

# Using Reports and Graphs

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Information in this section 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 section include those in the following list:

- *Considering the Value of PCS Axis Reports*
- *Overview of Reports* (page 711)
- *Quick Start* (page 732)
- *Adding a Custom Report* (page 742)
- *Working with Report Themes and Filter Groups* (page 747)

## 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 712)
- *Report Styles* (page 728)
- *Understanding the Summary Drilldown Report* (page 731)

## 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 712)
- *Module Survey Report* (page 716)
- *Facility Type Reports* (page 718)
- *ROW Reports* (page 722)
- *Continuous Survey Reports* (page 724)

### PCS Axis Reports

Reports available for selection include those in the following list:

- *PCS Axis Schedule Report* (page 713)
- *PCS Axis Delinquency Report* (page 714)
- *PCS Axis Inspections Graph* (page 715)

### 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 16-1).

My Pipeline Company								
PCS Axis Schedule Report								
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401								
Options: Based On: Schedule; [PCS] Email Installed Schedule Types from 1/1/2013 to 9/30/2013								
ROW Code and Pipe	Milepost	Facility Type	Facility ID	Due Date from Schedule	Last Inspection Date From Schedule	Delinquent Date From Schedule	Time Between Surveys From Schedule	Days Until Delinquent
<b>Due Date from Schedule: 1/1/2013</b>								
<b>ROW Code: T-1401</b>								
T-1401	0.000	Test Point		1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	0.001	Rectifier	R-200	1/1/2013	9/14/2006	12/14/2007	12 Months	-2491
		Test Point		1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	1.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	1.500			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	1.627			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	1.750			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	2.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	2.250			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	2.500			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	3.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	3.218			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	3.250			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	3.500			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	4.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	5.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	5.275			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	6.000	Foreign Bond		1/1/2013	7/12/2006	10/12/2007	12 Months	-2174
		Test Point		1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	7.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.500			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.717			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.800	Rectifier	R-201	1/1/2013	9/13/2006	12/13/2007	12 Months	-2492
		Test Point		1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.830			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.957			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	8.979			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	9.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	9.750			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
	10.000			1/1/2013	3/22/2006	6/22/2007	12 Months	-2286
Surveyor _____								

Figure 16-1. 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 16-2).

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.

The following example provides a description of how a facility is identified as delinquent and included in the report.

**Example:** A facility with a 12-month inspection cycle was initially inspected 1/15/2013. The facility became delinquent on 4/15/2014; this includes the 12-month inspection cycle plus the grace period. An inspection was recorded for the facility on 4/27/2014. If the report option labeled *Include only delinquent facilities* is not set, the facility is included in the Delinquency Report because it was delinquent from 4/15 to 4/26.

My Pipeline Company										
PCS Axis Delinquency Report										
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401										
Options: Based On: Selected ROWs; Selected Facility Type Theme: [PCS] P/S Survey; Include only delinquent facilities; Date range 1/1/2013 to 9/30/2013										
ROW Code and Pipe	Milepost	Facility Type	Facility ID	Delinquent Year	Number of Inspections per Calendar Year	First Read	Second Read	Violation Days	Delinquency Months Between Survey	Delinquent Notes
Region: TRANSMISSION										
System: TRANSMISSION SYSTEMS										
ROW Code: T-1401 ROW Name: College Station to Austin										
T-1401	0.000	Test Point				03/22/2006	<09/30/2013>	2293	12	Interval Violation
	0.001	Rectifier	R-200			09/14/2006	<09/30/2013>	2498	2	Interval Violation
		Test Point				03/22/2006	<09/30/2013>	2293	12	Interval Violation
	1.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	1.500					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	1.627					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	1.750					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	2.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	2.250					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	2.500					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	3.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	3.218					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	3.250					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	3.500					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	4.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	5.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	5.275					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	6.000	Foreign Bond				07/12/2006	<09/30/2013>	2181	12	Interval Violation
		Test Point				03/22/2006	<09/30/2013>	2293	12	Interval Violation
	7.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.500					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.717					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.800	Rectifier	R-201			09/13/2006	<09/30/2013>	2499	2	Interval Violation
		Test Point				03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.830					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.957					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	8.979					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	9.000					03/22/2006	<09/30/2013>	2293	12	Interval Violation
	9.750					03/22/2006	<09/30/2013>	2293	12	Interval Violation
Surveyor _____										
				9/24/2013	Page 1/4					

Figure 16-2. 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 16-3). 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*.

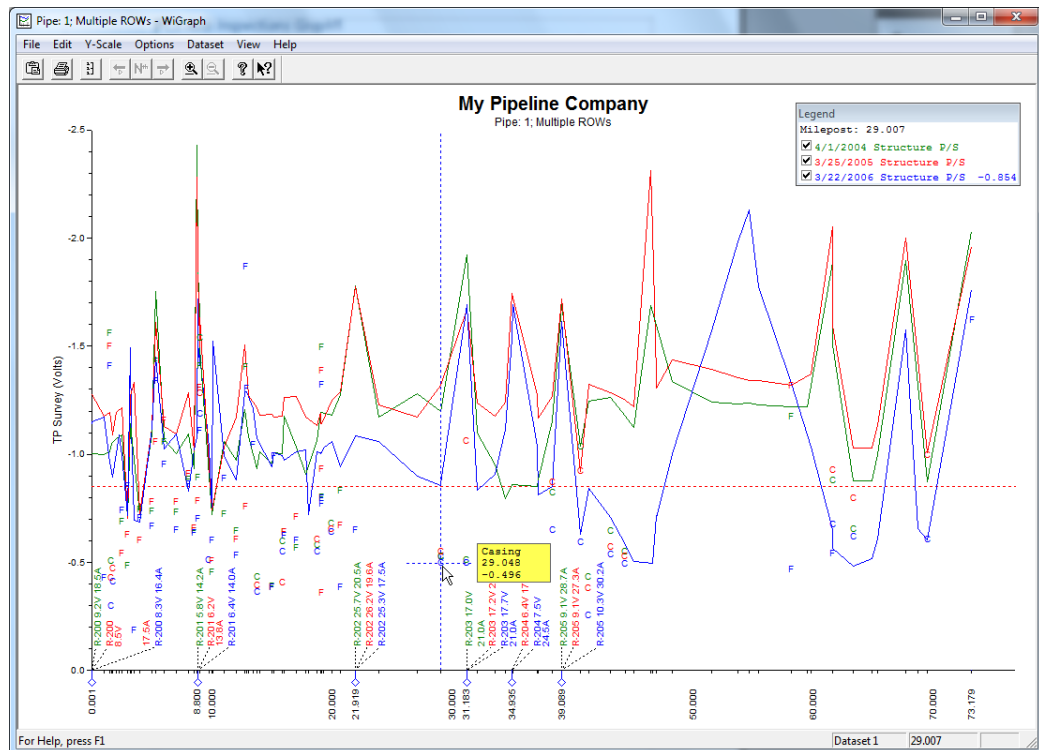


Figure 16-3. Example of PCS Axis Inspections Graph

## Module Reports

Reports available for selection include those in the following list:

- *Module Survey Report* (page 716)
- *Module Data Collection Report* (page 717)

### 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 16-4).

My Pipeline Company											
CPDM Survey Report											
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401											
Options: Based On: Selected ROWs; Selected Facility Type Theme: [PCS] P/S Survey; 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	Facility ID	Milepost	Inspection Date	Structure P/S	Foreign P/S	Casing P/S	Bond Current Found	Rectifier Output Current Found	Rectifier Output Volts Found	Rectifier Negative Inspections	Inspection Remarks
Region: TRANSMISSION											
System: TRANSMISSION SYSTEMS											
ROW Code: T-1401      ROW Name: College Station to Austin											
T-1401		0.000	3/13/2003 12:00:00 AM	-1.019							Misc. piping -1.100
			4/1/2004 12:00:00 AM	-1.002							
			3/25/2005 12:00:00 AM	-1.275							Misc. piping -1.324 (Paint good)
			3/22/2006 12:00:00 AM	-1.141							Misc. piping -1.324 (Paint good)
	R-200	0.001	3/13/2003 12:00:00 AM					18.10	7.30		
			4/1/2004 12:00:00 AM					18.50	9.16		
			12/3/2004 12:00:00 AM					17.00	21.00		
			3/3/2005 12:00:00 AM								
			3/25/2005 12:00:00 AM					17.50	8.54		
			4/7/2005 12:00:00 AM					17.00	8.00		
			5/5/2005 12:00:00 AM					8.00	17.00		
			6/3/2005 12:00:00 AM					20.00	8.00		
			7/7/2005 12:00:00 AM					17.00	6.00		
			8/4/2005 12:00:00 AM					17.00	8.00		
			9/1/2005 12:00:00 AM					17.00	7.80		
			10/6/2005 12:00:00 AM					17.00	8.00		
			11/4/2005 12:00:00 AM					17.00	7.50		
			2/2/2006 12:00:00 AM					7.00	17.00		
			3/1/2006 12:00:00 AM					7.00	18.00		
			4/5/2006 12:00:00 AM					7.00	16.00		
			5/5/2006 12:00:00 AM					16.00	8.00		
			6/8/2006 12:00:00 AM					16.00	7.00		
			6/22/2006 12:00:00 AM					16.40	8.28		
			7/5/2006 12:00:00 AM					17.00	7.00		
			8/18/2006 12:00:00 AM								
			9/14/2006 12:00:00 AM						10.80		
Surveyor _____											
9/24/2013      Page 1/20											

Figure 16-4. 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 16-5).

My Pipeline Company											
CPDM Data Collection Report											
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1401											
Options: Based On: Selected ROWs; Selected Facility Type Theme: [PCS] P/S Survey; Include previous readings											
ROW Code and Pipe	Facility ID	Milepost	Inspection Date	Structure P/S	Casing P/S	Foreign P/S	Insulator P/S	Rectifier Output Volts Found	Rectifier Output Current Found	Inspection Remarks	Technician
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	[ ] [ ]							
	R-200	0.001	[ ] [ ] 9/14/2006 12:00:00 AM					10.80		Misc. piping -1.324 (Paint good)	
		1.000	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]							
		1.500	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.428					
		1.627	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.963	-1.410				
		1.750	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.922	-0.298				
		2.000	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.895	-0.412				
		2.250	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.635				No TP.	
		2.500	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-1.091					
		3.000	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.996	-0.739				
		3.218	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.717	-0.852				
		3.250	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-1.492					
		3.500	[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-1.118					
			[ ] [ ] 3/22/2006 12:00:00 AM	[ ] [ ]		-0.694	-0.184				
Surveyor _____											
9/24/2013    Page 1/8											

Figure 16-5. 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 719)
- *Facility Type Maintenance Report* (page 720)
- *Facility Type Exceptions Report* (page 721)

### 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 16-6).

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 Pit R		Yes	.85 On	Yes	Yes	No	No	
	9.000	Gas Unit #3		Yes	.85 On	Yes	No	Yes	No	
Surveyor _____										
					9/24/2013	Page 1/4				

Figure 16-6. 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 16-7).

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			
Surveyor _____				9/24/2013		Page 1/4				

Figure 16-7. 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 16-8).

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								
Surveyor _____									
9/24/2013      Page 1/5									

Figure 16-8. 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 16-9).

My Pipeline Company											
Test Point Exception Report											
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; T-1403											
Filter Settings: Structure P/S Is less negative than '-0.95'											
Options: Based On: Selected ROWs; Indicate missing inspection readings; Exceptions to include: All exceptions and subsequent improved inspections											
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-1403      ROW Name: Dallas to Houston											
Exception Filter: Structure P/S Is less negative than -0.95											
T-1403	0.507	2/11/2005 12:00:00 AM	2005 Annual Survey		-0.500						
		3/23/2005 12:00:00 AM	2005 Annual Survey		-1.151						
		5/11/2005 12:00:00 AM	2005 Annual Survey		-2.000						
		3/5/2006 12:00:00 AM	2006 Annual Survey		-0.750						
		3/11/2006 12:00:00 AM	2006 Annual Survey		-0.955		-0.955				
	0.607	3/6/2004 12:00:00 AM	2004 Annual Survey		-0.780						
		4/23/2005 12:00:00 AM	2005 Annual Survey		-1.112						Paint good
		3/5/2006 12:00:00 AM	2006 Annual Survey		-1.000						8
	2.798	3/5/2006 12:00:00 AM	2006 Annual Survey		-0.680		-0.670				
		3/7/2006 12:00:00 AM	2006 Annual Survey		-0.090		-0.540				
	5.889	3/5/2006 12:00:00 AM	2006 Annual Survey		-0.878		-0.740				
	7.872	3/5/2006 12:00:00 AM	2006 Annual Survey		-0.821		-0.821				
	8.877	3/6/2004 12:00:00 AM	2004 Annual Survey		-0.891		-0.428				
		2/26/2006 12:00:00 AM	2005 Annual Survey		-1.178		-0.541				
		3/26/2006 12:00:00 AM	2006 Annual Survey		-0.681						
	10.190	3/6/2004 12:00:00 AM	2004 Annual Survey		-0.904		-0.393				Valve BV O-10
		4/23/2005 12:00:00 AM	2005 Annual Survey		-1.143		-0.585				Valve BV O-10 (Paint good)
		1/5/2006 12:00:00 AM			-1.050						
		2/17/2006 12:00:00 AM			-1.120						
		3/5/2006 12:00:00 AM	2006 Annual Survey		-1.102		-0.557				
		3/28/2006 12:00:00 AM			-1.080						
		4/27/2006 12:00:00 AM			-0.950						
		5/24/2006 12:00:00 AM			-0.990						
		6/15/2006 12:00:00 AM			-1.040						
		7/18/2006 12:00:00 AM			-1.090						
		8/26/2006 12:00:00 AM			-1.030						
	20.990	3/6/2004 12:00:00 AM	2004 Annual Survey		-0.906						Valve #3
		3/10/2006 12:00:00 AM	2006 Annual Survey		-1.064						Block valve needs paint.
		7/18/2006 12:00:00 AM	2005 Annual Survey		-1.208						Valve #3 (Paint good)
	54.801	4/25/2003 12:00:00 AM	2003 Annual Survey		-0.630		-0.960				Black -0.96, White -0.63
		3/6/2004 12:00:00 AM	2004 Annual Survey		-0.850						Black -0.602, White -0.523
		4/23/2005 12:00:00 AM	2005 Annual Survey		-1.110						(Old mag bed depleted).
Surveyor _____											
9/24/2013      Page 1/4											

Figure 16-9. 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 723)

### 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 16-10).

My Pipeline Company											
ROW Information Report											
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 4 ROWs; 4 Pipelines											
Options: Based On: Selected ROWs											
ROW Code	ROW Name	Pipe	Pipeline Name	Pipeline Size	Total Footage	Default Location Format	ROW Effective Date	ROW Active	Surface Area	ROW Permanent	Comments
<b>Region: TRANSMISSION</b>											
<b>System: TRANSMISSION SYSTEMS</b>											
<b>ROW Code: T-1401</b>											
T-1401	College Station to Austin	1		12.00	390720	Milepost (3 Decimals)		Yes			
<b>ROW Code: T-1401</b>		Records: 1									
<b>ROW Code: T-1403</b>											
T-1403	Dallas to Houston	1		24.00	992640	Milepost (3 Decimals)		Yes			
<b>ROW Code: T-1403</b>		Records: 1									
<b>ROW Code: T-1701</b>											
T-1701	Kilgore to Henderson	1				Station Number		Yes			
<b>ROW Code: T-1701</b>		Records: 2									
							2/12/2007	No			
<b>ROW Code: T-1903</b>											
T-1903	Station 400 to Station 401	1		24.00	992640	Milepost (3 Decimals)		Yes			
<b>ROW Code: T-1903</b>		Records: 1									
<b>System: TRANSMISSION SYSTEMS</b>			Records: 5								
<b>Region: TRANSMISSION</b>		Records: 5									
<b>Total Records: 5</b>											
Surveyor _____											
					9/24/2013	Page 1/1					

**Figure 16-10. 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 16-11).

My Pipeline Company										
ROW Maintenance Report										
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 3 ROWs; 3 Pipelines										
Options: Based On: Selected ROWs; Filter Options: All maintenance that meet the filter criteria										
ROW Code	Pipe	ROW Effective Date	ROW Active	ROW Repair Code	ROW Repair Found Date	ROW Repair Initiated Date	ROW Repair Corrected Date	ROW Repair Remarks	ROW Reference Number	
<b>Region: TRANSMISSION</b>										
<b>System: TRANSMISSION SYSTEMS</b>										
<b>ROW Code: T-1401</b>										
T-1401	1		Yes	RC101	9/9/2013	9/10/2013	9/10/2013	routine maintenance	Ref-101	
<i>ROW Code: T-1401</i>		Records: 1								
<b>ROW Code: T-1403</b>										
T-1403	1		Yes	RC102	9/17/2013	9/18/2013	9/19/2013	routine maintenance	Ref-201	
<i>ROW Code: T-1403</i>		Records: 1								
<b>ROW Code: T-1903</b>										
T-1903	1		Yes	RC203	9/20/2013	9/20/2013	9/20/2013	routine maintenance	Ref-301	
<i>ROW Code: T-1903</i>		Records: 1								
<b>System: TRANSMISSION SYSTEMS</b>										
Records: 3										
<b>Region: TRANSMISSION</b>										
Records: 3										
<b>Total Records: 3</b>										
Surveyor _____										
					9/24/2013	Page 1/1				

**Figure 16-11. Example of ROW Maintenance Report**

## Continuous Survey Reports

Reports available for selection include those in the following list:

- *PCS Axis Inspections Graph* (page 715)
- *Continuous Survey Report* (page 724)
- *Continuous Survey Folders Report* (page 726)
- *CIS Criteria Report (Continuous Survey)* (page 727)

### 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 ROWs* window. See Figure 16-12 and Figure 16-13, page 725.

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		

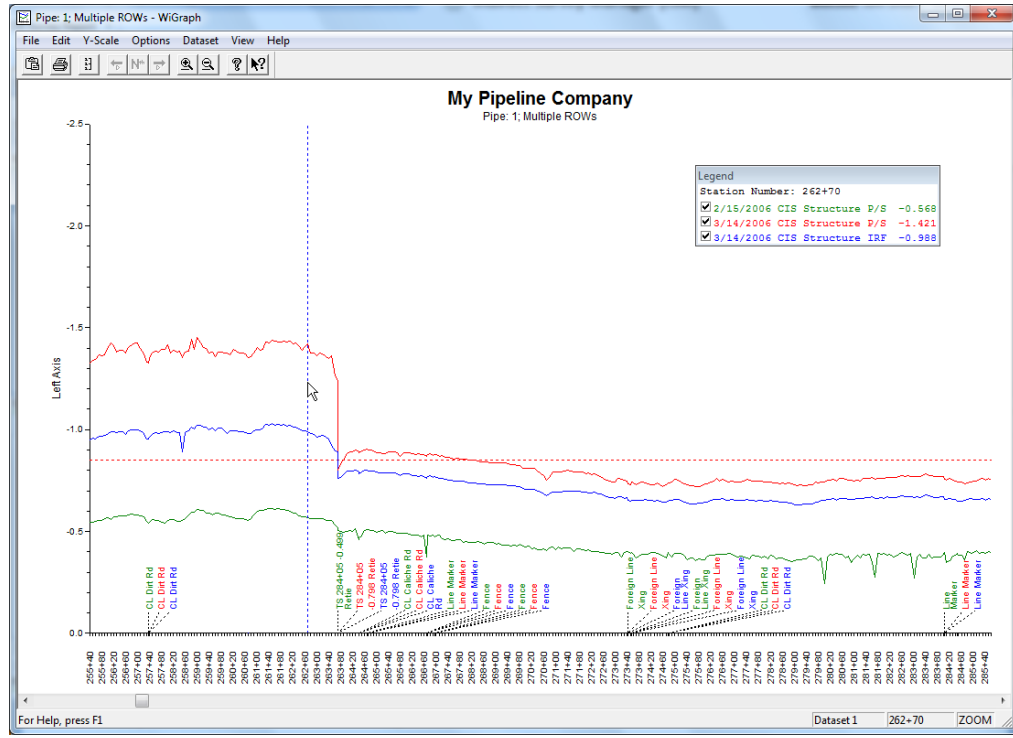
Surveyor \_\_\_\_\_

9/24/2013 Page 1/291

**Figure 16-12. 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 16-13).



**Figure 16-13. 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 16-14).

My Pipeline Company								
CIS Survey Folders Report								
Selected ROWs: Northwest Region; LB123; 3 ROWs; 3 Pipelines								
Options: Based On: Selected ROWs								
ROW Code and Pipe	CI Survey Name	Start Date	Number of Readings in Survey	Survey Interval	Total Footage	Surveyor	Vendor	
LB123-A	160PN NASCORP 2005	4/1/2005	25596	2.5	69147	NASC	Smith CP Services	
LB123-A	160PN 2008 - FOLLOW-UP	10/24/2008	6864	2.5	69147	CEM	CP Services CEM	
LB123-B	1844+17 to 1841+67	8/31/2009	55	2.5	154213	BDP		
LB123-B	oo to 250	8/31/2009	41	2.5	154213	BDP		
LB123-B	00-250	9/8/2009	42	2.5	154213	BDP		
LB123-C	243817 TO 244017	6/22/2009	41	5.0	362123	BDP	Smith CP Services	
LB123-C	249755 TO 249955	6/22/2009	41	5.0	362123	BDP		
LB123-C	249755 TO 249955 WOB	6/22/2009	40	5.0	362123	BDP		
LB123-C	45.6373 TO 45.6752	6/22/2009	41	5.0	362123	BDP		
<b>Total Records: 9</b>								
Surveyor _____								
9/24/2013 Page 1/1								

**Figure 16-14. 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 16-15).

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		
Surveyor										

Figure 16-15. 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 729)
- *Graph Report Style* (page 730)

### Columnar Report Style

The columnar report style is similar to a spreadsheet with report data organized in columns and rows (Figure 16-16). 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.

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						
	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			-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						West of Big Brown tie-in. BV-F76.
	8.979		3/22/2006 12:00:00 AM	2006 Annual Survey	-1.409	-1.186				
Surveyor _____										
				9/24/2013	Page 1/4					

Figure 16-16. 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 16-17).

**My Pipeline Company**  
Test Point Inspection Report  
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 7 ROWs; 7 Pipelines  
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

System	ROW Code	Active TPs	TPs Surveyed	Percent Surveyed	TPs Below Criteria	TPs Above Criteria	TPs Requiring P/S	Percent Above Criteria - TPs
TRANSMISSION SYSTEMS	T-1400	40	39	98%	1	38	40	95%
	T-1401	102	100	98%	23	64	101	63%
	T-1403	137	125	91%	12	108	134	81%
	T-1600	5		0%				0%
	T-1700			0%				0%
	T-1701			0%			48	0%
	T-1903	136	124	91%	12	107	133	80%
TRANSMISSION SYSTEMS Total		420	388	92%	48	317	456	70%

Page 1/1

**Figure 16-17. 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 16-18).

**My Pipeline Company**  
Test Point Inspection Report  
Selected ROWs: TRANSMISSION; TRANSMISSION SYSTEMS; 7 ROWs; 7 Pipelines  
Filter Settings: Survey Is equal to '2006 Annual Survey'  
Options: Based On: Selected ROWs; Filter Options: All inspections that meet the filter criteria

System	ROW Code	TPs Above Criteria	TP Above Criteria
TRANSMISSION SYSTEMS	T-1400	38	35.191
	T-1401	64	55.401
	T-1403	108	166.895
	T-1600		0%
	T-1700		0%
	T-1701		0%
	T-1903	107	166.895
TRANSMISSION SYSTEMS Total		317	424.382

Count	System	ROW Code	Pipe	Milepost	Inspection Date	TPs Above Criteria	Percent Above Criteria - Miles
1	TRANSMISSION SYSTEMS	T-1400	1	0.000	2/19/2006	35.191	99%
2	TRANSMISSION SYSTEMS	T-1400	1	0.500	2/19/2006	55.401	76%
3	TRANSMISSION SYSTEMS	T-1400	1	0.869	2/19/2006	166.895	89%
4	TRANSMISSION SYSTEMS	T-1400	1	1.000	2/19/2006		0%
5	TRANSMISSION SYSTEMS	T-1400	1	1.028	2/19/2006		0%
6	TRANSMISSION SYSTEMS	T-1400	1	1.100	2/19/2006	166.895	89%
7	TRANSMISSION SYSTEMS	T-1400	1	2.000	2/19/2006	424.382	81%
8	TRANSMISSION SYSTEMS	T-1400	1	2.041	2/19/2006		
9	TRANSMISSION SYSTEMS	T-1400	1	3.000	2/19/2006		
10	TRANSMISSION SYSTEMS	T-1400	1	3.343	2/19/2006		
11	TRANSMISSION SYSTEMS	T-1400	1	4.000	2/19/2006		
12	TRANSMISSION SYSTEMS	T-1400	1	5.000	2/19/2006		
13	TRANSMISSION SYSTEMS	T-1400	1	6.000	2/19/2006		
14	TRANSMISSION SYSTEMS	T-1400	1	6.259	2/19/2006		
15	TRANSMISSION SYSTEMS	T-1400	1	7.000	2/19/2006		

**Figure 16-18. 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.

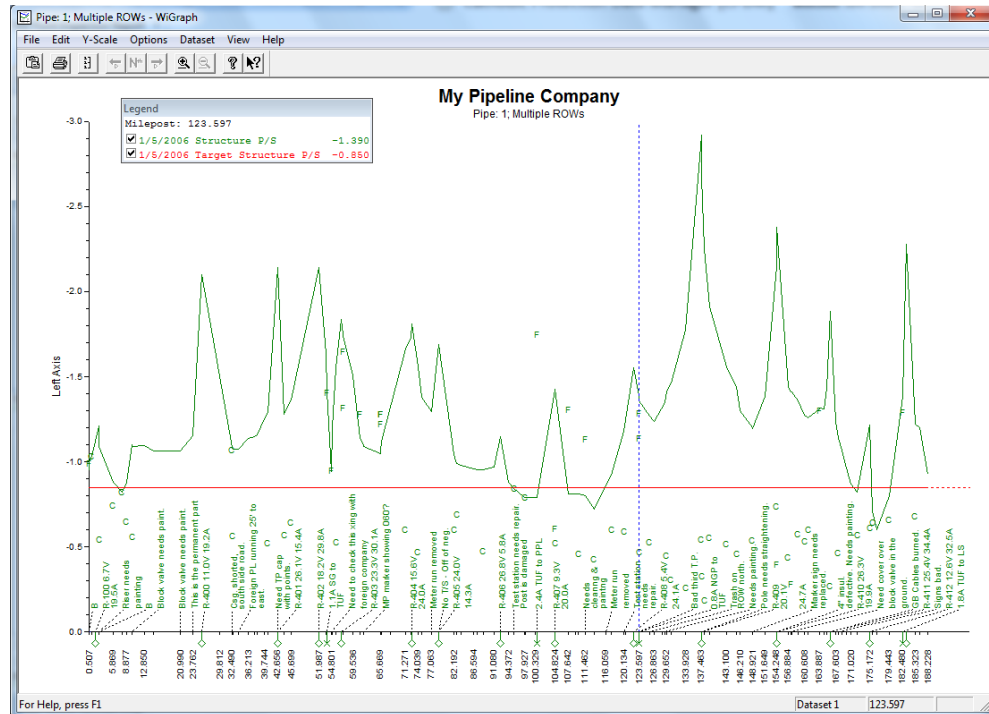


Figure 16-19. Example of Graph Report Style

## Understanding the Summary Drilldown Report

The *Summary* report includes the *Drilldown* option for displaying data in an interactive pivot table format (Figure 16-20). 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 16-18). 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.

- 1 Add/Remove Filter Fields
- 2 Filter Buttons
- 3 Source Data
- 4 Totals & Sub-totals
- 5 Add/Remove Filter Columns
- 6 Filter Columns

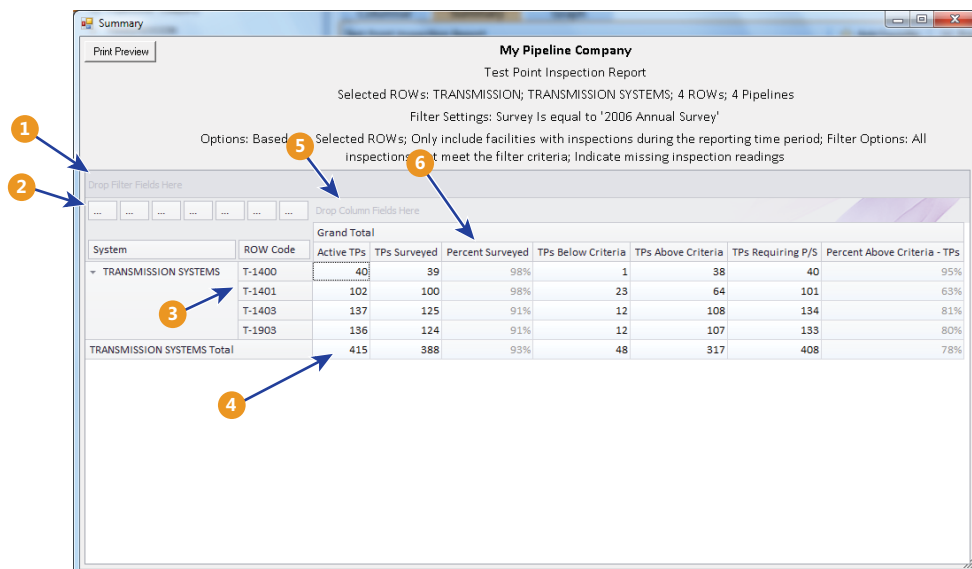


Figure 16-20. Summary Drilldown

## 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:

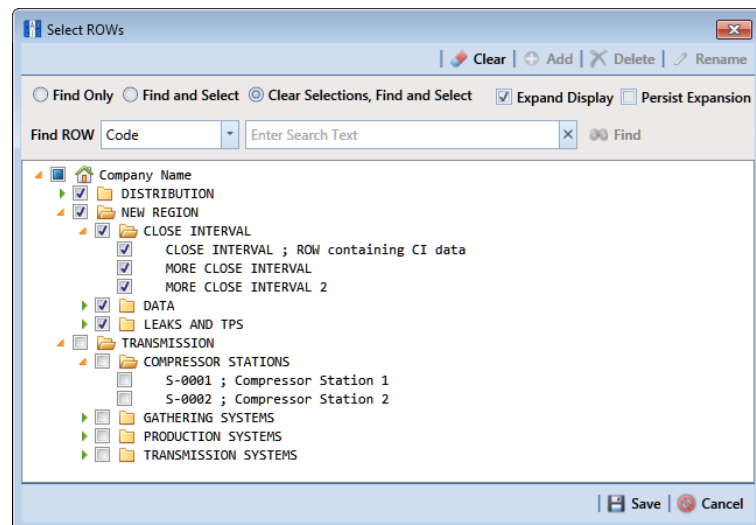
- *Working with a Report Based on the Columnar Report Style*
- *Working with a Report Based on the Summary Report Style* (page 736)
- *Working with a Report Based on the Graph Style* (page 740)

### 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:

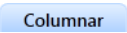
Complete the following steps:

- 1 Select one or more pipeline segments in the *Select ROWs* window (Figure 16-21). Choose pipeline segment(s) with facilities you want to include in the report. Click  **Save** to close the window.

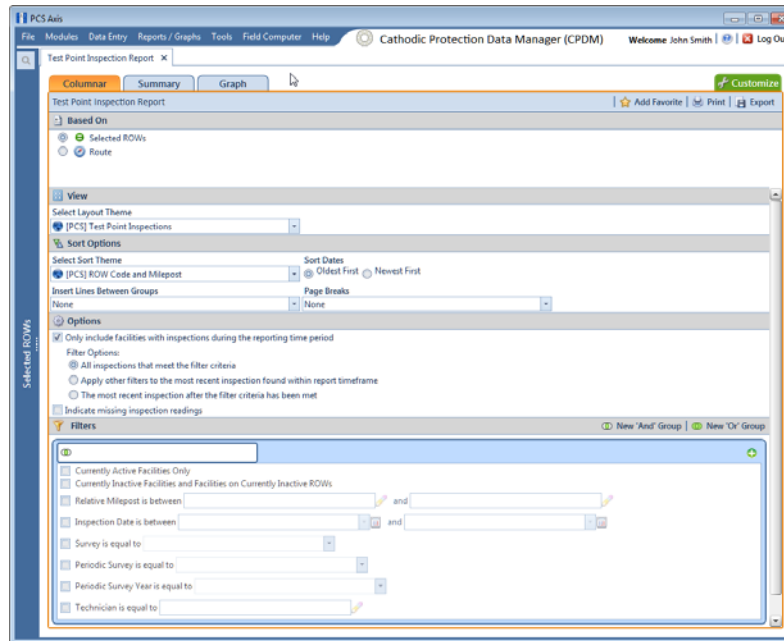


**Figure 16-21. Select ROWs**



- 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  to open the window (Figure 16-22, page 733).

The following figure shows an example of the *Columnar* property settings window for the *Test Point Inspection Report* (Figure 16-22, page 733).



**Figure 16-22. Test Point Inspection Report**

- 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.

---

**NOTE:** Only public themes are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

---

- 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.
- 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 **Currently Active Facilities Only** to only include currently 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:

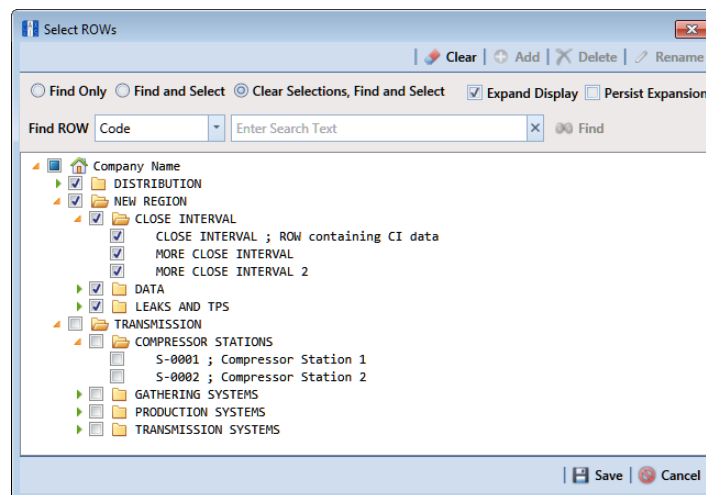
- a** Click  **Print** to open the report in a preview window.
- b** To print the report using the default printer set up in Windows, click the  **Quick Print** button. To select a printer other than the default printer, click the  **Print** button.

## Working with a Report Based on the Summary Report Style

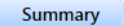
The following procedure explains how to set up and print or export a report based on the *Summary* report style. Also included are instructions for using the optional *Drilldown* feature.

Complete the following steps:

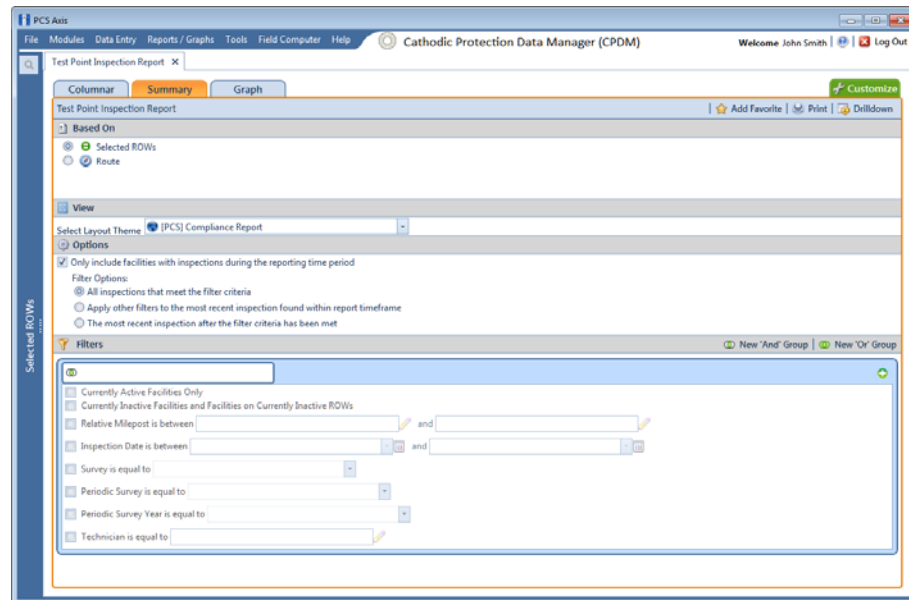
- 1** Select one or more pipeline segments in the *Select ROWs* window (Figure 16-23). Select pipeline segment(s) with facilities you want to include in the report. Click  **Save** to close the window.



**Figure 16-23. Select ROWs**

- 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  to open the window.

The following figure shows an example of the *Summary* property settings window for the *Test Point Inspection Report* (Figure 16-24).



**Figure 16-24. Test Point Inspection Report (Summary)**

- 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.

**NOTE:** Only public themes are available for selection. If you would like to use a private theme, your company's system administrator must make your private theme a public one.

- 5 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.

- 6 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:



- 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.

---


- 7 Select additional filters in the *Filters* group box as required. For example, click **Currently Active Facilities Only** to only include active facilities in the report.
- 8 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 731) for a description of operations you can perform in the pivot table.

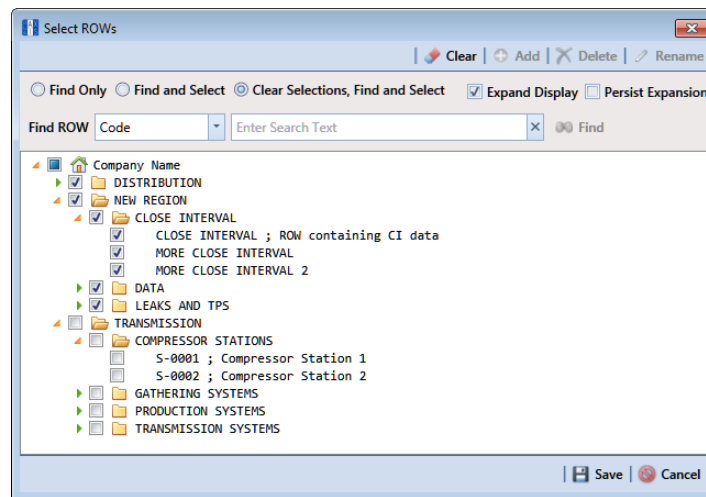
- 11 To print the report:
- a Click  **Print** to open the report in a preview window.
  - b To print the report using the default printer set up in Windows, click the  **Quick Print** button. To select a printer other than the default printer, click the  **Print** button.

## Working with a Report Based on the Graph Style

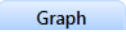
Complete the following steps to set up and print or export a report based on the *Graph* report style:

Complete the following steps:

- 1 Select one or more pipeline segments in the *Select ROWs* window (Figure 16-25). Choose pipeline segment(s) with facilities you want to include in the graph. Click  **Save** to close the window.



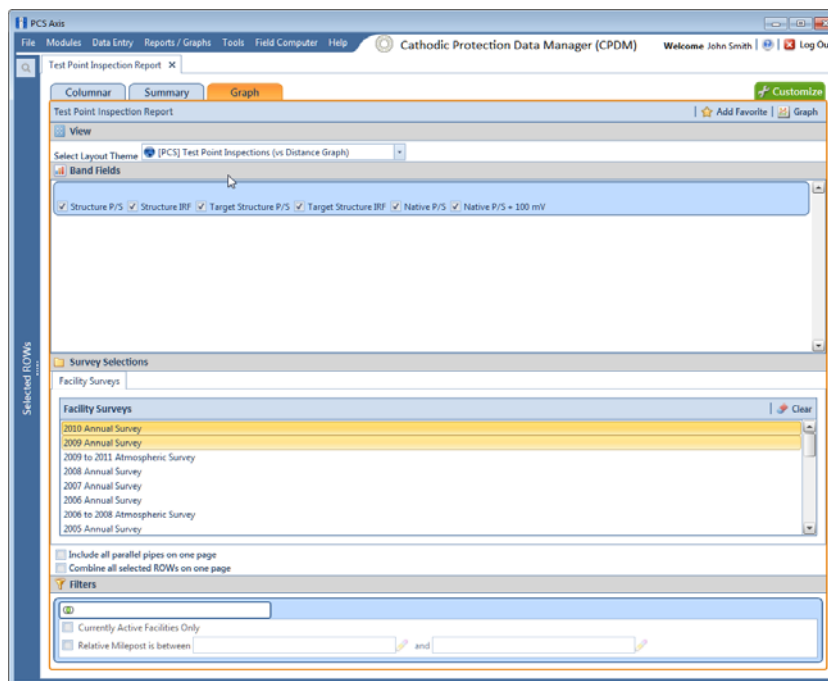
**Figure 16-25. Select ROWs**

- 2 Click **Reports/Graphs** and select a report in the menu.
- 3 Click the **Graph** tab  to open a property settings window. For example, the next figure shows the property settings window for the *Test Point Inspection* graph (Figure 16-26, page 741).
- 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 **Currently Active Facilities Only** to only include currently active facilities in the graph.





**Figure 16-26. 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.


---

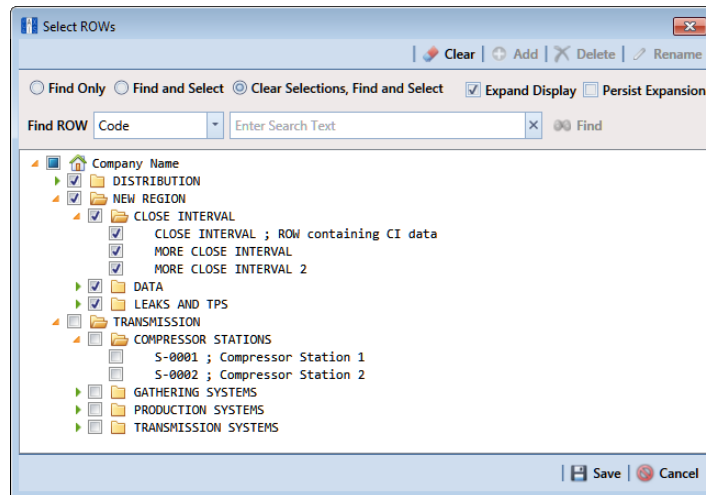
- 11 To view the graph, click  **Graph** to open the graph in a preview window. Then click the  **Print** button to print the graph.

## 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 697).

Complete the following steps:

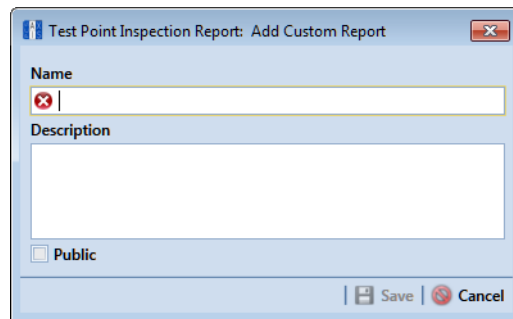
- 1 Select one or more pipeline segments in the *Select ROWs* window (Figure 16-27). Choose pipeline segment(s) with facilities you want to include in the report. Click  **Save** to close the window.



**Figure 16-27. Select ROWs**

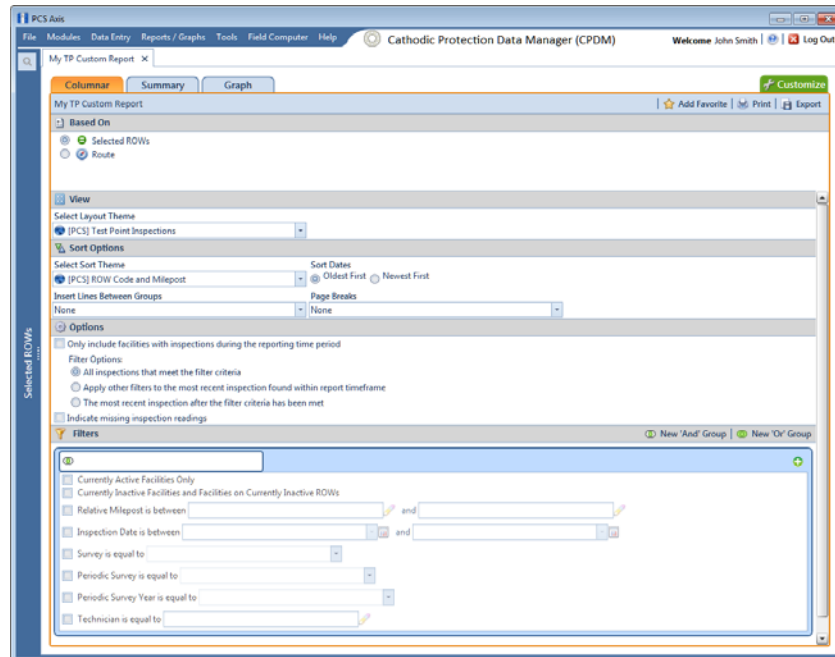
- 2 Click **Reports/Graphs**, navigate to a report in the list, then click **Add Report**.

For example, click *Reports/Graphs > Test Point Reports > Test Point Inspection Report > Add Report* to open the *Add Custom Report* dialog box (Figure 16-28).



**Figure 16-28. Add Custom Report**

- 3 Type a name for the report in the **Name** field. This field is required.
- 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**.
- 7 When the report options window opens (Figure 16-29), select one of the following options to choose which facility records to include in the report:



**Figure 16-29. Custom Report Options**

- 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.
- 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 747).

---

- 9 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.
- 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.

- *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 **Currently Active Facilities Only** to include only currently 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:

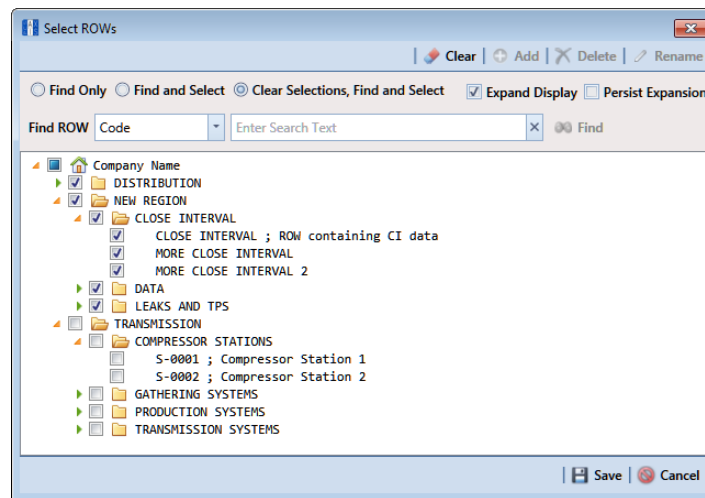
- *Adding a Columnar Report Layout Theme* (page 748)
- *Adding a Summary Report Layout Theme* (page 753)
- *Adding a Report Sort Theme* (page 757)
- *Adding an AND Filter Group* (page 762)
- *Adding an OR Filter Group* (page 765)
- *Editing and Arranging Filter Groups* (page 769)

## 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 (Figure 16-30). Select pipeline segment(s) with facilities you want to include in the report. Click  **Save** to close the window.


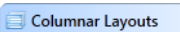


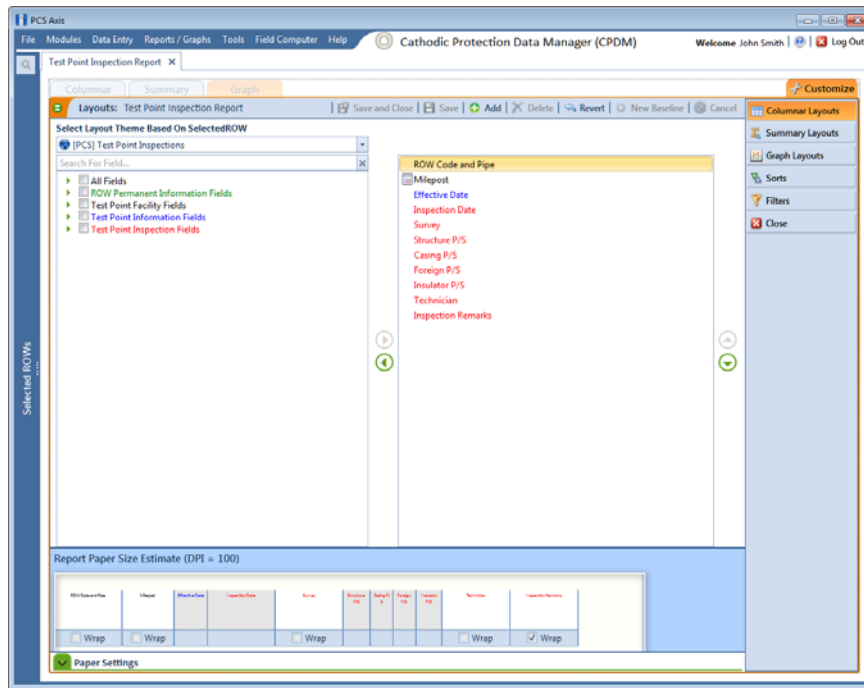
**Figure 16-30. Select ROWs**

- 2 Select 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 Reports > Test Point Inspection Report*.




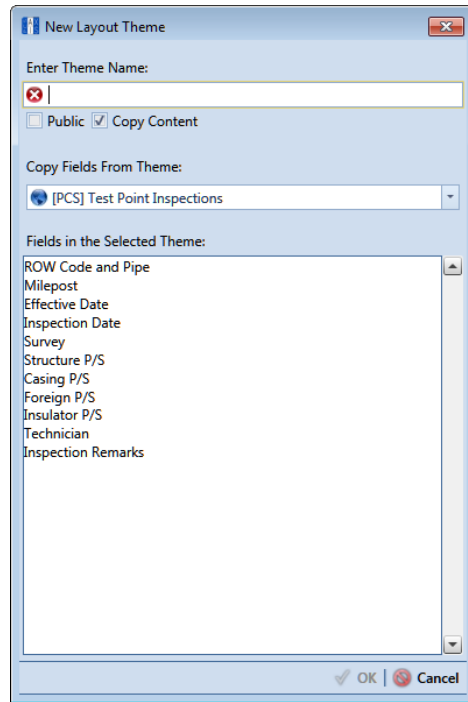
- 3 Click the **Customize** tab  and then the **Columnar Layouts** button  to open the *Layouts* page (Figure 16-31).



**Figure 16-31. Report 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 16-32).






**Figure 16-32. New Layout Theme**




- 5 Type a name for the layout theme in the field **Enter Theme Name**. This field is required.
- 6 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.

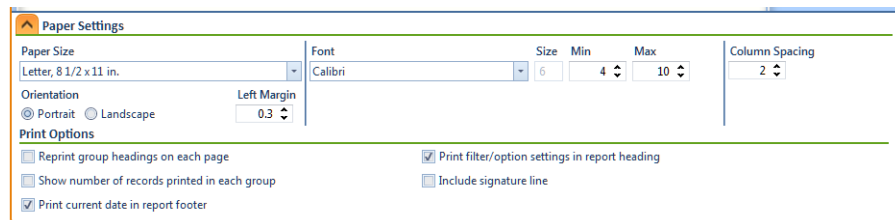
---

**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.
- 9 Complete the following steps to add and remove fields in the report layout theme as needed (Figure 16-33):
  - 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**.

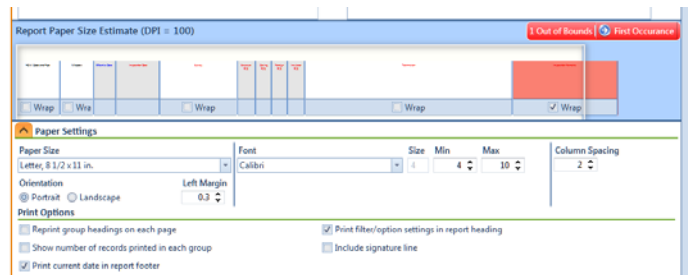
- b** Double-click a field in the left pane to move it to the right pane. Repeat this step as needed. The report layout theme includes all fields in the right pane of the *Layouts* page.
  - c** To remove a field in the layout theme, double-click a field in the right pane to move it to the left pane. 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.
- 10** Click the **Wrap** check box in *Report Paper Size Estimate* for each field you want text to wrap, such as *Inspection Remarks*.
- 11** Click  **Paper Settings** to open the property settings panel (Figure 16-33).




**Figure 16-33. Paper Settings**

- 12** 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.

- 13 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 .
  - 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 (Figure 16-34). Click and drag the column boundary to make adjustments as needed to clear the message.



**Figure 16-34. Out of Bounds Warning**

- 14 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*.
- 15 Click  **Save and Close** to save changes and return to the report options window.
- 16 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

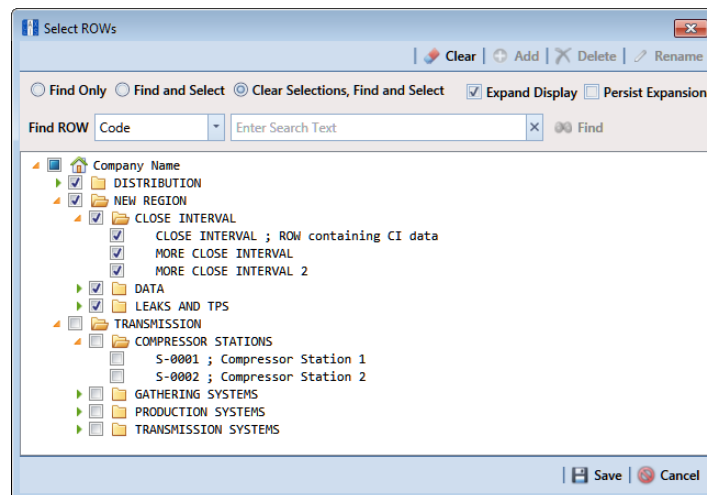
A layout theme is a group of named settings saved for later use. You can define a *Summary* layout theme with report settings that define the table row, column, and data fields as well as the aggregate functions (average, sum, count, and percentage) used to calculate data fields in a *Summary* report. 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.

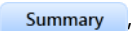

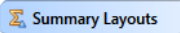
A *Summary* report presents data in a cross tab table view. It provides a “big picture” of pipeline and facility data by summarizing and analyzing the data. You can control how PCS Axis summarizes the data, for example by sum, average, count, or percentage. Using a *Summary* report can help with analyzing 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 (Figure 16-35). Choose pipeline segment(s) with facilities you want to include in the report. Click  **Save** to close the window.



**Figure 16-35. Select ROWs**

- 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 16-36, page 754).

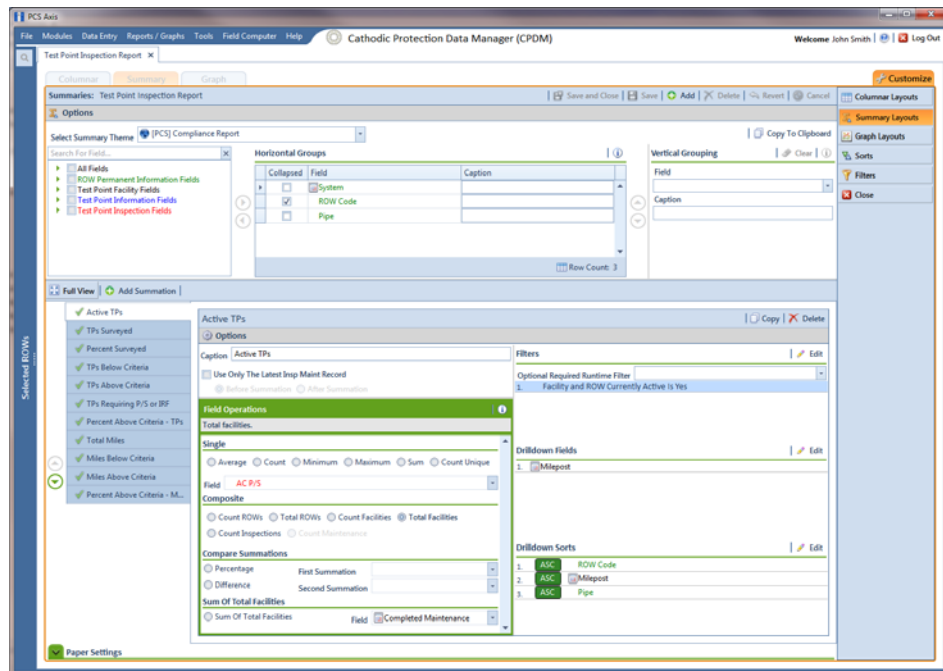


Figure 16-36. Summary Layouts

- 5 Click  **Add** to open the *New Summary* dialog box (Figure 16-37).

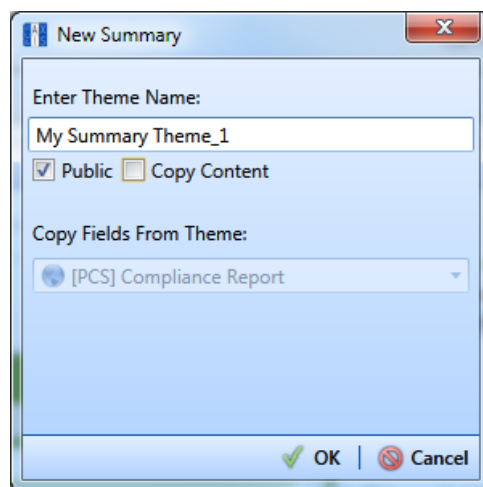



Figure 16-37. New Summary



- 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 **step 12 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 747) 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**  to sort data in ascending order or **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 (Figure 16-38). Choose pipeline segment(s) with facilities you want to include in the report. Click  **Save** to close the window.

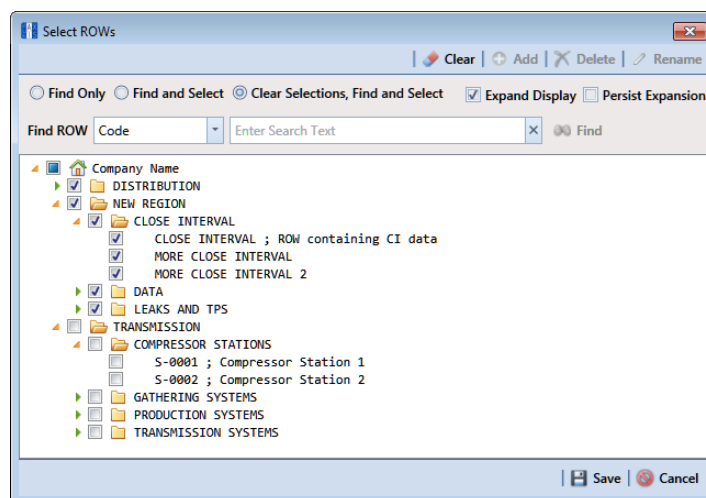
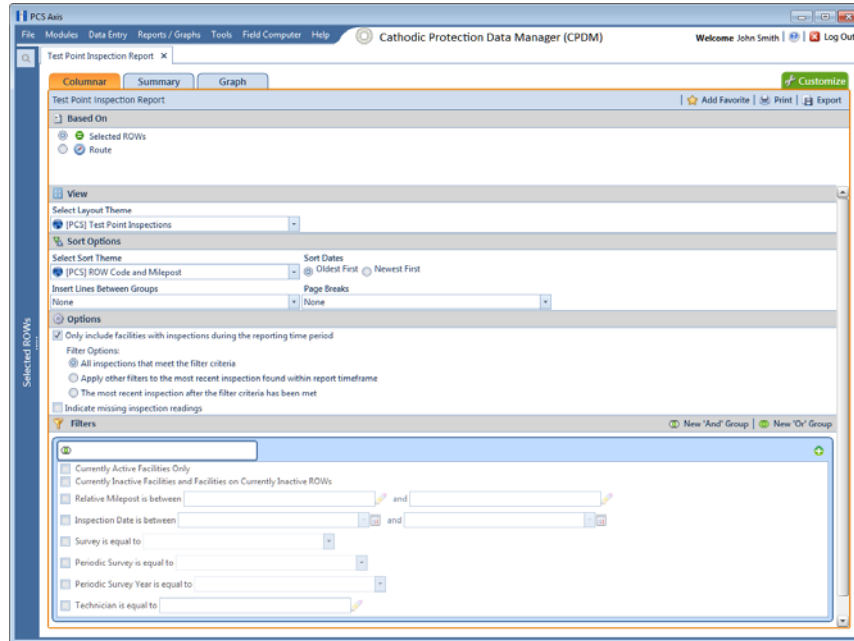

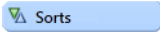


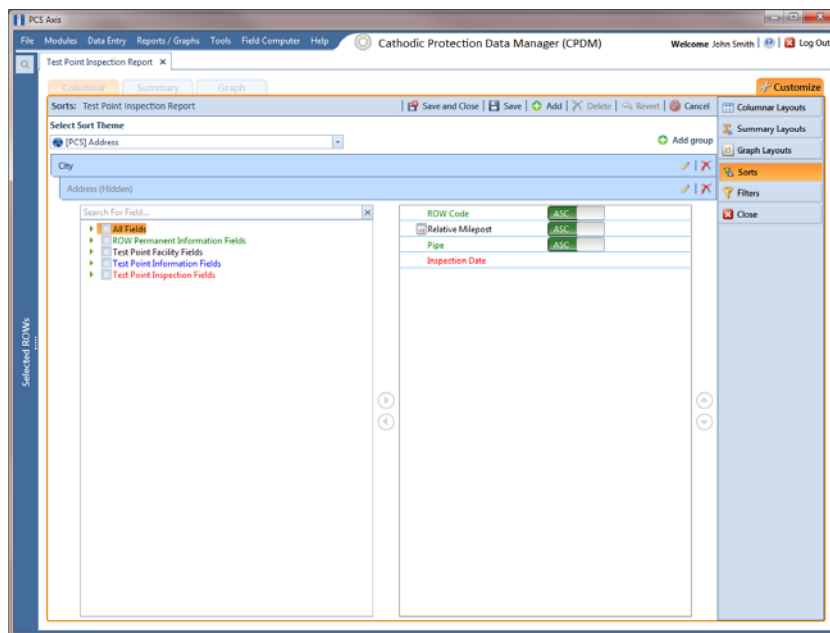
Figure 16-38. Select ROWs

- Choose the report you want to work with in the *Reports/Graphs* menu. Click **Reports/Graphs** and then select a report, such as *Test Point Inspection Report*, to open the report options window (Figure 16-39).




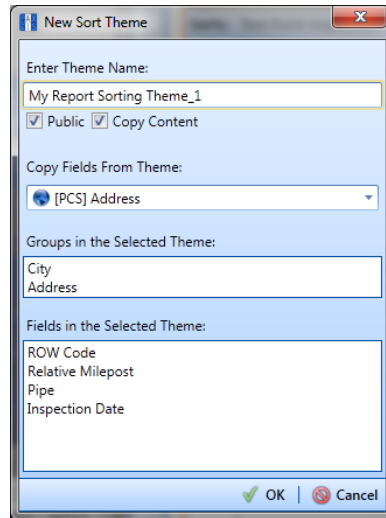
**Figure 16-39. Report Options**

- Click the **Customize** tab  then the **Sorts** button  to open the *Sorts* page (Figure 16-40).



**Figure 16-40. Sorts**

- 4 Click  **Add** to open the *New Sort Layout* dialog box (Figure 16-41).






**Figure 16-41. 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 16-42, page 761).

---

**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 16-42, page 761).
- 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** . To sort in descending order, click the toggle button to select **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.

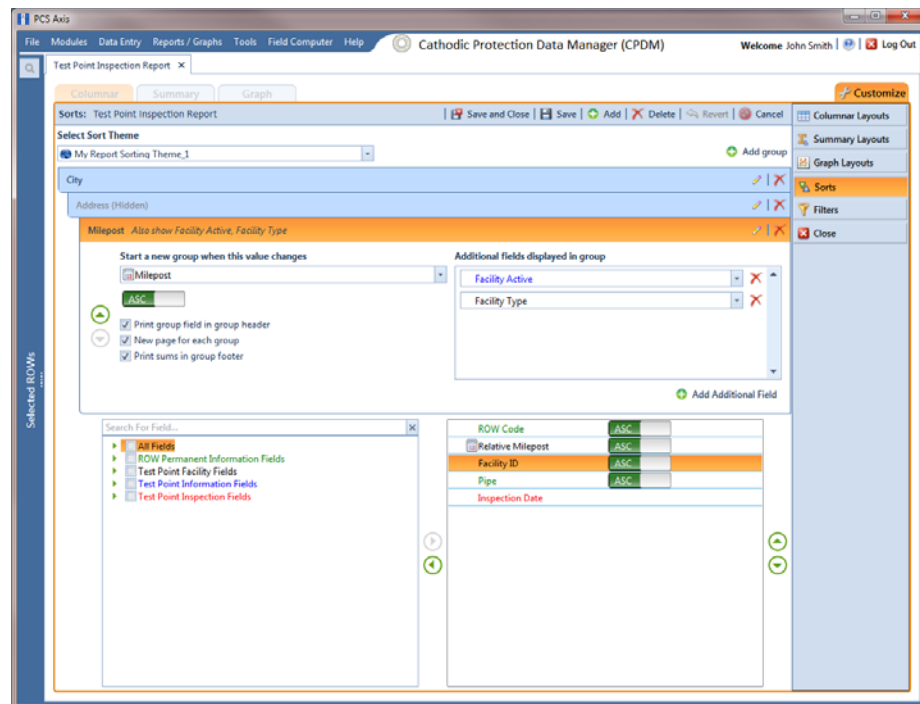



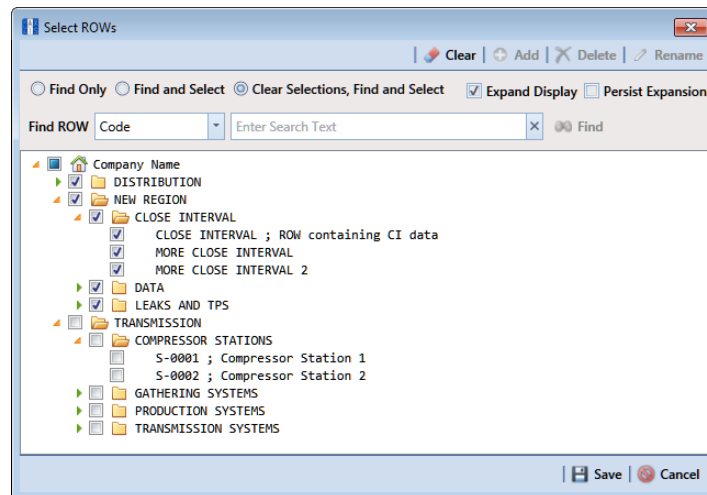
Figure 16-42. Sort Theme Groups

## 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.

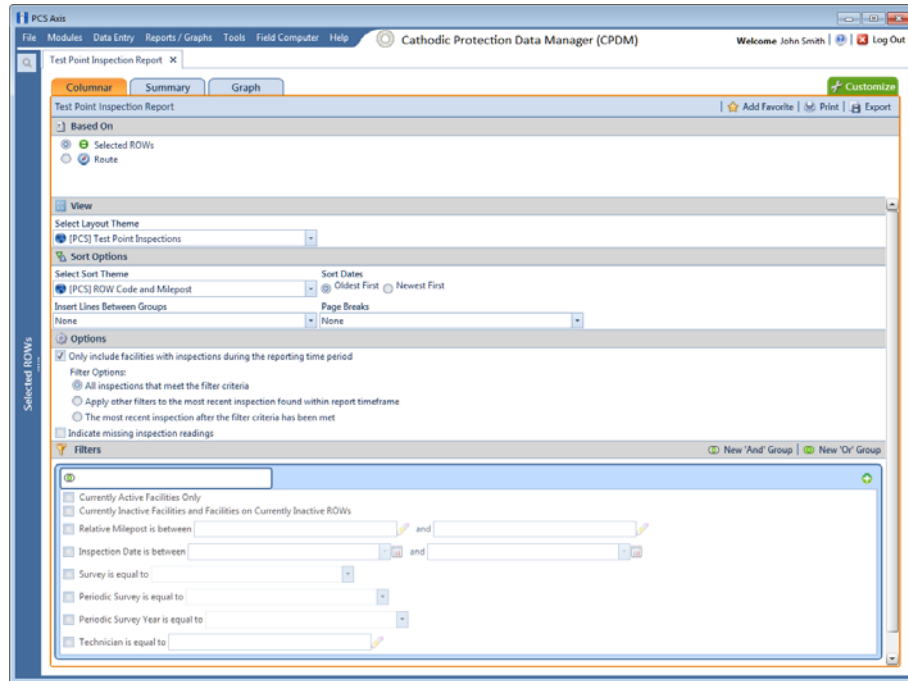
To add an AND filter group, follow these steps:

- 1 Select one or more pipeline segments in the *Select ROWs* window (Figure 16-43). Click  **Save** to close the window.


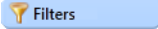


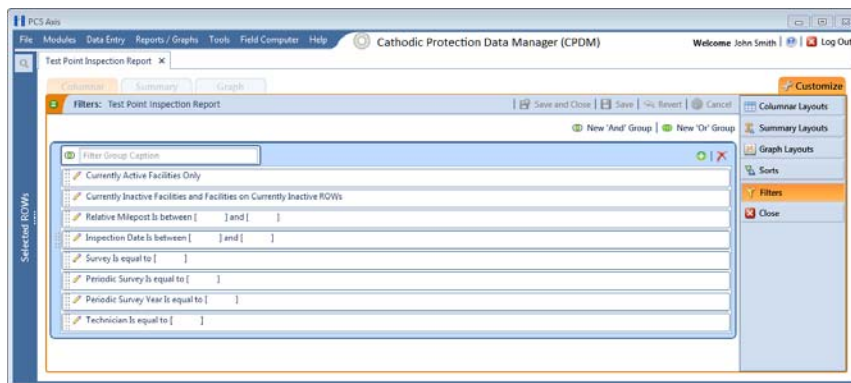
**Figure 16-43. Select ROWs**

- 2 Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report, such as *Test Point Inspection Report*, to open the report options window (Figure 16-44).




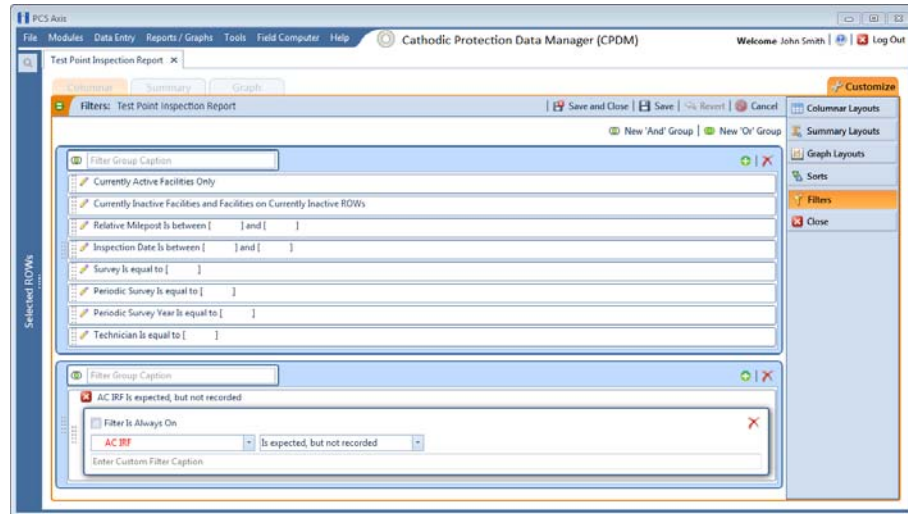
**Figure 16-44. Report Options**

- 3 Click the **Customize** tab  **Customize**, and then the **Filters** button  **Filters** to open the *Filters* page (Figure 16-45).



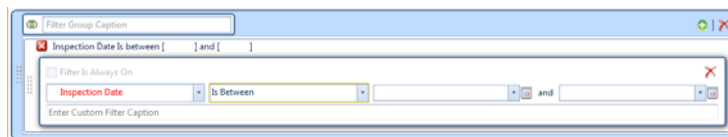
**Figure 16-45. Filters**

- 4 Click  **New 'And' Group** to open the filter properties group box (Figure 16-46).




**Figure 16-46. New ‘And’ Filter Group**




- 5 Type a name for the filter group in the **Filter Group Caption** field.
- 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* (Figure 16-47), set a date range using a calendar or dynamic dates in the following manner:



**Figure 16-47. Inspection Date Is Between ‘And’ Filter**

- 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 **step 5** through **step 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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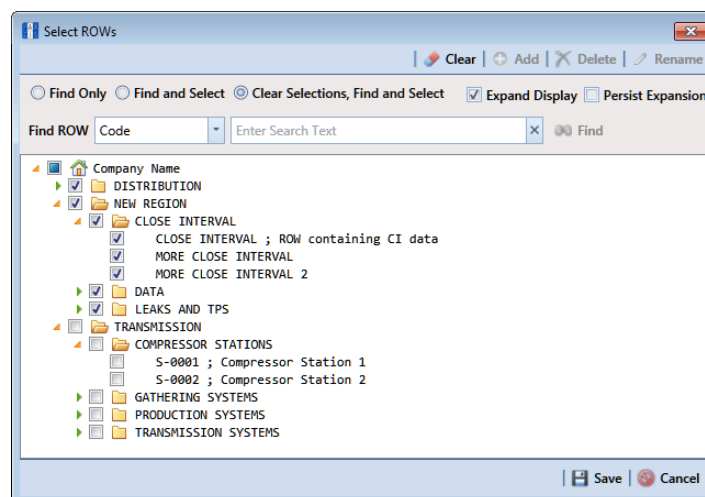
- 12** Click  **Save and Close** to return to the report options window.

## 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 (Figure 16-48). Click  **Save** to close the window.



**Figure 16-48. Select ROWs**

- Choose the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report, such as *Test Point Inspection Report*, to open the report options window (Figure 16-49).

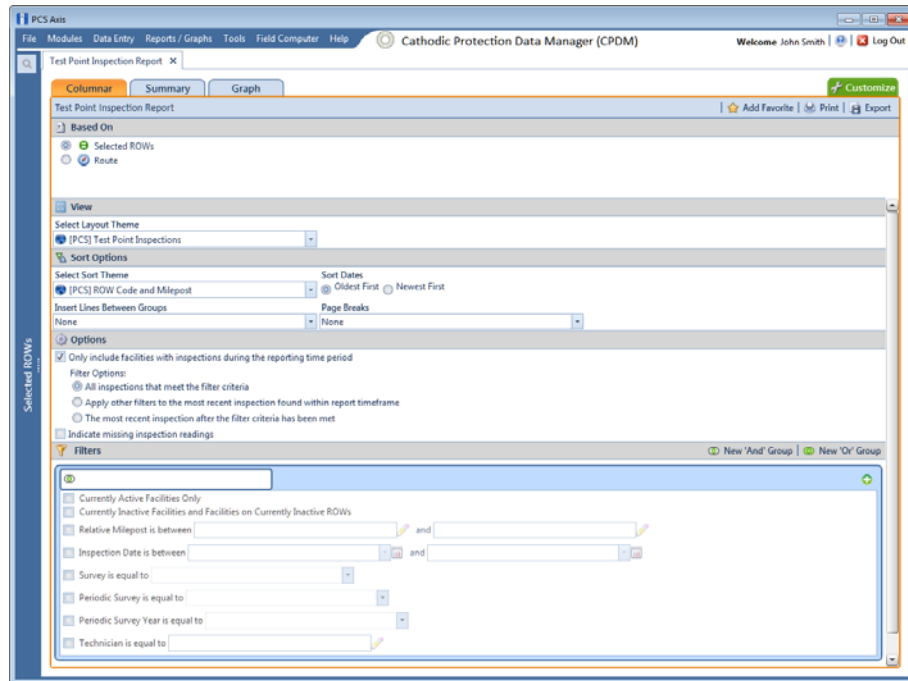

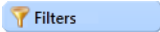


Figure 16-49. Report Options

- Click the **Customize** tab  then the **Filters** button  to open the *Filters* page (Figure 16-50).

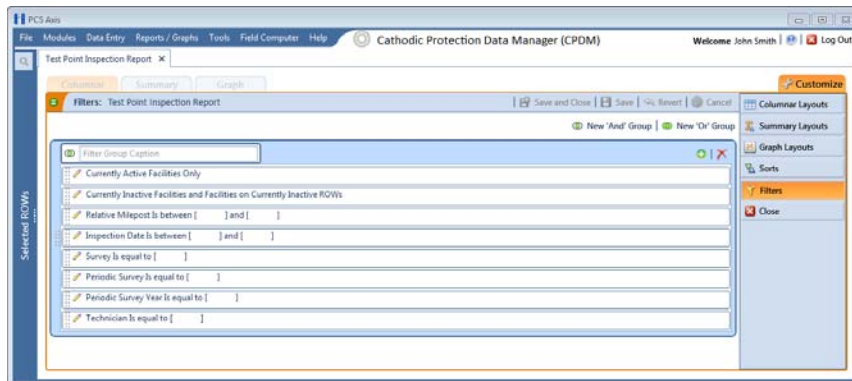

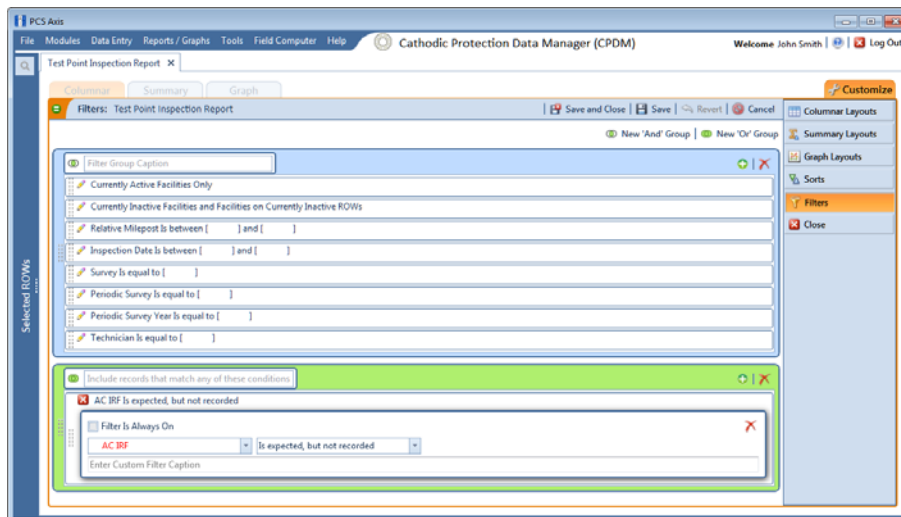


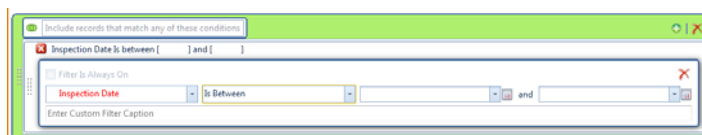
Figure 16-50. Filters

- Click  **New 'Or' Group** to open a filter properties group box (Figure 16-51).







**Figure 16-51. 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* (Figure 16-52), set a date range using a calendar or dynamic dates in the following manner:



**Figure 16-52. Inspection Date Is Between 'Or' Filter**


- 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 **step 5** through **step 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.

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


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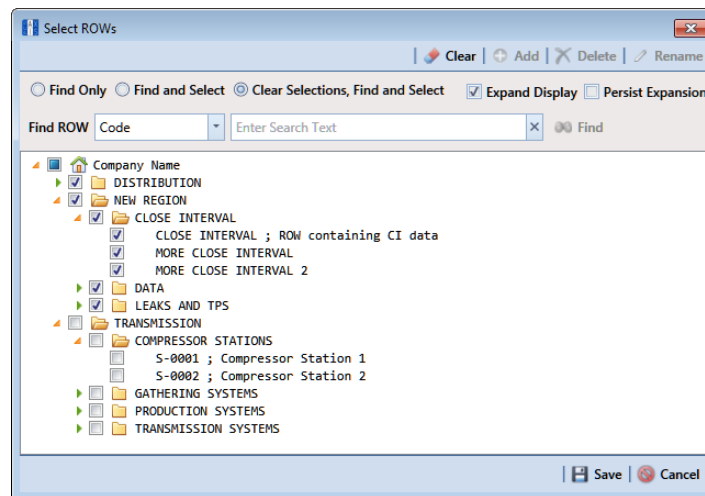
- 12** Click  **Save and Close** to return to the report options window.

## 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 (Figure 16-53). Click  **Save** to close the window.



**Figure 16-53. Select ROWs**

- 2 Select the report you want to work with in the *Reports/Graphs* menu. Click **Report/Graphs** and then select a report, such as *Test Point Inspection Report*, to open the report options window (Figure 16-54).

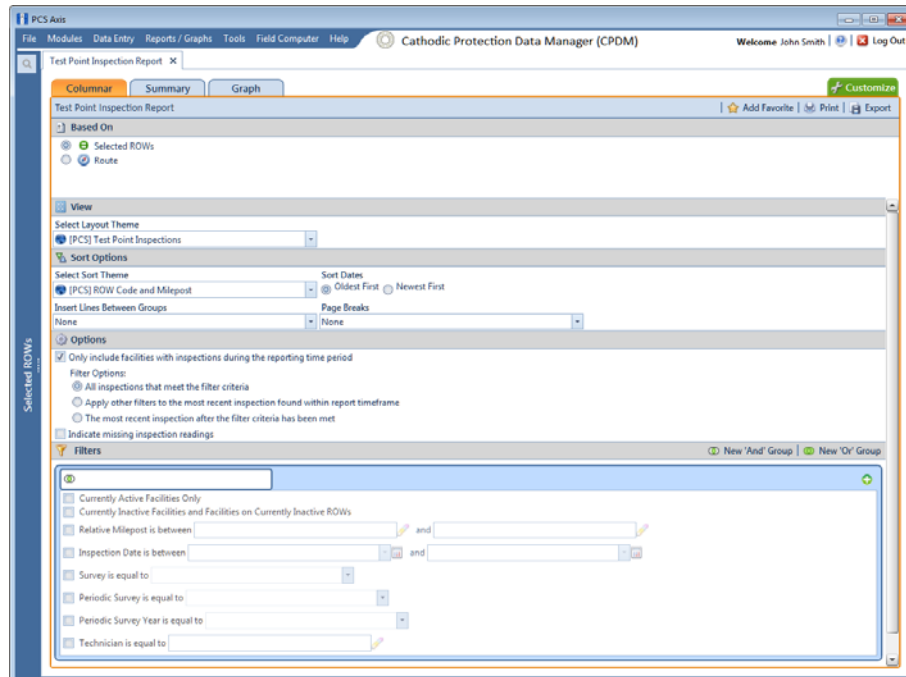

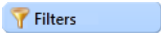


Figure 16-54. Report Options

- 3 Click the **Customize** tab  then the **Filters** button  to open the *Filters* page (Figure 16-55).

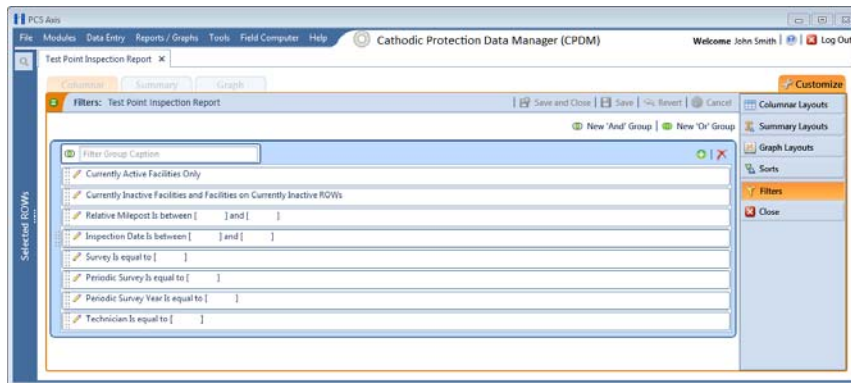

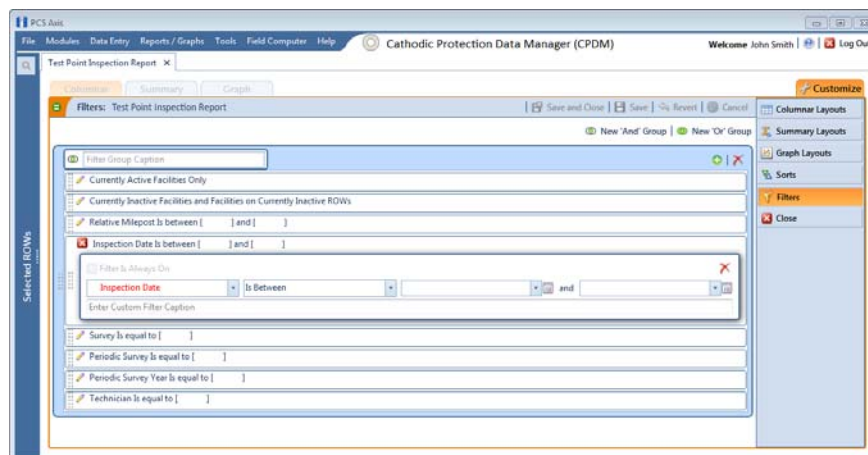







Figure 16-55. Filters

- 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 16-56).




**Figure 16-56. Inspection Date Is Between**

- 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.

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**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.