM Data > Information* and *Inspection* grids *> Customize > Layouts*.
Valve Operated	Check box for indicating if the valve was manually operated. Add and enable Activate Valve Operated in the Information grid to allow use of the field in the Inspections grid. See VM, *Data Entry > Edit VM Data > Information* and *Inspection* grids *> Customize > Layouts*.
Valve Pass/Fail	Status of the valve after inspection. Add and enable Activate Valve Pass/Fail in the Information grid to allow data entry in the Inspections grid. See VM, *Data Entry > Edit VM Data > Information* and *Inspection* grids *> Customize > Layouts*.

Table A-2. System Field Descriptions (continued)

Name	Description
Valve Secured	Check box for indicating if the value was left secured. Add and enable Activate Valve Secured in the Information grid to allow use of the field in the Inspections grid. See VM, *Data Entry > Edit VM Data > Information* and *Inspection* grids *> Customize > Layouts*.
Valve Type	Type of valve such as block or plug. See VM, *Data Entry > Edit VM Data > Information* or *Inspection* grid *> Customize > Layouts*.
Vendor	Name of the company providing a service.

Notes

B

Glossary

The following information provides a description of terms commonly used in the PCS Axis software.

Table B-3. Glossary

Name	Description
AC	Alternating Current (AC). Type of current that reverses direction. Current flows in a positive direction for 1/120 second, then in a negative direction for 1/120 second, and so on. A/C current completes 60 cycles per second.
AC CIS	Alternating Current Close Interval Survey. An aboveground, indirect inspection method conducted using an AC voltmeter to measure the influence of AC voltages at regular intervals along the pipeline. The survey identifies areas of inadequate cathodic protection and possible shock hazards to personnel due to excessive AC potentials typically induced by an AC power system near the pipeline, such as overhead power transmission lines. Typical voltage measurements are in a range of 0-15V with 15V indicating a shock hazard.
ACCA	AC Current Attenuation (ACCA). An aboveground, indirect inspection method used to determine the condition of the pipeline coating. This survey method detects coating holidays and other anomalies by measuring changes in the magnetic field in the soil above and around the pipeline. Changes in the magnetic field are caused by coating defects.

Table B-3. Glossary (continued)

Name	Description
ACVG	Alternating Current Voltage Gradient (ACVG). An aboveground, indirect inspection method that measures AC voltage gradients (changes in leakage current) in the soil above and around the pipeline in an effort to locate and estimate the size of coating holidays and identify corrosion activity.
Addition Item	An addition item is a user-created item, such as a layout theme addition for a data entry grid.
Amp	Ampere (Amp). Basic unit of electric current.
Anode	The point in an electrochemical cell where the energy level is higher than its cathodic counter part, causing current to leave and take metal with it. This is the point where corrosion occurs.
Application Scheme	An application scheme is a group of named property settings that change the overall appearance of the PCS Axis interface. Currently PCS Axis only provides a default application scheme which cannot be customized.
Baud	Unit of speed in data transmission equal to one bit per second.
Bond	A wire that connects a cathodically protected pipeline to a foreign pipeline to allow current to travel from one pipeline to the another in a controlled manner, without causing corrosion. Without the bond, current can travel from one pipeline to another (in an interference situation) creating anodic areas and causing pipeline corrosion.
Bullhorn Token	Bullhorn Token is the unique Key generated by the BAT website when setting up an Extract to be used in a Bridge Bullhorn definition. See *Adding a Bridge Bullhorn Definition* (page 428) for more information.
Cathodic Protection	Cathodic Protection (CP). Process of making an entire metallic structure the cathode and a separate expendable material the anodes in a carefully designed electrochemical cell.

Table B-3. Glossary (continued)

Name	Description
CIS or CIPS	Close Interval Survey (CIS) or Close Interval Potential Survey (CIPS). An aboveground, indirect inspection method that measures pipe-to-soil (P/S) potential readings taken at closely spaced intervals along the pipeline. This type of survey is used to evaluate the effectiveness of a cathodic protection system; it locates areas between test points that are below (less negative than) a certain voltage level (usually –.85V) considered necessary for effective cathodic protection.
Continuous Survey	Aboveground survey method used to identify pipeline coating damage (such as coating anomalies and holidays) and determine effectiveness of a CP system. Also referred to as an indirect survey. Survey methods include CIS (on, on/off, and static); AC CIS; DCVG; ACCA (electromagnetic); ACVG; Soil Resistivity; and Pearson.
Criterion	Standard for assessment of the effectiveness of a CP system.
Current	Quantity of flow of electricity, similar to gallons per minute in a water pipe. Current (I) is measured in amperes (Amps).
DC	Direct Current (DC). Type of current that flows steadily in one direction.
DCVG	Direct Current Voltage Gradient (DCVG). An aboveground indirect inspection method that measures DC voltage gradients in the soil above and around the pipeline to locate and estimate the size of coating holidays and identify corrosion activity.
Depolarized Close Interval Potential Survey	A close interval survey (CIS) performed after influencing cathodic protection (CP) current sources have been turned off for a sufficient duration of time for depolarization to have occurred. This is often called a native-state CIS if it is performed prior to the initial application of CP.

Table B-3. Glossary (continued)

Name	Description
Derived Field	A derived field is a field with a value that is derived from values in dependent fields. See *Working with Derived Fields* (page 165) for more information.
Digital Meter	A digital device that measures electrical voltage and current. Device displays measurements on a screen.
Facility Key	A user defined field (UDF) set up in PCS Axis that is associated with an external system ID when setting up a Bridge definition to be used with an external system. See *Using a Facility Key in Bridge* (page 388) for more information.
GGA	GPS NEMA message format that provides information about output time, position, and fix data for a GPS receiver.
GPS	Global Positioning System (GPS). A navigational system involving satellites and computers (such as the Allegro Field PC and Bullhorn devices) that determines the latitude and longitude of a receiver on earth by computing the time difference for signals from different satellites to reach the receiver.
Holiday	A discontinuity in a protective coating that exposes the unprotected surface to the environment.
Interrupted Survey	See On/Off Survey.
IRF	IR free (IRF) reading.
MAOP	Maximum Allowable Operating Pressure (MAOP). Based on the design of the pipe, this is the highest operating pressure a pipe can theoretically operate under.
Merge Replication	A process where updated records on the subscriber are copied to the publisher and vice versa during synchronization.
MOP	Maximum Operating Pressure (MOP). Highest pressure a pipe has actually operated under.

Table B-3. Glossary (continued)

Name	Description
Ohm	A unit of electrical resistance equal to that of a conductor in which a current of one ampere is produced by a potential of one volt across its terminals.
On/Off Survey	Also referred to as *Interrupted Survey*. A close interval survey conducted with regular, timed interruptions between the current source and the cathodic protection system. On readings are compared later with the Off readings to gauge the effectiveness of the cathodic protection system.
P/S	Pipe-to-Soil (P/S). Voltage potential generated between a buried pipe and its surrounding soil, the result of electrolytic action and a cause of electrolytic corrosion of the pipe.
PCS Axis Installed Item	An item installed during the PCS Axis software installation, such as themes and routes. Installed items are identified with [PCS] in brackets and a globe icon, such as the grid layout theme labeled *[PCS] Test Point Inspections*.
Pearson Survey	An aboveground survey technique used to locate coating holidays in buried pipelines. The survey compares potential gradients along the pipeline as measured between two movable electrical ground contacts. The potential gradients result from an applied AC signal leaking to earth at coating holidays. This survey is also called a DCVG survey.
Picklist	A list of acceptable choices for a field in a data entry grid that a user selects from when entering data (formerly called "validation table").
Pipeline	A collection of segments that generally carry the same product and are interconnected (either end to end or as a lateral). Segments generally start and end at isolation points (for example, stations or valves), whereas a pipeline generally starts and ends at change of custody points.

Table B-3. Glossary (continued)

Name	Description
Publication (Publisher)	Primary database on a network server used in merge replication and synchronization with subscription databases.
Publication Retention Period	Expiration period for subscriptions. A subscription becomes expired (obsolete) when the subscriber does not synchronize the subscription with the *publication* database within the publication retention period. An expired subscription must be re-initialized. See *Reinitializing a Subscription* (page 601).
Range Checking	An acceptable range of values allowed for data entry in an inspection field. When a value is entered that falls outside the acceptable range of values, PCS Axis displays a warning message and allows the user to correct the invalid entry.
Remote Earth	A location on the earth far enough from the affected structure that the soil potential gradients associated with currents entering the earth from the affected structure are insignificant.
Replication	See *Merge Replication*.
Resistance	Resistance (R) limits current flow in a given circuit; similar to friction in water pipe.
ROW	Right-of-Way (ROW). Section of land designated for use by a pipeline. The NPMS (National Pipeline Mapping System) refers to ROWs as pipeline corridors.
Segment	User-defined length of pipe over which risk calculations are performed. Sections are specified as a uniform length of pipe (such as 1000 feet, 1 mile, or 1 kilometer) or for certain event changes such as pipe design, class change, or environmentally sensitive areas.
Shunt	A resistor inserted (usually permanently) in a circuit to assist measurement of current. Resistance is very small and does not affect intended operation of the circuit.

Table B-3. Glossary (continued)

Name	Description
SMTP	Simple Mail Transfer Protocol. A data transmission format used to send email.
Soil Resistivity	Aboveground indirect inspection method.
SSL	Secure socket layer (SSL). SSL is a communication protocol used by an email server to transmit information over the Internet in an encrypted form for security purposes. To determine if your email client software supports SSL, contact your company's IT System Administrator.
SSMS	SQL Server Management Studio. A Microsoft software application for working with components of SQL Server and publication and subscription databases when using PCS Axis Synchronization.
Subscription (Subscriber)	Database instance on a remote computer used in merge replication when synchronizing data between the publisher and subscriber databases.
Subscription Expiration Period	See *Publication Retention Period*.
Survey Direction	The direction a close interval survey (CIS) is conducted along a pipeline, usually expressed as upstream (upstation) or downstream (downstation). CIS may be performed in either the upstation or downstation direction. The data shall clearly indicate which direction the survey was conducted.
Survey Interval	Distance between measurements along the pipeline in a close interval survey (CIS).
Synchronization	The process of replicating data between the publisher and subscriber databases. Only data that has changed since the last synchronization is replicated.
User Defined Field	A user defined field (UDF) is a user-created field. UDFs are created when PCS Axis does not provide a field for data entry.

Table B-3. Glossary (continued)

Name	Description
Vac	Volts Alternating Current (Vac).
Vdc	Volts Direct Current (Vdc).
Volt	Unit of measure for voltage (V). Electrical force or pressure. Voltage causes current to flow similar to pressure in a water pipe.
Volt Meter	Analog or digital device that measures electrical voltage or electrical force. Volt meter measurements help identify the potential (like water pressure) at one point relative to another point.
VTG	GPS NEMA message format that provides information about heading and speed (course over ground).
ZDA	GPS NEMA message format that provides UTC and local date/time data. Provides current universal coordinated time and day, month, and year. ZDA is used when performing GPS-synchronized on/off readings.

Notes

C

System Security

PCS Axis security is based on a user role method. A user role is a collection of permissions that tell the system which features a user has access to and whether or not the user is allowed to add, edit, or delete data. The system supports the following PCS Axis installed user roles:

- SysAdmin

- User

- Read Only

The SysAdmin user role has full control of all PCS Axis features and functions. The SysAdmin assigns the SysAdmin, User, or Read Only user role to all other users of the PCS Axis system. User role assignments are set up in User Management (*Tools > User Management*).

The following table identifies system permissions included with the User and Read Only user roles. Information is organized based on PCS Axis menu and menu functions, then by permission level and user role.

Table C-4. Permissions for PCS Axis Installed User Roles

Menu	Function	Permission	User	Read Only
File	File Menu	Access	Yes	Yes
File	Select ROWs	Access	Yes	Yes
File	Select ROWs	Edit (move, rename), Add, Delete	Yes	No
File	Select ROWs	Find, Change, Make Selections, Clear	Yes	Yes
Modules	Modules Menu	Access	Yes	Yes
Modules	CPDM, VM, ACM, ICM, LSM	Access	Yes	Yes

Table C-4. Permissions for PCS Axis Installed User Roles (continued)

Menu	Function	Permission	User	Read Only
Data Entry	Data Entry Menu	Access	Yes	Yes
Data Entry	Edit Module Data	Access	Yes	Yes
Data Entry	Edit Module Data	Edit, Add, Delete	Yes	No
Data Entry	Edit Module Data > Build Survey	Access	Yes	No
Data Entry	Edit Module Data > Mini-grid	Access	Yes	Yes
Data Entry	Edit Module Data > Options	Access	Yes	Yes
Data Entry	Edit Module Data > Public Layout Themes	Access	Yes	Yes
Data Entry	Edit Module Data > Public Layout Themes	Edit, Add, Delete	No	No
Data Entry	Edit Module Data > Private Layout Themes	Access, Edit, Add, Delete	Yes	Yes
Data Entry	Edit Module Data > Public Sort Themes	Access	Yes	Yes
Data Entry	Edit Module Data > Public Sort Themes	Edit, Add, Delete	No	No
Data Entry	Edit Module Data > Private Sort Themes	Access, Edit, Add, Delete	Yes	Yes
Data Entry	Edit Module Data > Public Filter Themes	Access	Yes	Yes
Data Entry	Edit Module Data > Public Filter Themes	Edit, Add, Delete	No	No
Data Entry	Edit Module Data > Private Filter Themes	Access, Edit, Add, Delete	Yes	Yes
Data Entry	Edit Module Data > Ad Hoc Filters	Edit, Add, Delete	Yes	Yes
Data Entry	Define Routes Menu	Access	Yes	Yes
Data Entry	Define Routes	Edit, Add, Delete, Undelete	Yes	No
Data Entry	Define Schedules Menu	Access	Yes	Yes
Data Entry	Define Schedules	Edit	No	No

Table C-4. Permissions for PCS Axis Installed User Roles (continued)

Menu	Function	Permission	User	Read Only
Data Entry	Edit Schedule Settings Menu	Access	Yes	Yes
Data Entry	Edit Schedule Settings	Edit	No	No
Data Entry	Edit ROW Detail Menu	Access	Yes	Yes
Data Entry	Edit ROW Detail	Edit, Add, Delete, Undelete	Yes	No
Data Entry	Survey Folder Maintenance	Access	Yes	Yes
Data Entry	Survey Folder Maintenance	Edit, Add, Delete, Undelete	No	No
Reports/Graphs	Reports/Graphs Menu, Reports, Graphs, Custom Reports	Access	Yes	Yes
Tools	Tools Menu	Access	Yes	Yes
Tools	• Bridge Menu • Bridge	Access, Edit	Yes	No
Tools	Field and UDF Customization Menu	Access	Yes	No
Tools	Field and UDF Customization	Edit, Add, Delete	No	No
Tools	Themes Management Menu	Access	Yes	Yes
Tools	Themes Management	Edit	No	No
Tools	Facility Type Themes Management Menu	Access	Yes	Yes
	Facility Type Themes Management	Edit	No	No
Tools	User Management Menu	Access	No	No
Tools	User Management	Edit	No	No
Tools	Application Schemes Menu	Access	Yes	No
Tools	Application Schemes	Edit	Yes	No
Tools	Options Menu	Access	Yes	No

Table C-4. Permissions for PCS Axis Installed User Roles (continued)

Menu	Function	Permission	User	Read Only
Tools	• Options > Bullhorn • Options > Criteria • Options > Editing • Options > Field Computer • Options > General • Options >Hierarchy • Options > Reports • Options > Security	Edit	No	No
Tools	• Database Cleanup Menu	Access	No	No
Tools	• Database Cleanup > Data Integrity Check • Database Cleanup > Integrity Check Log	Edit	No	No
Field Computer	• Field Computer Menu • Send • Receive • Log	Access	Yes	No
Help	• Help Menu • About PCS • Technical Support	Access	Yes	Yes

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