2015

Spectra View

CLIENT USER MANUAL

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Chapter 1 - INTRODUCTION

A Spectrum Systems Data Acquisition and Handling System with *SpectraView® Prism* consists of four major subsystems.

- SpectraPak[®]-E Data Acquisition Controller
- SpectraView® Prism Server
- SQL Database
- SpectraView[®] Prism Client

SpectraPak[®]-E

Spectrum Systems SpectraPak®-E is a rack-mount data acquisition controller capable of handling analog and digital inputs as well as generating digital outputs. Two single-board embedded controllers allow the *SpectraPak®-E* to process 20 digital inputs, 20 digital outputs, 22 analog inputs as well as communicate to any *Modbus* capable device via *Modbus/TCP*. Each controller incorporates an *Ethernet* port for and *SpectraView® Prism Server* and *Modbus* connectivity. Configuration can be performed via the *RS-232* or *Ethernet* port.

Each onboard controller runs non-site specific firmware storing the value of each digital input/output, analog output, and *Modbus* value every 10-seconds for approximately 11 days. Standalone digital output sequencing provides for autonomous control of scheduled QA tasks, such as daily calibrations. Storage and sequencing allows each *SpectraPak®-E* controller to continue to operate if *SpectraView® Prism Server* communications are interrupted and provide a mechanism for data syncing when communications are restored.

SPECTRAVIEW[®] PRISM SERVER

SpectraView[®] Prism Server consists of the following Microsoft Windows Services running on a 64-bit computer with a Windows Server 20XX Operating System and Microsoft SQL Server 20XX.

- Data Collection Services responsible for communication between the PRISM server appliance and SpectraPak®-E appliances, in addition to other compatible data servers. Data is stored in 10second SQL database tables for one year, or as configured.
- Database Update Service responsible for generating and storing one minute data averages for both raw and calculated values in SQL database tables. One minute averages are the basis for all qualified data stored in the database.
- *Qualifier Service* qualifies data based on the one minute data stored and calculates one minute or higher time based averages used for compliance and reporting. The qualifier service also provides for ECMPS data used for electronic data reporting required by the EPA.
- Tag Service Provides data to the SpectraView[®] Prism Client for display.
- *Alarm Service* Provides for generation and clearing of alarms and messaging.

SQL DATABASE

The SQL Database contains all data; 10-second raw data, one minute averages, and long term averages used for reporting. All data, except 10-second data, is stored indefinitely as long as storage space is available. While the database typically resides on the *SpectraView® Prism Server*, it can be located remotely, provided network access is adequate.

SPECTRAVIEW® PRISM CLIENT

The *SpectraView® Prism Client* provides an end-user interface to the system and can be installed on any 64-bit version of *Windows 7*, or later, operating system with network access to the server. Roles, rights granted, views, and various services available are defined by login.

COMMUNICATION PROTOCOLS

SPECTRAPAK[®]-E -

- TCP/IP
- Telnet
- MODBUS

SpectraView[®] Prism Server -

- TCP/IP
- Telnet (Putty)
- Remote Desktop
- Modbus
- OPC (future)
- WCF
- SQL Native Protocols TCP/IP

SpectraView[®] Prism Client -

- TCP/IP
- WCF

ACCESS CONFIGURATION

Connecting to a *SpectraView® Prism Server* via the *SpectraView® Prism Client* has several requirements. The Client, when launched, attempts to communicate with the SQL database defined in the .SVIEW XML session file. Provided access is granted, the client tool will receive information necessary to communicate with the *Windows Services* running on the *SpectraView® Prism Server*. Once this information has been received, the Client tool will attempt a connection to the *SpectraView® Prism* Server. This initial handshake between the *SpectraView® Prism Client*, *Server*, and *SQL Database* will determine which role has been assigned and which views to update.

Chapter 2 - INSTALLATION AND REMOVAL PROCEDURE

The SpectraView[®] Prism Client application is installed using a Microsoft Installer (MSI) file provided by Spectrum Systems, Inc. or your Continuous Emissions Monitoring System (CEMS) Administrator. It is used to install the files and supporting infrastructure for the SpectraView[®] Prism Client. In this chapter you will find the processes for installing and uninstalling the Client.

INSTALL PROCESS

To install the SpectraView® Prism Client, perform the following steps.

- 1. Double click on the MSI file and the End-User License Agreement, as shown in Figure 2-1, will appear.
- 2. Click I accept the terms in the License Agreement.
- 3. Click Install.

NOTE: SPECTRAVIEW[®] PRISM CLIENT REQUIRES A 64-BIT OPERATING SYSTEM AND MAY ONLY BE USED WITH A LICENSED VERSION OF SPECTRAVIEW[®] PRISM.

😸 SpectraView Prism Setup
Please read the SpectraView Prism License Agreement
Spectraview Prism®
END-USER LICENSE AGREEMENT
Please read this document carefully before installing or using this software. This Agreement is between the licensee that accepts this Agreement ("Licensee") and Spectrum -
I accept the terms in the License Agreement Click Install to install the product with default options for all users. Click Advanced to change installation options.
Print Advanced 🚱 Install Cancel

Figure 2-1 SpectraView® Prism End-User License Agreement

4. After a short delay, the installation screen, Figure 2-2, will appear and the *SpectraView® Prism* Client will begin installion.

B SpectraView Prism Setup	
Installing SpectraView Prism	
Please wait while the Setup Wizard installs SpectraView Prism.	
Status:	
Back	xt Cancel

Figure 2-2 SpectraView® Prism Setup Screen

5. Upon completion, click the **Finish** button.

UNINSTALL PROCESS

SpectraView® Prism may be uninstalled using "Programs and Features" accessible under the Control Panel as follows.

- 1. Open the *Control Panel*.
- 2. Select Programs and Features.
- 3. Select the SpectraView® Prism program.
- 4. Click once to highlight the program (*The program is highlighted in Figure 2-3.*).

🚷 Roxio Update Manager	Roxio	1/12/2012	2.39 MB	3.0.0
🛞 SpectraView CGA Module	Spectrum Systems, Inc.	1/6/2015	28.9 MB	1.2.1002.0
SpectraView ECMPS Reporting Module	Spectrum Systems, Inc.	1/6/2015	15.4 MB	1.2.1002.0
SpectraView Linearity Module	Spectrum Systems, Inc.	1/6/2015	28.9 MB	1.2.1002.0
Mark SpectraView Prism	Spectrum Systems, Inc.	1/6/2015	29.9 MB	1.2.1002.0
A SpectraView Reports Module	Spectrum Systems, Inc.	1/6/2015	66.4 MB	1.2.1002.0
🔀 SpectraView SIC Module	Spectrum Systems, Inc.	1/6/2015	28.7 MB	1.2.1002.0
😋 TeamViewer 9	TeamViewer	9/16/2014		9.0.32494
C Thermo CUE	Thermo Fisher Scientific	5/6/2014	12.6 MB	2.0.459
🚵 Thermo INSIGHT	Thermo Fisher Scientific	5/6/2014	21.0 MB	2.0.459
Spectrum Systems, Inc. Product version Size	: 1.2.1002.0 : 29.9 MB			

Figure 2-3 SpectraView[®] Prism Client Removal

5. Right click and select **Uninstall**, or select **Uninstall** at the top of the screen.

Chapter 3 - LAUNCH AND FAMILIARIZATION

LAUNCH

Opening the *SpectraView® Prism Client* is accomplished through a special *Extensible Markup Language* (*XML*) file. This file has a ".sview" extension and contains settings for the proper configuration of the client. This session file, as it is called, can be double-clicked to launch the *SpectraView® Prism* client.

To start the SpectraView® Prism client perform the following tasks.

- 1. Double-Click on the session file.
- 2. If a user or system is not yet configured, one of the following screens will result. If any of these error messages occur, contact the System Administrator for assistance.
 - a. The *Not Authorized* error in **FIGURE 3-1** occurs when the application cannot authorize the login for any application privileges.



Figure 3-1 Not Authorized Launch Error

b. The *Database Connection* error in **FIGURE 3-2** occurs when the application cannot connect to the database, or encounters a database error or misconfiguration.



Figure 3-2 Database Connection Launch Error

c. The *Tag Service* error in **FIGURE 3-3** occurs when the application cannot connect to the tag service, or encounters a *Tag Service* error or misconfiguration.



Figure 3-3 Tag Service Launch Error

3. There are no login actions required by the end-user. If there are no errors, the Main application Window, with the *Overview Tab* selected will appear, as seen in **FIGURE 3-4**.

SPECTRUM PLA	ANT - TEST PLANT SPECTR	NUM POWER COMPANY INCORPORATED			settings	- • ×
Overview 4	Unit 1 🔍					
	Link 1 Grade).	·	2
Dashboard IIII	Unit 1 Stack				🛆 Unit 1	Online
	▼ CO2			10.48 %	Test Unit 1 Stack	© 1m
Calibrations	High SO2			804.15 ppm	Load	482.6 MW
					NOx Rate	0.8256 lb/mmBtu
Alarms 🛕	V Low SO2			50.1221 ppm	Opacity	80.49 %
	High NOx			402.44 ppm		
Trends				100 2442	△ Unit 2	Online
T/O Points	Low NOx			100.2442 ppm	Test Unit 2 Stack	© 1m
The rounds	Stack Pressure	-33.63 in WC Stack Temperature	308.21 deg. F		MHgT1	7.9413 ug/scm
System	<u>(</u>					
	Unit 1 Outlet				Slave Test	
Modules +	V Low NOx Cable			113.8 ppm ~~~		Never
					<u> </u>	
Compliance	Constitu			80.49 %	Training Root	m
	Vopacity			0045 4 -		
Admin 4	Flow			1610.3 kscfm		U SW
	1-Min NOx	0.8256 lb/mmBtu Barometric	29.49 in Hg Cal Gas 2 MW	0 g/mol		
	CurrentMW	29.73 g/mol Custom 15-min Load	447.4026 — Fo	1.1356		
	Hr NOx	0 ppm — Load	482.6 MW — LoadRange	5	•	
	2m Spectrum Plant	Line CRECTRUMSVCTEMS/MAYNE				
	25m Spectrum Plant	User SPECTRUMSTSTEMS/WATNE logged in				
	28m Spectrum Plant	Liser SPECTRUMSYSTEMS/WAYNE logged in				
	36m CO2 High	Unit 1 15-min CO2 High				
	40m Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in				
	48m Spectrum Plant	SPECTRUMSYSTEMS\ANDREW: test				
	48m Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in				*
09:08:29 AM Jan 6 2015			NOx Rate Opacity High			

Figure 3-4 SpectraView[®] Prism Main Window showing Overview Page

SPECTRAVIEW[®] PRISM MAIN WINDOW

The main window of the *SpectraView® Prism Client* application is the central point for all tasks performed within the application. Tasks are performed within the different areas of the application by selecting their corresponding navigation tabs. Navigation tabs will appear based on the privileges granted to the respective end-user.

The following items are always present in the main window, regardless of end-user or task being accomplished.

- *Alarm Bar* located at the bottom of the main window
- Daylog located at the bottom of the main window, just above the alarm bar
- *Navigation Tabs* locate on the left side of the window
- *Settings* located in the title bar of the main window

SPECTRAVIEW[®] PRISM STYLE GUIDELINES

Special Controls

Actions of the majority of the controls in the application are self-evident. However some are worth further explanation. There are multiple controls in this category.

- Expansion Arrow Button marked with an up and down solid arrow
- *Ellipsis Button* marked with an ellipsis
- Instance Trend marked with a graph line

- Analog Calculations marked with a small pulldown arrow beside data points
- Digital & Digital Toggle Indicators marked with a small bubble

Data List Expansion Button

The data lists are collapsed by default to allow the end-user easy access to the different data sets that populate the client window. The data list expansion button, as see in **FIGURE 3-5** highlighted in yellow, allow for the expansion of these data sets.



Figure 3-5 Data List Collapsed

Clicking on the expansion button will expand the data list as seen in FIGURE 3-6.

🔺 CO	02				2.68	3 96
Unit 1 St	tack CO2					
0	Zero Cal	17 hours, 19 mins ago	Passed, Online	Meas: 0.3	Exp: 0	Detail
0	Span Cal	17 hours, 9 mins ago	Passed, Online	Meas: 17.9	Exp: 17.5	Detail

Figure 3-6 Data List Expanded

Clicking on the expansion button again will collapse the data list.

Action Menu Ellipsis Button

The data list may be further expanded by clicking on the ellipsis, as seen in **FIGURE 3-7**. This Action Menu provides the end-user the ability to perform certain tasks on the data points within the data list.



Figure 3-7 Action Menu Collapsed

Clicking on the ellipsis will further expand the data item, as seen in **FIGURE 3-8**, to reveal the action menu. In this example, the data item expands to give the end-user additional access to place the

Instrument In or Out of Service, start a probe purge, run an Auto-Cal, or manually control cylinder gas injection.

Jnit 1 Stack							
🔺 CO2						3.07	%
Instrument Service	Probe Purge	Autocal	Man CG1	Man CG2			
Out of Service In Service	🚍 Start 🕕 Stop	Start Stop	🕨 Start 🛛 🕅 Stop	Start Stop			
Init 1 Stack CO2							
Zero Cal 17 hours, 2	3 mins ago Passed, Online				Meas: 0.3	Exp: 0	Det
Span Cal 17 hours. 1.	3 mins ago Passed, Online				Meas: 17.9	Exp: 17.5	Det

Figure 3-8 Action Menu Expanded

Clicking the ellipsis again will collapse the data item action menu.

Instance Trend

Analog values have micro trends providing end-users with feedback on historical data movement – current value is holding steady, moving up, and moving down. Analog values have trends that are available by clicking the control.

Clicking on the small trend as seen in **FIGURE 3-9** will expand to a larger window.



Figure 3-9 Micro Trend

This larger window will provide higher detail of that data, as seen in **FIGURE 3-10**.



Figure 3-10 Instance Trends Expanded

The slider at the bottom of the expanded trend allows the end-user to view the trend for the 24-hour period leading up to the latest data capture.

Analog Calculations

A small pull down button is available, as seen highlighted in **FIGURE 3-11**, for displaying some calculations, and to possibly display the logic used for the calculation.

1-Min NOx	0.8243 lb/mmBtu	 Barometric	28.88 in Hg	~~~~	Cal Gas 2 MW	0 g/mol 📃
CurrentMW	29.04 g/mol	 Custom 15-min Load	167.7265		💗 Fo	1.1356
Hr NOx	0 ppm	 Load	205.1 MW	-	🖤 LoadRange	2 —
MyCableCorrection	1.0322	 ✓ MyEffluentMW	29.04 g/mol		WyEffluentN2	77,49 % —
MyEffluentO2	15.68 %	 MyMWFactor	0.9837		myPressureFactor	1.089 -
myTempFactor	0.9637	 V NOx	171.0623 ppm		NOx Rate	o —
NOx Rate	0.8243 lb/mmBtu	Opacity AO 2	185.16 %	~~1~1~1~1	Opactiy AO	33.97 % —
RAO1	75 🔍 3w	 🐷 RAO1 Toggle	25		Test FAI2	0 мw —

Figure 3-11 Analog Calculations Collapsed

Once the analog calculation is expanded, the logic, if any is available, and values used in the calculation are displayed in real-time as seen in **FIGURE 3-12.**

1-Min NOx	0.824 lb/mmBtu		Barometric	29.13 in Hg	~~~~	Cal Gas 2 MW	0 g/mol -	
CurrentMW	29.03 g/mol		Custom 15-min Load	158.8393		💚 Fo	1.1356 _	
Hr NOx	0 ppm		Load	196.9 MW		👽 LoadRange	2 -	
WyCableCorrection	1.0346	~~~~	WyEffluentMW	29.03 g/mol	(WyEffluentN2	77.45 % -	_
MyEffluentO2	15.87 %		MyMWFactor	0.9834	. <u> </u>	myPressureFactor	1.0932 -	
myTempFactor	0.9625		V NOx	164.3468 ppm		NOx Rate	0 -	
NOx Rate	0.8209 lb/mmBtu		Opacity AO 2	971.07 %	www	Opactiy AO	32.7 %	
1.194E-07 * 164.34	468 * 1800 * 100 / 4.3							
NOx 1 CO2	.64.3468 ppm 4.3 %	0.8209						
RAO1	75 o 3w	_	RAO1 Toggle	25	. <u> </u>	Test FAI2	0 мw —	

Figure 3-12 Analog Calculation Expanded

Digital Indicators

The *Digital Indicators* provide visual access to digital values in the system. The digital indicator signifies active when blue and inactive when grey as shown in Figure 3-13 below.



Figure 3-13 Digital Indicators

Digital Toggle Indicators

Some digital values can be changed, or toggled, from their existing state for a short period of time (until the next update cycle for that item). This can be accomplished, where applicable, by right-clicking on the indicator which will temporarily set the value to its opposite state, as shown in **FIGURE 3-14**.

Any Sample Fault	CalGas 1 Low Output	CalGas 21 ow (utput
G FG () Togola Any	Sample Line / Probe Tempera	ture Fault to DCS	255.
- O roggie Any	semble enter meser rempere		
Rack remprount	A obset marrie nod	Shave married	bg

Figure 3-14 Digital Toggle Indicator after Right-Click

NOTE: THIS FUNCTION REQUIRES THE END-USER TO HAVE THE REQUIRED PRIVILEGES. CONTACT THE SYSTEM ADMINISTRATOR FOR MORE INFORMATIN ON PRIVILEGES.

Borders and Flags

The status of the system is made visually apparent based on the colors associated with the different levels of acceptability.

Red, magenta, and yellow border colors indicate conditions that are outside of expected tolerances, or data points that contain stale, out-of-date data. Blue-gray indicates conditions that are inside the normal tolerances, or expected. The only exception is trends and the chart pens used to display trends.

Flags of matching color are used to identify the number of issues associate within a group.

- Dark Blue Dynamic, updating, real-time data
- Magenta Stale, out-of-date data (Needs attention)
- *Red* Alarm state/error
- Yellow Warning state

Out of Tolerance Data

Error – Red Borders and Flags

Red borders and flags indicate subsystems of systems that are at failure or fault and have conditions that warrant inspection.

A unit with an Out of Tolerance Error will have a red border and flag, as seen in FIGURE 3-15.



Figure 3-15 Unit Error Red Border and Flag

The data list containing that error will also have a red border and flag, as seen in FIGURE 3-16.



Figure 3-16 Data List Error Red Border and Flag

The item in the data list, once the data list is expanded, will also have a red border and flag, as seen in **FIGURE 3-17**.

-	In	et NOx				0	ppm VV
= =	.						
0	Sp	an Cal Failed					
-	FC	GAS					
	0	Zero Cal	3 hours, 57 mins ago	Passed, Offline	Meas: 0.3	Exp: 0	Detail
0	0	Span Cal	4 hours, 2 mins ago	FAILED, Offline	Meas: 278.7	Exp: 335	Detail

Figure 3-17 Data List Item Error Red Border and Flag

Finally, by drilling all the way down, the end-user may access the actual data point that is flagged as having an error. This will allow the end-user to easily view the offending item to enable quick resolution of any errors encountered. The actual data item is as seen in **FIGURE 3-18**.

383	Last Calibration:		4 hours, 5 mins		ago	ago FAILED, Offli	
371	Expecte	ed Value:	Exp:	335	Meas	sured Value:	1
347	Warnin	g Limit:	15 pj	pm	Error	Limit:	10.04
335	Span:		600 p	opm	Meth	nod:	1
311	Primary	/ Spec:	Part	75 NOx	Alt. S	Spec:	j
287	Bottle:		CC96882		Expires:		1
Last Calibr	ation Resu	its Measure	d [Difference	Sta	itus	
Last Calibr	Expected	Its Measure	d [Difference	Sta	itus	
Last Calibr	Expected 335.00	Its Measure 278	d [Difference -56.30 -54.30	Sta F4	itus ALED, Offline	
Last Calibr Date Time (1/20/13 07:05 AM (1/19/13 07:05 AM (1/18/13 07:05 AM	Expected 335.00 335.00 335.00	Its Measure 278 280 283	d [70 70 30	Difference -56.30 -54.30 -51.20	Sta FA FA	itus AlLED, Offline AlLED, Offline AlLED, Offline	
Last Calibr Date Time 11/20/13 07:05 AM 11/19/13 07:05 AM 11/18/13 07:05 AM 11/17/13 07:05 AM	Expected 335.00 335.00 335.00 335.00 335.00	Its Measure 278 280 283 283	d [70 30 30	Difference -56.30 -54.30 -51.20 -49.20	Sta F4 F4 F4 F4	itus MLED, Offline MLED, Offline ALED, Offline MLED, Offline	
Last Calibr Date Time 1/20/13 07:05 AM 1/19/13 07:05 AM 1/18/13 07:05 AM 1/17/13 07:05 AM 1/16/13 07:05 AM	Expected 335.00 335.00 335.00 335.00 335.00 335.00	Its Measure 278. 280. 283. 283. 285. 285. 287.	d (70 70 30 30 10	Difference -56.30 -54.30 -51.20 -49.20 -47.90	Sta F4 F4 F4 F4 F4	Itus AILED, Offline AILED, Offline AILED, Offline AILED, Offline AILED, Offline	
Last Calibr Date Time 1/20/13 07:05 AM 1/19/13 07:05 AM 1/18/13 07:05 AM 1/17/13 07:05 AM 1/16/13 07:05 AM 1/15/13 07:05 AM	Expected 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00	Its Measure 278: 280, 283, 285, 285, 287, 290,	d (70) 30) 30) 10) 50)	Difference -56.30 -54.30 -51.20 -49.20 -49.20 -47.90 -44.50	Sta FA FA FA FA FA	ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline	
Last Calibr Date Time 1/20/13 07:05 AM 1/19/13 07:05 AM 1/18/13 07:05 AM 1/17/13 07:05 AM 1/16/13 07:05 AM 1/15/13 07:05 AM 1/15/13 07:05 AM	Expected 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00	Its Measure 278. 280. 283. 285. 285. 287. 290. 292.	d [70 30 30 10 50	Difference -56.30 -54.30 -51.20 -49.20 -49.20 -47.90 -44.50 -42.40	Sta F 2 F 2 F 2 F 4 F 4 F 4 F 4	ALED, Offline ALED, Offline ALED, Offline ALED, Offline ALED, Offline ALED, Offline ALED, Offline	
Last Calibr Date Time 11/20/13 07:05 AM 11/19/13 07:05 AM 11/18/13 07:05 AM 11/17/13 07:05 AM 11/16/13 07:05 AM 11/15/13 07:05 AM 11/14/13 07:05 AM	Expected 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00	Measure 278 280 283 285 285 287 290 292 292 289	d (70 30 30 50 50 50	Difference -56.30 -54.30 -51.20 -49.20 -47.90 -44.50 -42.40 -42.40 -45.40	Sta F4 F4 F4 F4 F4 F4 F4 F4	ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline ALLED, Offline	
Last Calibr Date Time 11/20/13 07:05 AM 11/19/13 07:05 AM 11/18/13 07:05 AM 11/17/13 07:05 AM 11/16/13 07:05 AM 11/15/13 07:05 AM 11/13/13 07:05 AM 11/13/13 07:05 AM	Expected 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00 335.00	Measure 278. 280. 283. 285. 287. 290. 289. 290. 290. 290.	d (70 70 30 30 50 50 50 30	Difference -56.30 -54.30 -51.20 -49.20 -49.20 -47.90 -44.50 -42.40 -45.40 -44.20	Sta F4 F4 F4 F4 F4 F4 F4 F4 F4 F4	AULED, Offline AULED, Offline AULED, Offline AULED, Offline AULED, Offline AULED, Offline AULED, Offline AULED, Offline	

Figure 3-18 Cause of Error

Warning – Yellow Borders and Flags

Yellow borders and flags indicate subsystems of systems that are nearing failure or fault and may have conditions that warrant inspection. They are represented exactly as errors, but with yellow coloration.

Expected Tolerances Border

The Blue-gray border indicates subsystems of systems that are within normal tolerances. This status is as seen in **FIGURE 3-19**.

FGAS 🥥						
FGAS Outlet						
Outlet CO2					0	Mr. M
▼ Outlet LR NOx					-0.4 pp	m
Outlet HR NOx					-0.3 pp	m
Outlet Duct	-1.66 inWC		_	Outlet Probe Vacuum	23.5 inHg	
Outlet Dilution Air	49.38 psig	~~~~		Outlet NOx AO	0 ppm	
Outlet NOx Rate AO	0 lb/mm8tu			Outlet CO2 AO	0 %	I
Outlet NOx	-0.4 ppm		$\overline{\mathbf{v}}$	Outlet NOx Rate	-0.201 lb/mmBtu	MA
Outlet HR NOx Rate	-0.161 lb/mm8tu	nnn A	$\overline{\mathbf{v}}$	Outlet LR NOx Rate	-0.201 lb/mmBtu	Mar
I Outlet NOx Rate Held	-0.2013 lb/mm8tu	~mn				
Out. CO2 Analyzer Ok	Out. NOx Analyzer Ok		0	Outlet in Cal	Outlet Analyzers	
Out. Samp. Line Temp. (Out. Samp. Probe Ok			Outlet Cal Gas 1	Outlet Cal Gas 2	
Out. Analyzers in Fault	Outlet CO2 Hold			Outlet Cal Gas 3	Outlet Cal Select	
Outlet LR NOx Hold	Outlet HR NOx Hold			Outlet Fast Cal	Outlet Purge	

Figure 3-19 Expected Tolerances Normal Display

SETTINGS AND STATUS

Most settings are options to change how the Client looks and behaves. Most of the settings will impact the end-users by increasing the load on the computer, or hiding items. The Status bar provides company and plant information, time and date, current end-user login details and the client version number. The settings bar enables the user to hide or show the navigation tabs and the Daylog. The end-user may also toggle, on or off, the animations and previews, alarm sounds, and alarm repeat sounds. Refer to **FIGURE 3-20** below for details.

SPECTRUM PLA	NT - TEST PLANT	PECTRUM POWER COMPANY INCORPORATED	settings	_ = ×
Overview 🚓	Status 🗲			 Settings
Spectrum Plan	Unit 1 Stack			Navigation
Test plant spectrum po	wer company	10.56 %	Tes	Visible
DAHS Model Number	High SO2	42 ppm	Loa	Animations & Provinue
DAHS Serial Number S	VPRISMC LOW SO 2	40.5739 ppm	Opz	Off 81.12
Consideration of the	High NOx	81.93 ppm - ``		
CEMS Time	T Low NOx	81.1233 ppm	<u> </u>	Daylog O Children
09:10:4	3 AM		Test	Visible
Syste	Stack Pressure	-33.91 in WC Stack Temperature 310.34 dag. F		Tag Service
	stlet			Online
Modu		ble 92.74 ppm ~1_		Update Rate: Normal Never
Comp Active Al	arm(s)			
Carton and	- opacity	81.12 %		Alarms Service
Login Details	Thew	1622.5 kschn		Online
SPECTRUMSYST	EMS\WAYNE	0.177 lo/mm8tv Barometric 29.33 in Hg ~~~~ Cal Gas 2 MW 0 g/mol		Alarm Sounds
		29.74 g/mol — Custom 15-min Load 456.241 — Fo 1.1356		On 📃
Support		0 ppm Load 486.7 MW LoadRange 5	v	Repeat Sounds
Version: 1.2.1000.0	1m CEMS Fault	CEMS General Fault Cleared		On
von neip besk		Irm Unit 1 Unit 1 NOX Rate exceedance has cleared		
		Int User SPEC RUMSYSTEMS/WAYNE logged in		
		Int User SPECTRUMS/STEINS/WAYNE logged in		
		Unit 1 15-min CO2 High		
		Int User SPECTRUMSYSTEMS\ANDREW logged in		
09:10:43 AM Jan 6 2015		Opacity High		

Figure 3-20 Settings and Status

MAIN WINDOW OVERVIEW

The *SpectraView® Prism Client* is the end-user interface to the *SpectraView® Prism* system. As noted in the **SpectraView® Prism Main Window** section, the client main window consists of multiple areas, with the Alarm Bar, Daylog, Navigation Tabs, and Settings being visible at all times.

ALARM BAR

The Alarm Bar, as seen in **FIGURE 4-1**, provides a means to readily visualize any Alarm/Alert being currently emitted by the system. These alarms will flash, and the system will emit an audible alarm (if turned on in settings), until acknowledged by a system end-user. Once acknowledged, the Alarm/Alert will remain visible, and silent, until the issue is resolved.

NOx Rate Opacity High

Figure 4-1 Alarm Bar

To acknowledge an Alarm/Alert, perform the following steps.

1. Hover over the Alarm/Alert, as seen in **FIGURE 4-2**. This will provide a date/time stamp of the event.



Figure 4-2 Acknowledge Alarms & Alerts

- 2. Right-click on the Alarm/Alert, which will bring up a context menu that will allow the end-user to acknowledge the Alarm/Alert, or provide further detail.
- 3. As stated above, the Alarm/Alert will remain visible until the issues causing the event are resolved. Using the *Details* selection in the context menu will allow the end-user to obtain the information needed to effect the necessary changes required to resolve the issue.

DAYLOG

The Daylog, as seen in **FIGURE 4-3**, is a running log of messages regarding system events or messages that are entered by end-users. This will include any notable I/O changes, system changes, system messages, or compliance messages generated by the system. End-users may also enter messages to keep a record of events that could have a bearing on the system operating environment, including whether *Spectrum Systems, Inc.* employees were logged into the system performing upgrades or service.

2m	Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in	
25m	Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in	
28m	Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in	
36m	CO2 High	Unit 1 15-min CO2 High	8
40m	Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in	
48m	Spectrum Plant	SPECTRUMSYSTEMS\ANDREW: test	
48m	Spectrum Plant	User SPECTRUMSVSTEMSVANDREW logged in	-

Figure 4-3 Daylog

Settings

The SpectraView® Prism Client Settings are available at the top of the window, as seen in FIGURE 4-4.

D	settings		×

Figure 4-4 Title Bar with Settings

- To view settings, select the settings control in the *Title Bar* as in <u>FIGURE 4-4</u> above. This will result in two panes appearing, one on the left side, and the other on the right side of the main window.
- 2. The pane on the left side will contain the application status information; company name, site name, DAHS model and serial number, the system date and time, count of active alarms, login details, and the current version of the *SpectraView® Prism Client* software.



- 3. The right side pane, as seen in <u>FIGURE 4-5</u>, will contain the available settings for the *SpectraView® Prism Client*. In this pane you can change settings for whether the navigation tabs are visible, whether animations and previews are enabled, the visibility of the Daylog; whether the Tag Service is connected, and its update rate; and control the settings of the Alarm Service.
- 4. For the Alarm Service, the following steps can be used to control how alarms are reported.
 - a. These steps control the Alarm Service connectivity.
 - To turn the Alarm Service connectivity on, if gray, click on Online.
 - ii. To turn the Alarm Service off, if blue, click on **Online**.
 - b. These steps control the Alarm Sounds.
 - i. To turn Alarm Sounds on, if gray, click on **On**.
 - ii. To turn the Alarm Sounds off, if blue, click on **On**.
 - c. These steps control the repeating of the Alarm Sounds.
 - i. To cause Alarm Sounds to repeat, if gray, click on **On**.
 - ii. To cause Alarm Sounds to only sound one time, if blue, click on On.

	-		×
→ Setting	js		
Navigation	0) Inline	1
Visible]		
Animations & P	revi	ews	
Off ⁸¹	.12		
Daylog	0	Online	
Visible]	a 19 cm	
Tag Service			
Online	[
Update Rate: No	rmal	Never	
Faining Room			
Alarms Service		10 9w	
Online	L		
Alarm Sounds			
On	L	_	
Repeat Sounds			
On	l		
			Ţ

Figure 4-5 Settings Pane

NAVIGATION TABS

Navigation Tabs, as seen in **FIGURE 4-6**, are made available based on the permissions allotted to the enduser logged in to the *SpectraView® Prism Client*.

NOTE: REQUESTS FOR PERMISSIONS WILL GO THROUGH THE SYSTEM ADMINISTRATOR.

🖌 SPECTRU	M PLA
Overview	*
Dashboard	
Calibrations	111
Alarms	A
Trends	
I/O Points	
System	垦
Modules	**
Compliance	~
Admin	4

Figure 4-6 Navigation Tabs

Navigation Tabs and their content will be covered starting with **CHAPTER 5 - OVERVIEW TAB**.

Chapter 5 - OVERVIEW TAB

OVERVIEW

The *Overview Tab* is, as it states, an overview of the real time conditions, logs and readings. The values displayed on the overview tab are from defined tags (see Tag Administration). The right side pane, as seen in **FIGURE 5-1**, contains information related to all of the units at a given site. This pane doubles as the selection mechanism for the main pane in the Overview Tab.

SPECTRUM PL	ANT - TEST PLANT SPECTR	UM POWER COMPANY INCORPORATED			settings	
Overview 👫	Unit 1 🔍					
	Unit 1 Stack				Unit 1	Online
Dashboard IIII	CO2			10.48 %		
Calibrations 111	Thigh SO2			804.15 ppm	Load	482.6 MW
Alarms A	Low SO2			50.1221 ppm	NOx Rate Opacity	0.8256 lb/mm8t. 80.49 %
	High NOx			402.44 ppm		
Trends				100.2442 com	L Unit 2	Online
I/O Points	LOW NOX				Test Unit 2 Stock	© 1m
	Stack Pressure	-33.63 in WC Stack Temperature	308.21 deg. F		MHgT1	7.9413 ug/scm
System	Unit 1 Outlet				Slave Test	
Modules ++	Low NOx Cable			113.8 ppm ~~~~	4	© Never
Compliance	• Opacity			80.49 %	Training Roo	m
Admin 4				1610.2 locator		© 9w
	FIOW			2020.0 40000		
	1-Min NOx	0.8256 lb/mm8tu Barometric	29.49 in Hg Cal Gas 2 MW	0 g/mol	1	
	- CurrentMW	29.73 g/mol Custom 15-min Load	447.4026 — Fo	1.1356		
	Hr NOx	0 ppm Load	482.6 MW LoadRange	5	×	
	2m Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in				
	25m Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in				
	28m Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in				
	36m CO2 High	Unit 1 15-min CO2 High				
	40m Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in				
	48m Spectrum Plant	SPECTRUMSYSTEMS\ANDREW: test				
	48m Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in				
9:08:29 AM			NOx Rate Opacity High			

Figure 5-1 Unit Pane

Each of these unit displays may be expanded to show selected status data for each unit, as seen in **FIGURE 5-2**.

🛆 Unit 1	Online
Test Unit 1 Stock	© 1m
Load	482.6 MW
NOx Rate	0.8256 lb/mm8t
Opacity	80.49 %

Figure 5-2 Expanded Unit in Unit Pane

The center pane, as seen in **FIGURE 5-3**, contains a complete listing of the unit's information, and, as mentioned above, represents the unit selected in the unit pane.

💒 SPECTRUM PL	ANT - TEST PLANT SPECTR	UM POWER COMPANY INCORPORATED		1	settings	- • ×
Overview 🦛	Unit 1 💿					
	Unit 1 Stack			l		<u> </u>
Dashboard III	CO2			10.48 %	- Ome I	Chante
Calibrations +11				80115 mm	Test Unit 1 Stock	© 1m
	V High SO2			004.13 Mm	NOx Rate	0.8256 lb/mm8t
Alarms 🔺	Low SO2			50.1221 ppm	Opacity	80.49 %
Trends W	▼ High NOx			402.44 ppm	Link 2	0.01
Tiends E	Low NOx			100.2442 ppm	Conit 2	Online
I/O Points 🤫					Test Unit 2 Stock	© 1m
	Stack Pressure	-33.63 in WC Stack Temperature	308.21 deg. F		MHg11	7.9413 vg/scm
System U	Unit 1 Outlet				Slave Test	
Modules ++	Low NOx Cable			113.8 ppm ~~~		© Never
Compliance 🖋	Opacity			80.49 %	Training Room	n
Admin Jr						© 9w
	Flow			1610.3 ksctm	-	
	1-Min NOx	0.8256 lb/mm8tu Barometric	29.49 in Hg Cal Gas 2 MW	0 g/mol		
	CurrentMW	29.73 g/mol Custom 15-min Load	447.4026 Fo	1.1356		
	Hr NOx	0 ppm —— Load	482.6 MW LoadRange	5	·	
	2m Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in				<u> </u>
	25m Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in				
	28m Spectrum Plant	User SPECTRUMSYSTEMS\WAYNE logged in				
	36m CO2 High	Unit 1 15-min CO2 High				
	40m Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in				
	48m Spectrum Plant	SPECTRUMSYSTEMS\ANDREW: test				
	48m Spectrum Plant	User SPECTRUMSYSTEMS\ANDREW logged in				
Jan 6 2015			NOx Rate Opacity High			

Figure 5-3 Full Unit Information

This includes data such as stack probe readings and information, analog readings, and digital status readings, as seen in **FIGURE 5-4**.

Unit 1 Stack							
CO2							10.48 %
V High SO2							804.15 ppm
V Low SO2							50.1221 ppm
▼ High NOx							402.44 ppm
V Low NOx							100.2442 ppm
Stack Pressure	-33.63 in WC	_	Stack Temperature	308.21 deg. F			
Unit 1 Outlet							
V Low NOx Cable							113.8 ppm ~~~
Opacity							80.49 %
▼ Flow							1610.3 kscfm
1-Min NOx	0.8256 lb/mm8tu	_	Barometric	29.49 in Hg 🔷	~	Cal Gas 2 MW	0 g/mol
 CurrentMW 	29.73 g/mol		Custom 15-min Load	447.4026 -		Fo	1.1356
Hr NOx	0 ppm		Load	482.6 MW -		LoadRange	5

Figure 5-4 Unit Detail

The data lists that are located in the center of the tab are drillable, as explained in **DATA LIST EXPANSION BUTTON** and **ACTION MENU ELLIPSIS BUTTON**, as seen in **FIGURE 5-5**.

▲ CO2						9.3	3 %
Out of Service	Probe Purge	AutoCal 1	Man CG1 Start Stop	Man CG2 Start Stop			
Stack CO2 Zero Cal 6 hours, 26 m	ins ago Passed, Online				Meas: 0.3	Exp: 0	Detail
Span Cal 6 hours, 16 m	ins ago Passed, Online				Meas: 17.8	Exp: 17.8	Detail

Figure 5-5 Overview Tab Drill-Down

ACTIONS

There are actions that can be performed on the Overview Tab by drilling down and accessing the Action Menu for the relevant instruments listed in the data lists.

Instrument Service

The instruments listed on the data lists may be taken in and out of service for maintenance purposes.

To place an instrument in or out of service, perform the following steps.

- 1. Click on the expansion button for the requisite instrument.
- 2. Click on the ellipsis button for the instrument.
- 3. Under the Instrument Service heading, click on Out of Service or In Service as required to place the instrument in or out of service.

Probe Purge

The probe to which the instruments listed are connected, may be purged.

To purge a probe, perform the following steps.

- 1. Click on the expansion button for the requisite instrument.
- 2. Click on the ellipsis button for the instrument.
- 3. Under the *Probe Purge* heading, click on **Start** or **Stop** as required to start or stop the probe purge.

Auto-Calibration

An auto-calibration may be performed on an instrument.

To perform an auto-calibration on a selected instrument, perform the following steps.

- 1. Click on the expansion button for the requisite instrument.
- 2. Click on the ellipsis button for the instrument.
- 3. Under the requisite AutoCalc(x) heading, click on Start or Stop as required to start or stop the auto-calibration.

Manual Calibration

In addition to auto-calibration, manual calibration can be performed, as required, on instruments. The difference between the two being that auto-calibration takes care of all calibrations tied to the instrument, where manual calibrations exist for each calibration gas.

To manually calibrate a selected instrument with a selected calibration gas, perform the following.

- 1. Click on the expansion button for the requisite instrument.
- 2. Click on the ellipsis button for the instrument.
- 3. Under the requisite *Man CG(x)* heading, click on **Start** or **Stop** as required to start or stop the manual calibration.

Chapter 6 - CALIBRATIONS TAB

OVERVIEW

The *Calibrations Tab* is used for verifying and controlling analyzers and probes¹. The *Calibrations Tab*, as seen in **FIGURE 6-1**, is much like the *Overview Tab* in that the right-side pane contains all of the units for the site, and selecting those units will change the *Calibrations Tab* contents.



Figure 6-1 Calibrations Tab

The center pane of the *Calibrations Tab*, as seen in **FIGURE 6-2**, contains data lists presenting all of the calibration items for the selected unit. The end-user information such as the status of the last instrument calibration; when the calibration took place, whether or not the instrument is online, and whether the instrument passed calibration; along with expected values, measured values, limits, and other pertinent information regarding the instrument's calibration procedure.

¹ Depending on roles and rights user may not have the listed options.

SPECTRUM PL	ANT - T	EST PLANT SPECTRUM POW	VER CO	MPANY INCORPORATED	ettings — 🗆 🗙
Overview 🆛	Calib	rations			
Dashboard III	Ur	iit 1			Unit 1
Calibrations †11		Stack Stack Diluiton Probe (CC	D2, High S	02, Low S02, High NOx, Low NOx)	2 Probes, 8 Instruments 0 1m
		Outlet Outlet (Low NOx Cable)		Unit 2
Alarins		Other Non-Broke lectroments	Descitu	Doub	No Probes, 2 Instruments @1m
Trends 🖂		Uner Honorobe Instantions	(opacity,	19m)	Slave Test
I/O Points +					No Prohes No Instruments
System 📃					Training Room
Modules #					1 Probe, 1 Instrument © 51w
Compliance 🖌					
Admin 4					
			-		
	30m	Spectrum Plant		User SPECTRUMSYSTEMS/WILLIAM logged in	1
	2h	NOx Rate Alarm Unit 1	Unit 1	Unit 1 Noz Rate exceedance has cleared	
	5h	Low NOx	Unit 1	Umit Truck hele Exceedance has occurred Truck hele	
	Sh	Low NOx	Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7/31/2015 12:00:00 AM. Calibration result invalidated.	
	5h	Low SO2	Unit 1	10/23/2015 9:29:30 AM Stack Low Range SO2 Span Calibration Warning Measured: 45:Appm Expected: 55ppm	
02-49-44 594	Sh	Low SO2	Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7/31/2015 12:00:00 AM. Calibration result invalidated.	•
Oct 23 2015				NOX Analyzer Low 502 Span Opadty High	

Figure 6-2 Calibrations Information

The items can be drilled into, as explained in **DATA LIST EXPANSION BUTTON** and **ACTION MENU ELLIPSIS BUTTON**, to allow for further detail and actions, as seen in **FIGURE 6-3**.

	602
Snan Cal	Cero Cal 6 hours, 3 mins
111 111	Span Cal 5 hours, 53 min
Instrument Service Manual Cal	High 502
Out of Service In Service Start	High SU2
516 Last Calibration: 5 hours, 53 mins ago Passed, Online	Span Cal. 5 hours 53 mins
506 Expected Value: Exp: 476 Measured Value: Meas: 476.1	e sparear should, so him
486 Warning Limit: 12.5 ppm Error Limit: 25 ppm	Low SO2
►	Zero Cal 6 hours, 3 mins
456 Primary Spec: Part 75 NOx Alt. Spec: None (N/A)	Span Cal 5 hours, 43 min
446 436 Bottle: SN298732 Expires: 6/2/2025	Low NOv
	Q Zaro Cal. 6 hours 2 mins
Last Calibration Results	Span Cal 5 hours 43 min
	Instrument Service Instrument Service Out at Service S

Figure 6-3 Calibrations Tab Drill-Down

By clicking on the *Last Calibration Results* expansion button, as seen in **FIGURE 6-4**, the end-user can obtain a historical look at past calibrations for the instrument.

[Training						
Stack Training Roo	m Probe (NO:	x Low Range	e, NOx High	Range, SO2 Low R	ange, SO2 High Range, CO2)	
			NOx H	ligh Range		NOx Low Range
Zero Cal						Zero Cal 3 hours, 22 mins ag
Zero Car						Span Cal 3 hours, 18 mins ag
	Last Calibr	ation: 3 h	ours. 22 min	s ago Passed. Onl	ne	
30	Expected V	/alue: Exp	: 0	Measured Value:	Meas: 0.6	SO2 Low Range
20	Washing	imite 123	5	Error Limite	25 and	Cero Cal 3 hours, 22 mins ag
► — 0	warning L	ining 12	o ppm	Error Limit:		Span Cal 3 hours, 18 mins as
-10	Span:	500	ppm	Method:	Part 75 NUx, SU2	
-30	Primary Sp	pec: Par	t 75 NOx	Alt. Spec:	None (N/A)	SO2 High Range
-40	Bottle:	SNS	SPEC123	Expires:	10/1/2024	Cero Cal 3 hours, 22 mins ag
A Last Calibra	tion Results					Span Cal 3 hours, 25 mins a
Date Time	Expected N	leasured	Difference	Status		
1/12/15 11:03 AM	0.00	0.60	0.60		Passed, Online	Zero Cal 3 hours, 22 mins ag
1/12/15 10:47 AM	0.00	0.80	0.80		Passed, Online	Span Cal 3 hours, 25 mins a
1/12/15 10:34 AM	0.00	0.40	0.40		Passed, Online, Manual Cal	
1/12/15 08:38 AM	0.00	2.00	2.00		Passed, Online	
1/12/15 07:37 AM	0.00	2.00	2.00		Passed, Online	
1/11/15 07:37 AM	0.00	2.00	2.00		Passed, Online	
1/10/15 07:37 AM	0.00	1.80	1.80		Passed, Online	
1/9/15 07:37 AM	0.00	1.80	1.80		Passed, Online	
11/13/14 06:05 AM	0.00	0.60	0.60		Passed, Online, Manual Cal	

Figure 6-4 Last Calibration Results

Actions

There are actions that can be performed on the *Calibrations Tab* by drilling down and accessing the *Action Menu* for the relevant probes listed in the data lists.

Probe Service

The probes listed on the data lists may be taken in and out of service for maintenance purposes.

To place a probe in or out of service, perform the following steps.

- 1. Click on the expansion button for the requisite probe.
- 2. Click on the ellipsis button for the probe.
- 3. Under the *Probe Service* heading, click on **Out of Service** or **In Service** as required to place the probe in or out of service.

Probe Purge

Probes may be purged from this tab.

To purge a probe, perform the following steps.

- 1. Click on the expansion button for the requisite probe.
- 2. Click on the requisite instrument.
- 3. Under the *Blowback / Purge* heading, click on **Start** or **Stop** as required to start or stop the probe purge.

Auto-Calibration

An auto-calibration may be performed on a probe. Performing an auto-calibration on a probe will perform all calibrations on all instruments connected to that probe.

To perform an auto-calibration on a selected probe, perform the following steps.

- 1. Click on the expansion button for the requisite probe.
- 2. Click on the ellipsis button for the probe.
- 3. Under the requisite *AutoCalc(x)* heading, click on **Start** or **Stop** as required to start or stop the auto-calibration.

Instrument Calibration

Instrument calibration can be performed on the *Calibrations Tab*, in addition to the already mentioned procedure on the *Overview Tab*.

Instrument Service

The instruments listed on the data lists may be taken in and out of service for maintenance purposes.

To place an instrument in or out of service, perform the following steps.

- 1. Click on the expansion button for the requisite probe.
- 2. Double-click on the requisite instrument's heading.
- 3. Click on the ellipsis button for the requisite calibration for the instrument.
- 4. Under the *Instrument Service* heading, click on **Out of Service** or **In Service** as required to place the instrument in or out of service.
- 5. The Instrument view may be closed by double-clicking on the instrument's heading.

Manual Calibration

In addition to auto-calibration, manual calibration can be performed, as required, on individual instruments. The difference between the two being that auto-calibration takes care of all calibrations tied to the probe, where manual calibrations exist for each instrument.

To manually calibrate a selected instrument, perform the following.

- 1. Click on the expansion button for the requisite probe.
- 2. Double-click on the requisite instrument's heading.

- 3. Click on the ellipsis button for the requisite calibration for the instrument.
- 4. Under the requisite *Man Cal* heading, click on **Start** or **Stop** as required to start or stop the manual calibration.
- 5. The Instrument view may be closed by double-clicking on the instrument's heading.

Chapter 7 - ALARMS TAB

OVERVIEW

The *Alarms Tab* provides access to system alarms, as seen in **FIGURE 7-1**. The *Alarms Tab* allows any alarm to be explored for occurrences, and acknowledged if required. The *Alarms Tab* differs from previous tabs in that the selection of the *Reporting Group(s)*, takes place in the top row of the pane, along with providing the ability to filter on *Alarm Types*. Alarms may also be searched from within the *Search* box, also located in the top row.

K SPECTRUM PL	ANT - TEST PLANT SPECTRUM POWER C	OMPANY INCORPORATED			settings	- = ×
Overview 👘	Alarms Panel 3 Active Alarm(s)					
	Panel History					
Dashboard III	Reporting Groups:		Alarm Tynes	-	Search	
Calibrations †47			Marini Types.		Startin	
	Opacity 6-min High	Low SO2 Span Cals Warning	NOx Analyzer Fault Unit 1 📃	Modbus Master Service	Modbus Slave Service	1
Alarms 🛕	Opacity High	Low SO2 Span	NOx Analyzer	Modbus Master S	Modbus Slave Se	
Trends 🖂	ModbusEMaster Database Connection	ModbusEMaster Device Unreachable	ModbusESlave Database	ModbusESlave Device Unreachable	RAO Modbus Device Unreachable	
	Modbus Master	Modbus Master	Modbus Slave D	Modbus Slave	RAO Modbus	
I/O Points 🤫	DAO Marthur Cardia	ROAM allow Database Consultant	Controlled Device Communication	Controlled Database Communication - R	Construibel & Communication - B	
System	RAO Modbus Service	ROA Modbus Database Connection	SpectraPak T Device Communication	SpectraPak 1 Database Communication	SpectraPak 1 Service Communication	
	RAO Modbus Se			SPT Database	SPT Service	
Modules #	SpectraPak 2 Device Communication	SpectraPak 2 Database Communication 🛛 🗖	SpectraPak 2 Service Communication 🛛 🗖	Unit 1 CO2 Cals Invalid	CO2 Span Cals	
Compliance 🗸	Spak 2	SP2 Database	SP 2 Service	CO2 Cals	CO2 Span	
	CO2 Zero Cals	Flow Interference Check	Flow Span Cals	Flow Zero Cals	High NOx Span Cals	
Admin 4	CO2 Zero	Flow Int. Check	Flow Span	Flow Zero	High NOx Span	
	High NOx Zero Cals	High SO2 Span Cals	High SO2 Zero Cals	Low NOx Span Cals	Low NOx Zero Cals	
	High NOX Zero	High SO2 Span	High SO2 Zero	Low NOX Span	LOW NOX Zero	
	Low SO2 Span Cals	Low SO2 Zero Cals 📮	NOx Rate Alarm Unit 1 🗖	Opacity Span Cals 🗖	Opacity Zero Cals 🛛 🗖	
	Low SO2 Span	Low SO2 Zero	NOx Rate	Opacity Span	Opacity Zero	
	CO2 Span Cals Warning	CO2 Zero Cals Warning	Flow Span Cals Warning 🗖	Flow Zero Cals Warning	High NOx Span Cals Warning	
	CO2 Span Warn	CO2 Zero Warn	Flow Span Warn	Flow Zero Warn	High NOx Span	
	High NOx Zero Cals Warning	High SO2 Span Cals Warning	High SO2 Zero Cals Warning	Low NOx Span Cals Warning	Low NOx Zero Cals Warning	
					1	•
	118m NOx Rate Alarm Unit 1 Unit 1	Unit 1 NOx Rate exceedance has cleared				Â
	Ab Low NOx Lipit 1	Unit 1 NOx Rate exceedance has occurred 10/26/2015 9:29:30 AM Stack Low Ranne NOv S	nan Calibration Warning Measured: 00 0mm Fyn	arted Monm		
	4h Low NOx Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7	//31/2015 12:00:00 AM. Calibration result invalida	ted.		
	4h Low SO2 Unit 1	10/26/2015 9:29:30 AM Stack Low Range SO2 Sp	pan Calibration Warning Measured: 45ppm Expec	ted: 55ppm		
	4h Low SO2 Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7	//31/2015 12:00:00 AM. Calibration result invalida	ted.		
le la	4h NOx Rate Alarm Unit 1 Unit 1	Unit 1 NOx Rate exceedance has cleared				•
02:23:05 PM Oct 26 2015			NOx Analyzer Low SO2 Span	Opacity High		

Figure 7-1 Alarms Tab

The *Alarms Tab* contains two sub-tabs, *Panel* and *History*, each offering up a historical view of alarms that have been raised.

Panel Sub-Tab

The *Panel* sub-tab contains the alarms for the system, as seen in **FIGURE 7-2**. These alarms are real-time representations of alarm conditions.

Parlet History				
Reporting Groups:	•	Alarm Types:	•	Search
Opacity 6-min High 🛛 🗖	Low SO2 Span Cals Warning	NOx Analyzer Fault Unit 1 🛛 🗖	Modbus Master Service	Modbus Slave Service
Opacity High	Low SO2 Span	NOx Analyzer	Modbus Master S	Modbus Slave Se
ModbusEMaster Database Connection	ModbusEMaster Device Unreachable	ModbusESlave Database	ModbusESlave Device Unreachable	RAO Modbus Device Unreachable
Modbus Master	Modbus Master	Modbus Slave D	Modbus Slave	RAO Modbus
RAO Modbus Service 🗖	ROA Modbus Database Connection	SpectraPak 1 Device Communication 🛛	SpectraPak 1 Database Communication 🛛 🗖	SpectraPak 1 Service Communication
RAO Modbus Se	RAO Modbus DB	Spak 1	SP1 Database	SP1 Service
SpectraPak 2 Device Communication 🛛 🗖	SpectraPak 2 Database Communication	SpectraPak 2 Service Communication	Unit 1 CO2 Cals Invalid	CO2 Span Cals
Spak 2	SP2 Database	SP 2 Service	CO2 Cals	CO2 Span
CO2 Zero Cals	Flow Interference Check	Flow Span Cals	Flow Zero Cals	High NOx Span Cals
CO2 Zero				
	Flow Int. Check	Flow Span	Flow Zero	High NOx Span
ligh NOx Zero Cals	Flow Int. Check	Flow Span	Flow Zero	High NOx Span
iigh NOx Zero Cals □ High NOx Zero	Flow Int. Check High S02 Span Cals High S02 Span	Flow Span	Flow Zero Low NOx Span Cals Low NOx Span	High NOx Span
tigh NOx Zero Cals □ High NOx Zero ow SO2 Span Cals □	Flow Int. Check	Flow Span High S02 Zero Cals High S02 Zero NOx Rate Alarm Unit 1	Flow Zero Low NOx Span Cals Low NOx Span Opacity Span Cals	High NOx Span Low N0x Zero Cals Low NOx Zero Opacity Zero Cals
ligh NOx Zero Cals □ High NOx Zero ow S02 Span Cals □ Low SO2 Span	Flow Int. Check High SO2 Span Cals High SO2 Span Low SO2 Zero Cals Low SO2 Zero	Flow Span	Flow Zero Iow NOx Span Cals Low NOx Span Opacity Span Cals Opacity Span	High NOx Span
tigh N0x Zero Cals High N0x Zero Kigh N0x Zero Use S02 Span Cals Cox S02 Span Cals Warning	Flow Int. Check High SO2 Span Cals High SO2 Span Low SO2 Zero Cals Low SO2 Zero CO2 Zero Cals Warning	Flow Span High SO2 Zero Cats High SO2 Zero NOx Rate Alarm Unit 1 NOx Rate Flow Span Cats Warning	Flow Zero Iow NOx Span Cals Low NOx Span Opacity Span Cals Opacity Span	High NOx Span
High NOx Zero Cals High NOx Zero Kow SO2 Span Cals Low SO2 Span Cols Span Cals CO2 Span Cals Warning CO2 Span Warn	Flow Int. Check High SO2 Span Cals High SO2 Span Low SO2 Zero Cals Low SO2 Zero CO2 Zero Cals Warning CO2 Zero Warn	Flow Span	Flow Zero Flow Xox Span Cals Opacity Span Cals Opacity Span Flow Zero Cals Warning Flow Zero Warn	High NOx Span
High NOx Zero Cals High NOx Zero High NOx Zero Low S02 Span Cals Low S02 Span C02 Span Cals Warning CO2 Span Warn High NOx Zero Cals Warning	Flow Int. Check High SO2 Span Cals High SO2 Span Low SO2 Zero CO2 Zero Cals Warning CO2 Zero Warn High SO2 Span Cals Warning	Flow Span High SO2 Zero Cals High SO2 Zero Nox Rate Alarm Unit 1 NOX Rate How Span Cals Warning Flow Span Warn High SO2 Zero Cals Warning	Flow Zero Iow NOx Span Cals Low NOx Span Opacity Span Cals Opacity Span Flow Zero Cals Warning Flow Zero Warn Iow NOx Span Cals Warning	High NOx Span

Figure 7-2 Panel Sub-Tab

Double clicking on an alarm will expand the alarm, as seen in **FIGURE 7-3**, to provide more detail on the respective alarm, including history for that particular alarm.

Ox Analyzer Fault Unit	1					8	Opacity 6-min High
			NOx Analyz	er Fault Unit 1 /	Alarm		Low SO2 Span Cals Warning
1 Active, In Alarm, U	n-acknowledged					Acknowledge	Modbus Master Service
							Modbus Slave Service
 Alarm Outpu 	ts (3)						ModbusEMaster Database Connection
Date On	Duration	Date Acknowledged	Acknowledged By	Publishing Application	Message		ModbusEMaster Device Unreachable
9/24/2015 5:40:36 AM				Data Collector Service	test	^	Madhur Slava Databasa
4/25/2014 11:36:14 AM	0			Data Collector Service	Unit 1 NOx analyzer fault has occurred		Moubuseshave Database
11/22/2013 2:43:26 PM	1s			Data Collector Service	Unit 1 NOx analyzer fault has occurred		ModbusESlave Device Unreachable
11/22/2013 2:28:56 PM	1s			Data Collector Service	Unit 1 NOx analyzer fault has occurred		RAO Modhus Device Unreachable
8/29/2013 10:38:42 AM	36d 1h 25m 24s			Alarms Service	Unit 1 NOx analyzer fault has occurred		
8/27/2013 7:48:26 AM	5s			Alarms Service	Unit 1 NOx analyzer fault has occurred		RAO Modbus Service
8/26/2013 3:10:09 PM	4s			Alarms Service	Unit 1 NOx analyzer fault has occurred		ROA Modbus Database Connection
8/26/2013 3:09:47 PM	4s			Alarms Service	Unit 1 NOx analyzer fault has occurred		
8/26/2013 12:59:59 PM	3s			Alarms Service	Unit 1 NOx analyzer fault has occurred		SpectraPak 1 Device Communication
8/26/2013 12:56:14 PM	4s			Alarms Service	Unit 1 NOx analyzer fault has occurred		SpectraPak 1 Database Communication
8/26/2013 12:54:29 PM	4s			Alarms Service	Unit 1 NOx analyzer fault has occurred		
8/26/2013 12:19:00 PM	3s			Alarms Service	Unit 1 NOx analyzer fault has occurred		SpectraPak 1 Service Communication
8/26/2013 7:32:26 AM	3s			Alarms Service	Unit 1 NOx analyzer fault has occurred		SpectraPak 2 Device Communication
8/26/2013 7:32:00 AM	4s			Alarms Service	Unit 1 NOx analyzer fault has occurred		
8/26/2013 7:31:26 AM	3s			Alarms Service	Unit 1 NOx analyzer fault has occurred		SpectraPak 2 Database Communication
8/23/2013 1:47:52 PM	13s			Alarms Service	Unit 1 NOx analyzer fault has occurred		SpectraPak 2 Service Communication
8/23/2013 1:33:52 PM	12s			Alarms Service	Unit 1 NOx analyzer fault has occurred		
8/23/2013 1:33:40 PM	12s			Alarms Service	Unit 1 NOx analyzer fault has occurred		Unit T CO2 Cals Invalid
8/23/2013 1:21:33 PM	12s			Alarms Service	Unit 1 NOx analyzer fault has occurred		CO2 Span Cals
						Muto 🕜	CO2 Zero Cals
						widte 🖤	Flow Interference Check

Figure 7-3 Expanded Alarm

History Sub-Tab

The *History* sub-tab contains a history of all alarm events over the past thirty days, as seen in **FIGURE 7-4**. Each alarm event is color coded based on analyzer type. The slide bar at the top of the window shows a key for the analyzer color. The popup flags indicate the alarm messages in relation to the time on the

timeline zoom bar. The alarm history grid, in the bottom half of the sub-tab, provides information about the alarm such as time occurred, duration of alarm, the publisher, and provides an input for a message describing the alarm.

inn Events (F	ast 50 Days)										• NOX Rate A		Spectrarak 1 Se	ervice commu		Z Analyzer rault u
	NOx Rate (NOx Ib/ mmBtu exceedance)		NOx Rate (NOx Ib/ mmBtu exceedance	e)		NOx Rate (NO mmBtu excee	Dx lb/ dance)		NOx Rate (NOx It mmBtu exceedan)/ ce)		NOx Rate (N mmBtu excer	Dx lb/ edance)			NOx Rate (NOx II mmBtu exceedar
		NOx Rate (NOx Ib mmBtu exceedan	e)	NOx Rate (N mmBtu exce	NOx lb/ eedance)					NOx Rate mmBtu e	e (NOx Ib/ xceedance)					NOx Rate (NOx I mmBtu exceedar
				NOx Ra mmBtu	ate (NOx Ib/ I exceedance)					NO ₂ mm	Rate (NOx Ib/ Btu exceedance)				NOx Rate (NO mmBtu exceed	x lb/ lance)
2:26 PM	6:26 PM 10:26	PM 2:26 AM	6:26 AM	10:26 AM	2:26 PM	6:26 PM	10:26 PM	2:26 AM	6:26 AM	10:26 AM	2:26 PM	6:26 PM	10:26 PM	2:26 AM	6:26 AM	10:26 AM
-			2	-									1 100			
9/26/2015	9/28/2015	9/30/2015		0/4/2015												24/2015
			200052353													
nn nv		nere to droup by th	it field													
oup by	area urag a neio	Dublishes	it field													
Occurred	Duration	Publisher	Message													
Occurred	Duration	Publisher	 tield Message ▼ V_x <u>A</u>a 													
Occurred /15 10:41:41	Duration	Publisher Y _{sc} <u>Aa</u> TagService	Message ▼ V _x <u>A</u> a Unit 1 NOx	Rate exceed	lance has occur	red										1
Occurred (15 10:41:41 (15 09:30:42) (15 04 17 22)	Duration V _K <u>Aa</u> ▼ 01:42:30 00:00:12 01.4320	Publisher V _a <u>Aa</u> TagService TagService	 Message ▼_x <u>A</u>a Unit 1 NOx Unit 1 NOx 	Rate exceed	lance has occur lance has occur	red						_	_			
Occurred /15 10:41:41 /15 09:30:42 /15 04:17:23	Duration V _x Aa ▼ 01:42:30 00:00:12 01:42:29	Publisher V. Aa TagService TagService TagService	tt field Message ▼ T _{st} <u>A</u> a Unit 1 NOx Unit 1 NOx	Rate exceed Rate exceed	lance has occur lance has occur lance has occur	red red										
Coccurred (15 10:41:41 (15 09:30:42 (15 04:17:23 (15 17:05:35	Duration Δa ▼ 01:42:30 00:00:12 01:42:29 01:42:30 01:42:29 01:42:30	Publisher TagService TagService TagService TagService	 t field Message T_{at} Aa Unit 1 NOx 	Rate exceed Rate exceed Rate exceed Rate exceed	lance has occur lance has occur lance has occur lance has occur	red red red										2
Coccurred (15 10:41:41 (15 09:30:42 (15 04:17:23 (15 10:41:36 (15 10:41:36	Duration Duration Quarticle 01:42:30 00:00:12 01:42:29 01:42:29 01:42:20 01:42:20	Publisher Value Aa TagService TagService TagService TagService TagService	 t field Message T_{at} Aa Unit 1 NOx 	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	lance has occur lance has occur lance has occur lance has occur lance has occur	red red red red red										
CCCURRED CCCURRED T5 10:41:41 15 09:30:42 15 04:17:23 15 10:41:23 15 10:41:36 15 09:30:44 15 09:30:44 15 09:30:44 15 09:30:44	Duration Duration Quarticle 01:42:30 00:00:12 01:42:29 01:42:20 01:42:28 00:00:08 01:42:20	Publisher Y _a <u>Aa</u> TagService TagService TagService TagService TagService TagService	 t field Message ▼_x <u>A</u>a Unit 1 NOx 	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	dance has occur Jance has occur Jance has occur Jance has occur Jance has occur Jance has occur	red red red red red										
Occurred (15 10:41:41 (15 09:30:42 (15 04:17:23 (15 10:41:36 (15 09:30:44 (15 10:41:45 (15 10	Duration Aa ▼ 01:42:30 00:00:12 01:42:29 01:42:29 01:42:28 00:00:08 01:42:28 00:00:08 01:42:29 01:42:28	Publisher TagService TagService TagService TagService TagService TagService TagService TagService TagService	t field Message ▼ ₹ _k ≜a Unit 1 NOx Unit 1 NOx Unit 1 NOx Unit 1 NOx Unit 1 NOx Unit 1 NOx Unit 1 NOx	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	dance has occur dance has occur dance has occur dance has occur dance has occur dance has occur dance has occur	red red red red red red red										3
Occurred /15 10:41:41 /15 09:30:42 /15 04:17:23 /15 10:41:36 /15 09:30:44 /15 04:17:25 /15 10:41:75:40 /15 04:17:25 /15 10:54:0	Duration Duration Aa ▼ 0142:30 00:00:12 0142:32 01:42:28 00:00:08 01:42:28 00:00:08 01:42:29 01:42:29 01:42:29	Publisher Publisher TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService	t field Message ▼ V _n Aa Unit 1 NOx Unit 1 NOx	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	lance has occur lance has occur lance has occur lance has occur lance has occur lance has occur lance has occur	red red red red red red red										3
Cocurred V15 10:41:41 V15 09:30:42 V15 04:17:23 V15 17:05:35 V15 10:41:36 V15 09:30:44 V15 09:30:44 V15 09:30:44 V15 10:41:33 V15 10:41:33 V15 10:41:33 V15 10:41:33 V15 10:41:33 V15 10:41:34 V15 09:30:44 V15 09:30 V15 09 V15 09 V15 09 V15 09 V15 09	Duration Constraint 0142:30 00:00:12 0142:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29 01:42:29	Publisher Publisher TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService	t field Message V _n Aa Unit 1 NOx Unit 1 NO	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	lance has occur lance has occur	red red red red red red red red red										
UD by Occurred (15 10:41:41 (15 09:30:42 (15 04:17:23 (15 10:41:36 (15 09:30:44 (15 04:17:25 (15 17:05:40 (15 10:41:33 (15 09:30:51)	Duration Outputtion Duration 4 Duration 4 0142:30 0142:30 0142:29 0142:30 0142:28 000008 0142:29 0142:29 0142:29 0142:29 0142:29 0142:30 0142:29 0142:30 0142:29 0142:30 00:00:12 0142:30	Publisher Publisher TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService	King Construction King Constructio	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	lance has occur Jance has occur	red red red red red red red red red										
Cocurred V15 10:41:41 V15 09:30:42 V15 09:30:42 V15 09:30:42 V15 10:41:32 V15 10:41:32 V15 10:41:33 V15 09:30:51 V15 09	Duration Composition Duration 4 Out-2014229 0142:30 O142:23 0142:23 O142:23 0142:23 O142:23 0142:23 O142:20 0142:23 O142:20 0142:23 O142:20 0142:23 O0:00:12 0142:23 O0:00:12 0142:23	Aublisher Aublisher Aublisher TagService TagS	t field Message ▼ 1% Åa Unit 1 NOx Unit 1 NOx	Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed Rate exceed	Jance has occur Jance has occur	red red red red red red red red red										
Cocurred /15 10:41:41 /15 09:30:42 /15 04:17:23 /15 10:41:36 /15 10:41:36 /15 10:41:32 /15 10:41:33 /15 09:30:51 /15 04:17:20 /15 04	Duration Outputtion Duration 014230 000012 014229 014229 014229 014229 014229 014229 014223 014233 014233 014233 014233 014233 014233 014230 014233 014233 014233	Publisher Publisher TagService TagServi		Rate exceed Rate exceed	Jance has occur Jance has occur	red red red red red red red red red red										
Coccurred V15 10:41:41 V15 10:30:42 V15 10:41:723 V15 10:41:36 V15 10:41:36 V15 10:41:36 V15 10:41:37 V15 10:41:37 V15 10:41:33 V15 04:17:20 V15 04:17:20 V15 04:17:20 V15 04:35:02 V15 04:17:20 V15 04:35:02 V15	Duration Constraint Duration 0142:30 00142:30 0142:23 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:29 0142:20 0142:20 00:00:12 0142:23 00:00:08 0142:20 00:00:08 0142:20 00:00:08	Publisher V. Au TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService TagService	Message V _∞ & A ^a Unit 1 NOx Un	Rate exceed Rate exceed	Jance has occur Jance has occur	red red red red red red red red red red										

Figure 7-4 History Sub-Tab

ACTIONS

Acknowledging an Alarm

There is only one action that can take place on the *Alarms Tab*, acknowledging an alarm.

To acknowledge an alarm on the *Alarms Tab*, perform the following steps.

- 1. Double-click on the alarm that is in alarm condition.
- 2. Click on the **Acknowledge** button.

Chapter 8 - TRENDS TAB

OVERVIEW

The *Trends Tab*, as seen in **FIGURE 8-1**, provides the end-user with the ability to select historical trend data from predefined trends. The trend pens can be turned on and off, the trend zoomed in and out, and the historical data window can be changed to display older data. The timeline zoom bar, located at the bottom of the pane, allows for selecting the date range.



Figure 8-1 Trends Tab

To select, or deselect, pen, click on the check box, as seen in FIGURE 8-2.



Figure 8-2 Trend Pens Control

Trend Zoom

Clicking and dragging the mouse over an area of the trend graph allows the end-user to draw a box that will zoom in to provide more finite detail. Double-clicking will return the screen to the default zoom level.

Trend Detail

Hovering over a point on a trend line will result in a popup box appearing which will contain the value for that trend at that point in time.

There is also a navigation tool for viewing data. This tool allows the end-user to zoom in, and move the area of the zoom around the trend graph. This navigation tool is accessed by clicking on the ellipsis button on the trend pane and will appear as seen in Figure 8-3.



Figure 8-3 Navigation Tool

From this action menu, the end-user may also save a picture copy of the graph as it exists on the screen.

ACTIONS

Accessing the Zoom Navigation Box

To access the zoom navigation box, perform the following steps.

- 1. Click on the ellipsis button.
- 2. Select the **Show Zoom Box** item in the action menu. The navigation box will appear in the right upper corner of the trend graph.

Exporting Trend Picture

To export a picture of the current trend graph, perform the following steps.

- 1. Click on the ellipsis button.
- 2. Click on the **Export** button.
- 3. Select a location and name for the picture being saved.
- 4. Click on **OK**.

Chapter 9 - I/O POINTS TAB

OVERVIEW

The *I/O Points Tab* allows the end-user to observe the data from the system *Sources*, to include data from the *SpectraPak®-E* and *Modbus* devices, etc., as seen in **FIGURE 9-1**. The right side of the *I/O Points Tab* contains all of the *Sources* in the system. By selecting one of these sources, the end-user can view all of the *I/O* points associated with that source.



Figure 9-1 I/O Points Tab

There are three sub-tabs contained in the *I/O Points Tab*. They are the *Raw Points* sub-tab, the *Sequences* sub-tab, and the *Data Collector Service* sub-tab. An explanation of each follows.

Raw Points Sub-Tab

The *Raw Points* sub-tab, as seen in **FIGURE 9-2**, presents the I/O for the source selected in the right-hand pane. This source presentation is divided into three parts; the *Wired Analogs*, represented by the *Analogs XX* section of the sub-tab; the *Pseudo Analogs*, also represented by the *Analogs XX* section; and the *Digitals*, represented by the *Digital Inputs XX* and *Digital Outputs XX* sections. The *XX* in the section headings represents a number that is the count of I/O points in that particular section, (*i.e., Digital Inputs 11 means there are 11 digital inputs in that section*).

· · · · · · · · · · · · · · · · · · ·											
Communicating	Normally										
					Analog	js 11					
AI1	- 600	AI2	- 100	AI3	- 20	AI4	- 1000	A15	- 50	AI6	- 500
Load	- 480	Opacity	80	CO2	- 16	SO2 High	- 800	SO2 Low	40	NOx High	- 400
Generation Edited	- 240		- 40		- 8	High Range SO2	- 400	Low Range SO	- 20	High Range NOx	- 200
486.1539 MW	- 120	81.0501 %	- 20	10.5397 %	- 4	41.7582 ppm	- 200	40.5128 ppn	n – 10	81.5629 ppm	- 100
16.964 mA	- 0	16.968 mA	- 0	12.432 mA	- 0	4.668 mA	- 0	16.964 mA	- 0	6.61 mA	- 0
AI7	- 100	AI8	- 2000	A19	- 100	AI10	- 100	AI11	- 100		
NOx Low	- 80	Flow	- 1600		- 80		- 80		- 80		
Low Range NOx	- 60	Stack Flow	- 1200		- 60		- 60		- 60		
81.0989 ppm	- 20	1619.536 kscfm	- 400	-24.9817	- 40	-24.9817	- 20	-24.9817	- 20		
16.976 mA	- 0	16.956 mA	- 0	0.003 mA	▶ - 0	0.003 mA	▶ - 0	0.003 mA	▶ - 0		
					Digital In	puts 10					
Fans On DI10	Boiler On	GD On	SC	CR On	Flow Zero	Flow Span	O Op	acity Zero	Opacity Span	O D19	
					Digital Ou	tputs 32					
Cal Gas 1	Cal Gas 2	Cal Gas 3	0	pacity Cal	Flow Cal	Purge	CE	MS Fault	CO2 High	Opacity High	
OD010	Hands Off Cal	Cal Purge	🔘 м	od Hg OOS	Hg OOS	O DO15	O DO		O DO17	O DO18	
O DO 19	O DO20	O DO21	O D		O DO23	DO24	O DC		O DO26.	O DO27	
Watch Dog	DO29	Q DO30	O Di	031	O DO32						

Figure 9-2 I/O Points Tab - Raw Points

Wired Analogs

The *SpectraPak®-E* has eleven wired 4-20ma analog inputs. The inputs have no engineering scaling and must be configured – additionally the inputs are internally stored as 0 - 4095 – integer values. Each analog input can be stored and recalled for up to 10 days.

Pseudo Analogs

For calculations and Modbus operations prepared internally on the *SpectraPak®-E*, the Pseudo Analogs are used. The advantage in any pseudo analog is data storage and recovery in the event the computer is turned off. The disadvantage is the logic to determine a calculated value is simplistic and may not cover all the rules as computed in the computer.

Digitals

Each *SpectraPak®-E* has ten digital inputs and 10 digital outputs for contact/switch monitoring and alarm/value operation. In addition, each *SpectraPak®-E* has twenty-two pseudo digital points used for intermediate logic calculations, (*i.e.*, the Watchdog Timer is fed into the CEMS alarms).

Sequences Sub-Tab

The Sequences Sub-Tab presents the sequences necessary to for controlling activities in the CEMS. Each SpectraPak®-E has a Sequences table for controlling event, calibration, and purge activities. This table is represented in the Sequences Sub-Tab by a grid containing the Sequences, as seen in FIGURE 9-3. If the sequence table is empty, then, no Sequences have been defined for that SpectraPak®-E.

Raw Points	Sequences	Data Collector Service									
				Spect	traPak	1					
Name	Description		Is Active	On Device							
AutoCal 1	Stack Gas Cals			2							
Opacity Cal	Opacity Cal Request										
Flow Cal	Flow Cal Request		•								
Man CG1	Manual Cal Gas 1		•								
Man CG2	Manual Cal Gas 2			I							
Man CG3	Manual Cal Gas 3		 Image: A start of the start of	V							
Man Purge	Manual Purge			v							
test	test sequence			V							
	test sequence										
			Add 🕂 Del	ete 🗊							
					J						
								Developed			
								Download	U	Save	9

Figure 9-3 Sequences Sub-Tab

The *Sequences Sub-Tab* grid items may be drilled into by clicking on a row in the grid. This will bring up additional data grids in the right-hand portion of the screen that contain the start times and steps for the selected *Sequence*, as seen in **FIGURE 9-4**.

Name	Description	Is Active	On Device				AutoCal 1		
AutoCal 1	Stack Gas Cals	V	✓						
Opacity Cal	Opacity Cal Request	v	✓	Start Times					
Flow Cal	Flow Cal Request	\checkmark	\checkmark	Start Time					Is Activo
Man CG1	Manual Cal Gas 1	\checkmark	\checkmark	Start Time					IS ACTIVE
Man CG2	Manual Cal Gas 2	•	\checkmark	01:00:00					
Man CG3	Manual Cal Gas 3	•	✓	09:00:00					V
Man Purge	Manual Purge	\checkmark	\checkmark			0			
test	test sequence		<	Add 🧲	Delete	U			
				Step Number	Description Zero Gas	Mask 8	Set Points Cal Gas 1, Hands Off Cal, Cal Purge	Duration 600	
				1	Zero Gas	8	Cal Gas 1, Hands Off Cal, Cal Purge	600	
				2	High Span Gas	8	Cal Gas 2, Hands Off Cal, Cal Purge	600	
				3	Low Span Gas	8	Cal Gas 3, Hands Off Cal, Cal Purge	600	
				4	Purge	8	Purge, Cal Purge	60	
				Add (Delete	0	Edit Points		
							Download 🔮	Sav	/e 🙂

Figure 9-4 Sequences Grid Drill-Down

Sequence Start Times

The *Start Times* grid displays the start times for the event selected in the *Sequences* grid. Multiple starts time are possible. If the "Is Active" is selected the event will run at the listed time. Deselecting the "Is Active" option will prevent the Sequence from running. The Start time could be blank indicating is a manually run operation only. To change the start time click on the number then enter the new time then press save.

Sequence Steps

Each of the *Sequence Steps* has a duration, listed in seconds, for the relevant operation. When a *Sequence Step* is completed the next *Sequence Step* listed will trigger and run for the duration listed. Clicking on the *Sequence Step* allows the end-user to edit the point that is used. To change the duration click on the number then enter the new duration in seconds then press save.

what

ACTIONS

Download Sequences

Once created, the *Sequences* must be downloaded to the *SpectraPak®-E*. Perform the following steps to download the *Sequences*.

- 1. Select the Sequences Sub-Tab.
- 2. Click the **Download** button. The button will disable and fade and change to **Downloading**. Once the operation is completed, the button will enable and change back to **Download**.

Search by Log Time

The *Log Time* search is performed using pre-defined entries in a drop-down list, or entering a custom string.

To search by log time, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the **Log Time** search box.
 - i. Select the pertinent entry from the drop-down list.
 - ii. If **Custom** was selected, build the search string with the provided tool.
 - b. Type in a valid date/time string, (e.g., 2015-07-01, 07/01/2015, 2015-07-01 00:00) and hit Enter.
- 2. The filter is applied and the event log list is automatically updated.

Search by Severity or Message Contents

The *Severity* search is performed using pre-existing entries in a drop-down list, or entering a custom string.

To search by severity, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the appropriate search box.
 - i. Select the pertinent entry from the drop-down list.
 - ii. If **Custom** was selected, build the search string with the provided tool.
 - b. Type in a valid string and hit **Enter**.
- 2. The filter is applied and the event log list is automatically updated.

Chapter 10 - SYSTEM TAB

OVERVIEW

The *System Tab* is a collection of logs for the *CEMS* operation status and history, as seen in **FIGURE 10-1**. The *System Tab* contains three sub-tabs; the *CEM Log Sub-Tab*, the *Applications Sub-Tab*, and the *System Log Sub-Tab*.

	ECTRUM POWER	COMPANY INCO	RPORATED	setti	ngs
CEM System					
CEM Log	Applications	System Log			
		, ,			
group by ar	ea Drag a field here	to group by that field			
.og Time	Source	Business Object	Reporting Group	Message	
- · v.	Aa • T.	Aa • V.	Aa • Y.	Aa Aa	
10/28/15 06:00:13	ALARMSSERVICE	NOv Rate Alarm Unit	Unit 1	Third 1 NOv Rate exceedance has cleared	
10/28/15 04:17:46	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOX Rate exceedance has occurred	
10/27/15 23:35:25	TAGSERVICE	Boiler On	Unit 1	Bailer Online	
10/27/15 21:45:21	TAGSERVICE	Fans On	Unit 1	Fans Online	
10/27/15 21:35:23	TAGSERVICE	Boiler On	Unit 1	Boiler Offline	
10/27/15 21:35:23	TAGSERVICE	Fans On	Unit 1	Fans Offline	
10/27/15 18:48:25	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared	
0/27/15 17:08:03	DATABASEUPDATER:	MHg Total	Unit 2	10/27/2015 5:06:10 PM Hg via Modbus Span Calibration Warning Measured: 5:7ug/scm Expected: 5ug/scm	
0/27/15 17:08:03	DATABASEUPDATER:	Hg Total	Unit 2	10/27/2015 5:06:30 PM Hg via Spak Span Calibration Warning Measured: 5:7ug/scm Expected: 5ug/scm	
0/27/15 17:05:56	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred	
0/27/15 16:58:10	DATABASEUPDATERS	MHg Total	Unit 2	10/27/2015 4:56:10 PM Hg via Modbus Zero Calibration Passed Measured: -0.2uq/scm Expected: 0uq/scm	
0/27/15 16:58:10	DATABASEUPDATER:	Hg Total	Unit 2	10/27/2015 4:56:30 PM Hg via Spak Zero Calibration Passed Measured: -0.2ug/scm Expected: 0ug/scm	
0/27/15 12:24:10	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared	
3/27/15 10:41:45	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred	
0/27/15 10:27:57	SPECTRUMSYSTEMS\	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged out of ECMPS Module	
0/27/15 10:21:00	SPECTRUMSYSTEMS\	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged in to ECMPS module	
3/27/15 10:19:30	SPECTRUMSYSTEMS	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged out of ECMPS Module	
0/27/15 10:18:32	SPECTRUMSYSTEMS	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged in to ECMPS module	
0/27/15 09:31:06	DATABASEUPDATER:	Low NOx	Unit 1	10/27/2015 9:29:30 AM Stack Low Range NOx Span Calibration Warning Measured: 91.1ppm Expected: 94ppm	
0/27/15 09:31:06	DATABASEUPDATER:	Low NOx	Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7/31/2015 12:00:00 AM. Calibration result invalidated.	
0/27/15 09:31:06	DATABASEUPDATERS	Low SO2	Unit 1	10/27/2015 9:29:30 AM Stack Low Range SO2 Span Calibration Failed Measured: 44.8ppm Expected: 55ppm	
0/27/15 09:31:06	DATABASEUPDATER:	Low SO2	Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7/31/2015 12:00:00 AM. Calibration result invalidated.	
0/27/15 09:31:01	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared	
0/27/15 09:30:43	TAGSERVICE	Purge	Unit 1	Blowback Complete	
0/27/15 09:30:41	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred	
0/27/15 09:29:42	TAGSERVICE	Purge	Unit 1	Blowback in Progress	
)/27/15 09:29:42	TAGSERVICE	Cal Gas 3	Unit 1	Low Range Span Calibration Complete	
0/27/15 09:21:07	DATABASEUPDATER:	High NOx	Unit 1	10/27/2015 9:19:30 AM Stack High Range NOx Span Calibration Passed Measured: 476.2ppm Expected: 476ppm	
wet = 1000					
etch Older					
h NOx Rate Alarm	a Unit 1 Unit	1 Unit 1 NOx Rat	e exceedance has clea	ed	
Ih NOx Rate Alarn	n Unit 1 Unit	1 Unit 1 NOx Rat	e exceedance has occu	rred	
Sh Boiler On	Unit	1 Boiler Online			
	Unit	1 Fans Online			
10h Fans On	Unit	1 Boiler Offline			
10h Fans On 10h Boiler On		a sector or million			
10h Fans On 10h Boiler On 10h Fans On	Unit	1 Fans Offline			
10h Fans On 10h Boiler On 10h Fans On 13h NOx Pata Marro	Unit	1 Fans Offline	a auroadanca har daa		

Figure 10-1 System Tab

CEM Log Sub-Tab

The *CEM Log Sub-Tab* contains all of the entries that are seen in the *Daylog*, as see in **FIGURE 10-2**. These entries are comprised of both system generated and end-user generated items.

CEM Log	Applications	System Log				
group by	area Drag a field her	e to group by that field	E.			
Log Time	Source	Business Object	Reporting Group	Message	_	
= *	ζ. Aa 🔹 V.	Aa 👻 🖓	Aa • Ya			• 7.
10/28/15 06:00:13	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared		
10/28/15 04:17:46	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred		
10/27/15 23:35:25	TAGSERVICE	Boiler On	Unit 1	Boiler Online		
10/27/15 21:45:21	TAGSERVICE	Fans On	Unit 1	Fans Online		
10/27/15 21:35:23	TAGSERVICE	Boiler On	Unit 1	Boiler Offline		
10/27/15 21:35:23	TAGSERVICE	Fans On	Unit 1	Fans Offline		
10/27/15 18:48:25	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared		
10/27/15 17:08:03	DATABASEUPDATER!	MHg Total	Unit 2	10/27/2015 5:06:10 PM Hg via Modbus Span Calibration Warning Measured: 5.7ug/scm Expected: Sug/scm		
10/27/15 17:08:03	DATABASEUPDATER:	Hg Total	Unit 2	10/27/2015 5:06:30 PM Hg via Spak Span Calibration Warning Measured: 5:7ug/scm Expected: 5ug/scm		
10/27/15 17:05:56	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred		
10/27/15 16:58:10	DATABASEUPDATER:	MHg Total	Unit 2	10/27/2015 4:56:10 PM Hg via Modbus Zero Calibration Passed Measured: -0.2ug/scm Expected: 0ug/scm		
10/27/15 16:58:10	DATABASEUPDATER:	Hg Total	Unit 2	10/27/2015 4:56:30 PM Hg via Spak Zero Calibration Passed Measured: -0.2ug/scm Expected: 0ug/scm		
10/27/15 12:24:10	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared		
10/27/15 10:41:45	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred		
10/27/15 10:27:57	SPECTRUMSYSTEMS	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged out of ECMPS Module		
10/27/15 10:21:00	SPECTRUMSYSTEMS\	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged in to ECMPS module		
10/27/15 10:19:30	SPECTRUMSYSTEMS	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged out of ECMPS Module		
10/27/15 10:18:32	SPECTRUMSYSTEMS	Spectrum Plant		User SPECTRUMSYSTEMS\ANDREW logged in to ECMPS module		
10/27/15 09:31:06	DATABASEUPDATER:	Low NOx	Unit 1	10/27/2015 9:29:30 AM Stack Low Range NOx Span Calibration Warning Measured: 91.1ppm Expected: 94ppm		
10/27/15 09:31:06	DATABASEUPDATERS	Low NOx	Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7/31/2015 12:00:00 AM. Calibration result invalidated.		
10/27/15 09:31:06	DATABASEUPDATER:	Low SO2	Unit 1	10/27/2015 9:29:30 AM Stack Low Range SO2 Span Calibration Failed Measured: 44.8ppm Expected: 55ppm		
10/27/15 09:31:06	DATABASEUPDATER!	Low SO2	Unit 1	WARNING: Cal gas bottle Cal Gas 3 expired on 7/31/2015 12:00:00 AM. Calibration result invalidated.		
10/27/15 09:31:01	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has cleared		
10/27/15 09:30:43	TAGSERVICE	Purge	Unit 1	Blowback Complete		
10/27/15 09:30:41	ALARMSSERVICE	NOx Rate Alarm Unit	Unit 1	Unit 1 NOx Rate exceedance has occurred		
10/27/15 09:29:42	TAGSERVICE	Purge	Unit 1	Blowback in Progress		
10/27/15 09:29:42	TAGSERVICE	Cal Gas 3	Unit 1	Low Range Span Calibration Complete		
10/27/15 09:21:07	DATABASEUPDATER:	High NOx	Unit 1	10/27/2015 9:19:30 AM Stack High Range NOx Span Calibration Passed Measured: 476.2ppm Expected: 476ppm		
Count = 1000						
Fetch Older					Add	Ð

Figure 10-2 CEM Log Sub-Tab

Applications Sub-Tab

The *Applications Sub-Tab* contains alarm logs from each of the *SpectraView® Prism Services*, as seen in **FIGURE 10-3**.

_					
aCollectorService1	- DCS for SpectraPak 1			Refresh Service 💿	DataCollectorService1
ning at: net.tcp://172.16.	3.12:18591/DCS				
Sta	rted: 9/24/2015 5:48 AM		Recent Clients		OCS for SpectraPak 1
Tin	e Now: 10/28/2015 8:26 AM	172.16.100.11	1 month, 3 days, 49 mins		DataCollectorService1
A 3 Rui	Time: 1 month, 4 days, 2 hours, 37 mins	192.168.253.211	1 week, 1 day, 16 hours, 12 mins		OCS for Madhur EMarter
Up	late Rate: 500 ms	172.16.3.12	1 sec		CC3 for modulusemaster
we	F Fail Rate: 0 / 16522440	172.16.100.32	Just Now		DataCollectorService
Ver	sion: 1.2.2049.0	172.16.100.15	Just Now		
Logger: DataCollectorSe	vice1			~	DCS for ModbusEMaster
ime Severity	Message				▼ DataCollectorServic
▼ V _a <u>A</u> a	▼ V _x Aa			• ¥	DataCollectorServic
= 0					
					DataCollectorServic
					△ DataCollectorServic
					DCS for Hg Analyzer
					△ DataCollectorServio
					O DCS for Hg Calibrator
					△ DataCollectorServio
					DCS for SpectraPak 2
					DataCollectorServic
					DCS for ModbusESlave
					(
					TagService
					TagService Real-time Tag Service

Figure 10-3 Applications Sub-Tab

System Sub-Tab

The *System Log Sub-Tab* contains system logs for each of the *SpectraView® Prism Services*, as see in **FIGURE 10-4**.

CEM Log	Applications	System Log	
aroup by	a roa Dran a field he	re to group by that field	
group by a	area		
Log Time	Source	Severity	Message
= • 1	ί _≈ <u>A</u> a • Υ,	. <u>A</u> a • ∀ _N	<u>b</u> a • V _k
10/28/15 07:01:25	QualifierService	ERROR	ServiceManager.CreateEcmpsDhr(configuredReportingGroup, monitoringSystems, qualReportSample, systemType; failed to pull. Data for systemType id: HI, null value was returned
10/28/15 07:01:25	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id; CO2, null value was returned
10/28/15 07:01:25	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 219 for reporting group: 2 and sample_time: 10/28/2015 6:00:00 AM
10/28/15 07:01:25	QualifierService	ERROR	Qualifier.ServiceLayer.ServiceManager.CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 231 for reporting group: 2 and sample_time: 10/28/2015 6:00:00 AM
10/28/15 07:01:25	QualifierService	ERROR	Qualifier/ServiceLayer/ServiceManager/CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 6:00:00 AM
10/28/15 07:01:25	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 221 for reporting group: 2 and sample_time: 10/28/2015 6:00:00 AM
10/28/15 07:01:25	QualifierService	ERROR	Qualifier/ServiceLayer/ServiceManager/CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 6:00:00 AM
10/28/15 06:01:23	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id: SO2, null value was returned
10/28/15 06:01:23	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv[configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id: HI, null value was returned
10/28/15 06:01:23	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id: CO2, null value was returned
10/28/15 06:01:23	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 219 for reporting group: 2 and sample_time: 10/28/2015 5:00:00 AM
10/28/15 06:01:23	QualifierService	ERROR	Qualifier/ServiceLayer/ServiceManager/CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 233 for reporting group: 2 and sample_time: 10/28/2015 5:00.00 AM
10/28/15 06:01:23	QualifierService	ERROR	Qualifier/ServiceLayer/ServiceManager/CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 5:00:00 AM
10/28/15 06:01:23	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 221 for reporting group: 2 and sample_time: 10/28/2015 5:00:00 AM
10/28/15 06:01:23	QualifierService	ERROR	Qualifier/ServiceLayer/ServiceManager/CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 5:00:00 AM
10/28/15 05:01:46	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id; SO2, null value was returned
10/28/15 05:01:46	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType; failed to pull Data for systemType id: HI, null value was returned
10/28/15 05:01:46	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv[configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id: CO2, null value was returned
10/28/15 05:01:46	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 219 for reporting group: 2 and sample, time: 10/28/2015 4:00:00 AM
10/28/15 05:01:46	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 4:00:00 AM
10/28/15 05:01:46	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 221 for reporting group: 2 and sample_time: 10/28/2015 4:00:00 AM
10/28/15 05:01:46	QualifierService	ERROR	Qualifier/ServiceLayer/ServiceManager/CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 4:00:00 AM
10/28/15 04:01:41	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv[configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id: SO2, null value was returned
10/28/15 04:01:41	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType): failed to pull Data for systemType id: HI, null value was returned
10/28/15 04:01:41	QualifierService	ERROR	ServiceManager.CreateEcmpsDhv(configuredReportingGroup, monitoringSystems, qualReportSample, systemType; failed to pull Data for systemType id: CO2, null value was returned
10/28/15 04:01:41	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 234 for reporting group: 2 and sample_time: 10/28/2015 3:00:00 AM
10/28/15 04:01:41	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceManager:CreateEcmpsMmv: Unable to pull qualification parameter for parameter id: 233 for reporting group: 2 and sample_time: 10/28/2015 3:00:00 AM
10/28/15 04:01:41	QualifierService	ERROR	QualifierServiceLayer.ServiceManager.CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 3:00:00 AM
10/28/15 04:01:41	QualifierService	ERROR	Qualifier:ServiceLayer:ServiceLayer:ServiceManager:CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 224 for reporting group: 2 and sample_time: 10/28/2015 3:00:00 AM
10/28/15 04:01:41	QualifierService	ERROR	QualifierServiceLayer.ServiceManager.CreateEcmpsMhv: Unable to pull qualification parameter for parameter id: 217 for reporting group: 2 and sample_time: 10/28/2015 3:00:00 AM
10/20/15 02:01:27	0	FRROP	Contraction of an and the second s
Count = 1000			•

Figure 10-4 System Log Sub-Tab

ACTIONS

CEM Log Sub-Tab

Adding an End-User Message

The *CEM Log Sub-Tab* allows for adding end-user messages which will also show up in the *Daylog*. To add an end-user message, perform the following steps.

- 1. Select the CEM Log Sub-Tab.
- 2. Click on the **Add** button in the lower right corner of the sub-tab. A pop-up will appear on the window called *Add New Daylog Message*, as seen in **FIGURE 10-5**.

•

Figure 10-5 Add New Daylog Message Pop-up

3. Enter a message.

- 4. Select an Optional Associated Object.
- 5. Click on the **Add** button. The message will now show up in both the *CEM Log* and the *Daylog*.

Search by Log Time

The *Log Time* search is performed using pre-defined entries in a drop-down list, or entering a custom string.

To search by log time, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the **Log Time** search box.
 - i. Select the pertinent entry from the drop-down list.
 - ii. If **Custom** was selected, build the search string with the provided tool.
 - b. Type in a valid date/time string, (e.g., 2015-07-01, 07/01/2015, 2015-07-01 00:00) and hit Enter.
- 2. The filter is applied and the event log list is automatically updated.

Search by Source, Business Object, Reporting Group, or Message

The search is performed using pre-existing entries in a drop-down list, or entering a custom string.

To search by source, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the appropriate search box.
 - i. Select the pertinent entry from the drop-down list.
 - ii. If **Custom** was selected, build the search string with the provided tool.
 - b. Type in a valid string and hit Enter.
- 2. The filter is applied and the event log list is automatically updated.

Applications Sub-Tab

Search by Log Time

The *Log Time* search is performed using pre-defined entries in a drop-down list, or entering a custom string.

To search by log time, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the **Log Time** search box.
 - i. Select the pertinent entry from the drop-down list.

- ii. If **Custom** was selected, build the search string with the provided tool.
- b. Type in a valid date/time string, (e.g., 2015-07-01, 07/01/2015, 2015-07-01 00:00) and hit Enter.
- 2. The filter is applied and the event log list is automatically updated.

Search by Severity or Message

The search is performed using pre-existing entries in a drop-down list, or entering a custom string.

To search by severity, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the appropriate search box.
 - i. Select the pertinent entry from the drop-down list.
 - ii. If **Custom** was selected, build the search string with the provided tool.
 - b. Type in a valid string and hit **Enter**.
- 2. The filter is applied and the event log list is automatically updated.

System Log Sub-Tab

Search by Log Time

The *Log Time* search is performed using pre-defined entries in a drop-down list, or entering a custom string.

To search by log time, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the **Log Time** search box.
 - i. Select the pertinent entry from the drop-down list.
 - ii. If **Custom** was selected, build the search string with the provided tool.
 - b. Type in a valid date/time string, (e.g., 2015-07-01, 07/01/2015, 2015-07-01 00:00) and hit Enter.
- 2. The filter is applied and the event log list is automatically updated.

Search by Source, Severity or Message

The search is performed using pre-existing entries in a drop-down list, or entering a custom string.

To search by severity, perform the following steps.

- 1. The search string can be entered in one of two ways.
 - a. Click on the down arrow on the left edge of the appropriate search box.

- i. Select the pertinent entry from the drop-down list.
- ii. If **Custom** was selected, build the search string with the provided tool.
- b. Type in a valid string and hit Enter.
- 2. The filter is applied and the event log list is automatically updated.

Chapter 11 - MODULES TAB

OVERVIEW

The *Modules Tab* contains add-on modules for the *SpectraView® Prism Client*, as seen in **FIGURE 11-1**. Modules will appear in the *Installed Modules* section as required by each facility's regulatory requirements. The additional modules allow the end-user to permissions specific actions in the relevant module.



Figure 11-1 Modules Tab

The *Modules* will need to be installed as separate programs on the computer and the appropriate permissions are required to execute the *Modules*. The *Modules* will be covered in separate addendums to this manual to address facility specific requirements.

The modules in the *Modules Tab* could consist of any of the following modules.

- Reports Module
- Data Editor
- CGA
- Linearity
- ECMPS

• SIC

Reports Module

The *Reports Module* provides report generation capabilities to the end-users having permission to use the module. These reports are predefined, and created, for reporting certain aspects of the *CEMS* system.

Data Editor Module

The Data Editor Module allows end-users the ability to edit certain data points in SpectraView® Prism.

CGA Module

The CGA Module provides Cylinder Gas Audit (CGA) capability.

Linearity Module

The Linearity Module provides the ability to perform Linearity testing.

ECMPS Module

The ECMPS Module provides ECMPS reporting for the installation.

SIC Module

The SIC Module provides the ability to perform a System Integrity Check (SIC) on a mercury system.

Chapter 12 - COMPLIANCE TAB

OVERVIEW

The *Compliance Tab* allows for viewing of *Exceedances* and current *Compliance* data, as seen in **FIGURE 12-1**. The *Compliance Tab* consists of three sub-tabs; the *Events Sub-Tab*, the *Downtime Sub-Tab*, and the *Data Sub-Tab*. The far right-hand pane of the *Compliance Tab*, once again provides the ability to select the appropriate unit's data by selecting the unit from the list.



Figure 12-1 Compliance Tab

Events Sub-Tab

The *Events Sub-Tab* is a listing of current *Exceedances*, as seen in **FIGURE 12-2**. The end-user can also acknowledge these events from this sub-tab. The acknowledged *Exceedances* can be hidden from view by selecting the *Hide Acknowledged* box in the top row of the *Events Sub-Tab*.

																	Hide Ackno
t Time	Event	Reason	Action	Code	Message			Acknowledge	d Commen								
2015 8:36:00 AM	Opacity 6 min				Value: 50.6 is GREA	TER_THAN comp	oliance limit: 36										
015 8:30:00 AM	Opacity 6 min				Value: 46.2 is GREA	TER_THAN comp	bliance limit: 36										
015 8:24:00 AM	Opacity 6 min				Value: 41.8 is GREA	TER_THAN comp	pliance limit: 36										
015 8:18:00 AM	Opacity 6 min				Value: 37.3 is GREA	TER_THAN comp	pliance limit: 36										
015 6:48:00 AM	Opacity 6 min				Value: 39.8 is GREA	TER_THAN comp	pliance limit: 36										
015 6:42:00 AM	Opacity 6 min				Value: 44.2 is GREA	TER_THAN comp	oliance limit: 36										
015 6:36:00 AM	Opacity 6 min				Value: 48.7 is GREA	TER_THAN comp	oliance limit: 36										
115 6:30:00 AM	Opacity 6 min				Value: 53.1 is GREA	TER_THAN comp	pliance limit: 36										
015 6:24:00 AM	Opacity 6 min				Value: 57.5 is GREA	TER_THAN comp	pliance limit: 36										
15 6:18:00 AM	Opacity 6 min				Value: 62 is GREATE	R_THAN compli	ance limit: 36										
15 6:12:00 AM	Opacity 6 min				Value: 66.4 is GREA	TER_THAN comp	pliance limit: 36										
015 6:06:00 AM	Opacity 6 min				Value: 70.9 is GREA	TER_THAN comp	oliance limit: 36										
15 6:00:00 AM	Opacity 6 min				Value: 75.3 is GREA	TER_THAN comp	pliance limit: 36										
15 5:54:00 AM	Opacity 6 min				Value: 79.7 is GREA	TER_THAN comp	oliance limit: 36										
015 5:48:00 AM	Opacity 6 min				Value: 81.1 is GREA	TER_THAN comp	oliance limit: 36										
015 5:42:00 AM	Opacity 6 min				Value: 81.1 is GREA	TER_THAN comp	oliance limit: 36										
015 5:36:00 AM	Opacity 6 min				Value: 81.1 is GREA	TER_THAN comp	oliance limit: 36										
015 5:30:00 AM	Opacity 6 min				Value: 81.1 is GREA	TER_THAN comp	oliance limit: 36										
Ider Showing	400 Compliance E	event(s) 40	/0 Unackno	owledged											1 Iter	n(s) Selected	Ackno
Events - Past 1	71 Days																Opaci
	PM 6:40 F	PM 10	0:40 PM	2:40	AM 6:40 AM	10:40 AM	2:40 PM	6:40 PM	10:40 PM	2:40 AM	6:40 AM	10:40 AM	2:40 PM	6:40 PM	10:40 PM	2:40 AM	6:40 AM
10 AM 2:40																	

Figure 12-2 Events Sub-Tab

Downtime Sub-Tab

The *Downtime Sub-Tab* allows the end-user to view any downtime incidents of the selected unit, as seen in **FIGURE 12-3**. The timeline zoom bar, located at the bottom of the pane, allows for selecting the date range.



Figure 12-3 Downtime Sub-Tab

Data Sub-Tab

The *Data Sub-Tab* is used to display current compliance data. The parameters will be plant specific. The timed averages will be programed by *Spectrum Systems, Inc.* and will display on the screen, as seen in **FIGURE 12-4**.

Events	Downt	time	Data								
🔺 Unit 1 O	pacity	- б min opi	city data 3 Pa	arameters							Last Updated: 3h
1 400 Un-A	cknowledg	ged Events,	n Compliance								
SamplaTima		East On	Generation	Onacity							
10/28/2015 7.4	42,00 AM	260	ADE	01							
10/28/2015 7/4	42:00 AM	300	480	01							
10/20/2015 7.3	20-00 AM	260	400	01 01							
10/20/2013 7:3	24.00 AM	260	400	01							
10/20/2015 7.2	19:00 AM	260	400	01							
10/28/2015 7:1	12:00 AM	360	400	81							
10/29/2015 7-0	06:00 AM	260	400	01							
10/20/2015 /10	0010074111	500		0,							
 Unit 1 C 	EME .	15 min cam	data 0.0aran	actors							 Last Hadistadi. 2
SamplaTime	.см3	CO2 %	Flow lession	Generation MM	NOV High page	NOr Low ppm	NOv nom	SO2 High opp	502 Janu pam	Heit On Sarr	Last opuated. 5
10/28/2015 7/2	20.00 AM	10 54775	now_kselli	496.0611	ROALINGALppm	nuox_cow_ppin	n n n	42.01225	o acceleration of the second s	10IIICOIIE3ECS	
10/20/2015 7.3	15:00 AM	10.54671	0	496.0642	91 72075	0	0	42.01525	0	900	
10/28/2015 7:0	00-00 AM	10.54649	0	486.0415	81 70262	0	0	41 97798	0	900	
10/28/2015 6:4	45:00 AM	10.54626	0	486.0415	81.69312	0	0	41.96441	0	900	
10/28/2015 6-3	30-00 AM	10 54665	0	486 0448	81 69178	0	0	41 97527	0	900	
10/28/2015 6:1	15:00 AM	10.54485	0	486.0611	81,71618	0	0	42.01054	0	900	
10/28/2015 6-0	00-00 AM	10 54577	0	486 0431	88 50495	0	0	58 15489	0	900	
10/20/2015 010	001007100	10121211	•	1000101	00000100			50(15105		500	
🔻 Unit 1 Pa	art 75	- Hourly ce	ems data 10 Pa	arameters							Last Updated: 4
🔻 Cable Te	est - Lo	w Nox vs Ca	ble Low NOX	2 Parameters							Last Updated: 3
Hour tes	st - Lov	v NOx vs Cal	ole NOx 2 Para	ameters							Last Updated: 4
Part 75	Test ·	Test CEMS [Data 3 Parame	iters							Last Updated: 4
🔻 Daniel U	Jnit 1 ·	Hourly CEM	IS Data 16 Pa	rameters							Last Updated: 4
🔻 test app	e - 3	Parameters									Last Updated: -

Figure 12-4 Data Sub-Tab

Chapter 13 - ADMIN TAB

OVERVIEW

The Admin Tab contains the functionality required to administer the SpectraView® Prism System, as seen in **FIGURE 13-1**. The contents of the Admin Tab are generally restricted to a limited number of end-users. Also, not all end-users who have access to the Admin Tab will have access to all of the functions on the tab, (*i.e., one may have access to Application Messages, but not to Users and Security*).

SPECTRUM PL	ANT - T	EST PLANT SPECTRUM POW	IER COMPANY INCORPORATED	🛛 settings 🛛 🗕 🗆 🗙
Overview 👫	Syste	m Administration		
Dashboard III				
Calibrations 111				
			Users and Security Expected Values	
Alarms 🛕			Configure users, groups, and roles Add, replace, and refere bottles and change expected values	
Trends 🖂				
I/O Points	-		Trend Configuration Application Messages	
System			Aud, edit, and comigure vends	
Madulas	-			
Modules				
Compliance 🗸			Alarm Configuration Startup Sessions	
Admin			sessions	
	1			
			Add, edit, and configure sources	
			and run Part 75 reports	
			Tags Configuration	
			Add, edit, and configure tags	
	1m	Spectrum Plant	User SPECTRUMSYSTEMS\WILLIAM logged in	1
	93m	NOx Rate Alarm Unit 1	Unit 1 Unit 1 NOx Rate exceedance has cleared	
	4h	NOx Rate Alarm Unit 1	Unit 1 Unit 1 NOx Rate exceedance has cleared	
	4h	Purge	Unit 1 Blowback Complete	
	4h	NOx Rate Alarm Unit 1	Unit 1 Unit 1 NOx Rate exceedance has occurred	
	4h	Purge	Unit 1 Blowback in Progress	
01:57:44 PM Oct 28 2015			NOx Analyzer Tow SO2 Span Opacity High	

Figure 13-1 Admin Tab

The Admin Tab includes the administrative functions for Users and Security, Trend Configuration, Alarm Configuration, Sources Configuration, Tags Configuration, Expected Values, Application Messages, Startup Sessions, and Part 75, as seen in FIGURE 13-2.



Figure 13-2 Admin Functions

Users and Security

The Users and Security Tool in the Admin Tab is used for setting up end-users and their roles.

Users Sub-Tab

In order for a user to interact with *SpectraView® Prism* the user will need to be created and assigned a role, as seen in **FIGURE 13-3**.

In the Rule Let Name Operator Technican Compliance Compliance Compliance Admin Imal Address RRUMSTRIMSAUNDER Josh Harber Image: Compliance Image: Compliance <td< th=""><th></th><th>vice: Users</th><th>and Groups</th><th></th><th></th><th></th><th></th><th></th><th></th><th>Showing</th><th>9: Users and Groups *</th><th> Show Inactive </th></td<>		vice: Users	and Groups							Showing	9: Users and Groups *	 Show Inactive
RUMSTRIMSAUDEN Josh Harler Image: Imag	jîn	First Name	Last Name	Operator	Technician	Compliance	Corporate	Admin	Email Address			
RUMSTRINSUMULA Iadon RUMSTRINSUMULA RUMSTRINSUMULA <	CTRUMSYSTEMS\ANDREW	Andrew	Hatcher					v				
RRUMSTRIAMURADE Alada Zabak Image: Content image: Co	CTRUMSYSTEMSUOSH	Josh	Harvey			1						
RUMSTRIANDALH Nah Chagman Image: Construction of Con	TRUMSYSTEMS\LANDON	Landon	Zabcik					1				
IRUMSSTEMS/WULLAM Bill Cooder Cooder IRL-PCLANDON Lendon Zabelk Cooder Cooder	TRUMSYSTEMS\NOAH	Noah	Chapman									
ALL-POLLANDON Landon Zabcik	CTRUMSYSTEMS\WILLIAM	Bill	Cooter					\checkmark				
	TUAL-PC\LANDON	Landon	Zabcik					✓				

Figure 13-3 Users Sub-Tab

Normally a user is only assigned one role. However, a user may have several roles, but Prism will assign the most intrusive permissions, first. For example, if a user is assigned *Operator* and *Admin*, if either option has the rights to a particular function, then, the user will be granted access. Deselect all roles for a user and that user will become unable to access any functionality.

When a user first attempts to gain access to a new system, the account will be created, but no roles will be assigned, effectively disabling the account. An administrator must assign rights so the user will have access.

Roles Sub-Tab

For each tab shown on the left hand side of the *SpectraView® Prism Client*, very detailed rights are allowed for each role, as seen in **FIGURE 13-4**. For example, the *Calibration Tab* can be expanded to list other rights such as *Start Auto-Cal, Stop Auto-Cal, etc.* By checking the option box under each role, the administrator is able to grant rights to that role. The number listed next to a tab name identifies the number of sub-items for that role. Clicking on the rows with numbers will expand those roles.

Permission		Operator	Technician	Compliance	Corporate	Admin
Site: Spectrum Plant	۵	~	1	-	-	1
Overview Screen		V	~	~	~	V
Dashboard Screen			1	~		1
Calibrations Screen	8			V	V	V
Start Autocal			~	4		4
Stop Autocal						-
Manual Cals						•
Instruments Service						V
Purge	_					1
Alarms Screen	2			1		1
Trends Screen				\checkmark		•
Sources Screen	3			1		-
System Screen	۵	\checkmark		~		-
Modules Screen	8		1			1
Compliance Screen	۵			-		-
Admin Screen	28					~

Figure 13-4 Roles Sub-Tab

Trend Configuration

The *Trend Configuration Tool* in the *Admin Tab* allows the user to add, edit or configure trends. The tool also allows the end-user to create new trends or determine which units or parameters are to be shown on the *Trends Tab*, as seen in the right-hand side, upper right of **FIGURE 13-5**. A *Trend* group may be multi-scaled (each pen is rescaled 0-100% for visibility), made public, activated, given a default amount of data to display, and assigned a Reporting Group, as seen in the right-hand side, upper left of **FIGURE 13-5**. If an item is not listed in the *Tags*, the administrator may create a new *Tag*, then, return to *Trends Configuration* for monitoring, (see **TAGS CONFIGURATION** for more information on configuring tags).

Current Trend Show Public Unit 1 Opacity Test Group1 Current Trend Test2 Inndon test Test Trend Group Add Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete	Filter Reporting Group: None (N/A	Name Description ✓ Is Multi-Scale: ✓ Is Public: ✓ Is Active: Load (Generation Edited)	Jnit 1 Gases Unit 1 Gases Gas Analyzers - Unit 1 - 8 Hr Default Time Spare: 12 Reporting Group: N
Show Public Unit 1 Opacity Test Group1 Unit 1 Gases Test2 Iandon test Test Trend Group Add Delete D	Filter Reporting Group: None (N/A	Name Description Is Multi-Scale: Is Public: Is Active: Load (Generation Edited)	Unit 1 Gases Gas Analyzers - Unit 1 - 8 Hr Default Time Span: Reporting Group: N
Unit 1 Opacity Test Group1 Test Group1 Test2 Test2 Test Trend Group Add Delete D		Description Is Mutti-Scale: Is Julic: Is Sublic: Is Active: Load (Generation Edited)	Gas Analyzers - Unit 1 - 8 Hr Default Time Span: 1; Reporting Group: N
Test Group1		✓ Is Multi-Scale: ✓ Is Public: ✓ Is Active: Load (Generation Edited)	Default Time Spare 12 Reporting Group: N
Unit 1 Gases Test2 Indon test Test Trend Group Add Delete D		Is Public:	Reporting Group: N
Test2 andon test Test Trend Group		Load (Generation Edited)	
Iandon test 🗢 Test Trend Group 🗢 🏑		Load (Generation Edited)	-
Test Trend Group 🗢 🎝			₹
Add 🛨 Delete 🗊		CO2	
Add 🕂 Delete 🔟		SO2 High (High Range SO2)	0 100
		SO2 Low (Low Range SO2)	♥ 0 50
		NOx High (High Range NOx)	
		NOx Low (Low Range NOx)	0 10C
		NOx Rate (NOx Rate Calculation)	◆ □ □
		Add <table-cell-rows> Delete 🗊</table-cell-rows>	

Figure 13-5 Trend Configuration

Alarm Configuration

Alarms Administration

The *Alarm Configuration Tool* in the *Admin Tab* allows for the addition or modification of alarms, including system alarms, compliance alarms, warnings, instrument faults, and other alarms. Initial creation of alarms should be performed by Spectrum Systems, Inc. Changes to Alarms are easy to complete using the existing points. The *Alarm Configuration Tool* consists of two sub-tabs; the *Alarms Sub-Tab*, and the *Outputs Sub-Tab*, as seen in FIGURE 13-6.

lect Alarm Type: All 🔹		Select F	Reporting Group: All 🔹	Show Non-Evaluated A
NOx Analyzer		•		
SO2 Analyzer	17			
CO2 Analyzer	17			
Flow Monitor	P			
Opacity Monitor	17			
NOx Rate (NOx Ib/mmBtu exceedance)				
Spak 1	旦			
SP1 Database	垦			
SP1 Service	垦			
Spak 2	垦			
SP2 Database	垦			
CO2 Span				
CO2 Zero				
High SO2 Span				
High SO2 Zero				
Low SO2 Span				
Low SO2 Zero				
Hinh NOx Snan		•		

Figure 13-6 Alarm Configuration Tool

Alarms Sub-Tab

The *Alarms Sub-Tab* allows the end-user to view, *Add*, *Edit*, or *Delete* alarms. The *Alarms Sub-Tab* is comprised of three separate areas; *Alarms*, *Alarm Details*, and *Associated Alarm Outputs*; as seen in **FIGURE 13-7**.

Above this area, and in the top row of the sub-tab, is a drop-down box, *Select Alarm Type*, which allows the end-user to select the type of alarms to view, along with a drop-down box, *Select Reporting Group*, which allows the end-user to select the reporting group to view. There is also a checkbox, *Show Non-Evaluated Alarms*, to hide or show alarms that have not yet been evaluated.

Below this area, in the bottom row of the sub-tab, there are buttons to *Add*, *Edit*, *Delete*, *Mute*, and *Un-Mute* an alarm.

Alarms

On the left of **FIGURE 13-7** are the *Alarms*, themselves. The contents of this list are controlled by the drop-down lists as noted above in **ALARMS SUB-TAB**.

Alarm Details

On the right of **FIGURE 13-7**, in the upper area, are the *Alarm Details*. By selecting an *Alarm* on the lefthand side of the sub-tab, the end-user may view the *Alarm Details*.

Associated Alarm Outputs

On the right of **FIGURE 13-7**, in the lower area, are the *Associated Alarm Outputs*. Again, by selecting an *Alarm* on the left-hand side of the sub-tab, the end-user may view any *Associated Alarm Outputs*.

Ali •		3	select Reporting Group:	All		Show Non-Evaluated Alarms
NOx Analyzer	P	^		Alar	m Details	
SO2 Analyzer	1		Name: SO2 Analyzer	Fault Unit 1 Tag: N/A		
CO2 Analyzer	P*		Reporting Group: Unit 1 S	t 1 Priority: 6 Limi	it N/A	
Flow Monitor	1		Message Off: Unit 1 S	O2 analyzer fault has cleared	i i	
Opacity Monitor	I **	100		A	Al	
NOx Rate (NOx Ib/mmBtu exceedance)				Associated	Alarm Outputs	
ipak 1	旦		Name	Email	Output Tag	Is Active
P1 Database	E		Default output	specsys2012@gmail.co	on CEMS Fault	✓
CD1 C	目		Landon (spectrum)	landon@spectrumsyst	er	
PT Service	보		Rich (spectrum)	rpmarsh@spectrumsys	ste	
ipak 2	垦					
P2 Database	旦					
CO2 Span						
02 Zero						
ligh SO2 Span						
High SO2 Zero						
ow SO2 Span						

Figure 13-7 Alarms Sub-Tab

Outputs Sub-Tab

The *Outputs Sub-Tab* allows the end-user to view, *Add*, *Edit*, or *Delete* outputs. The *Alarms Sub-Tab* is divided into two areas; the *Outputs*, and the *Associated Alarms*; as seen in **FIGURE 13-8**.

Below this area, in the bottom row of the sub-tab, there are buttons to Add, Edit, and Delete an alarm.

Outputs

On the left of **FIGURE 13-8** are the Outputs, themselves.

Associated Alarms

On the right of **FIGURE 13-8**, are the *Associated Alarm Outputs*. Again, by selecting an *Alarm* on the lefthand side of the sub-tab, the end-user may view any *Associated Alarms*. When selecting an output from the left-hand side of this sub-tab, the *Associated Alarms* grid will fill with any alarms that are tied to that output.

Default output specsys2012@gmail.com CEMS Fault Image: Cems Fault Image: Cems Fault Description andon landon@gmail.com Image: Cems Fault Image: Cems Fault NOx Analyzer Fault Unit 1 SO2 Analyzer Fault Unit 1 SO2 Analyzer Fault Unit 1 Image: Cems Fault Image: Cem	Default output specsys2012@gmail.com CEMS Fault Image: Cemp Comp Comp Comp Comp Comp Comp Comp Co	Name	Email	Output Tag	Is Active		Associated Alarms
est output andrew@spectrumsysten Image: Common system Image: C	Test output andrew@spectrumsysten Image: Communication (spectrum) Image: Communication (sp	Default output	specsys2012@gmail.com	CEMS Fault		Name	Description
andon landon@gmail.com andon@spectrumsyster and Unit 1 SO2 Analyzer Fault Unit 1 SO2 Analyzer Fault Unit 1 SO2 Analyzer Fault Unit 1 CO2 Analyzer Fault Unit 1 NOX Rete Alarm Unit	andon landon@gmail.com Into X nalyzer Fault Unit 1 andon (spectrum) landon@spectrumsyster Into X nalyzer Fault Unit 1 Sizh (spectrum) rpmarsh@spectrumsyste Into X nalyzer Fault Unit 1 Coz Analyzer Fault Unit 1 Into X nalyzer Fault Unit 1 Coz Analyzer Fault Unit 1 Into X nalyzer Fault Unit 1 Opacity Monitor Fault Unit 1 Into X nalyzer Fault Unit 1 NOx Rate Alarm Unit 1 NOx Ib/mmBtu exceedance	est output	andrew@spectrumsysten		\checkmark	NOv Analyzer Fault Unit 1	
andon (spectrum) landon@spectrumsyster	Landon (spectrum) Iandon@spectrumsyster Rich (spectrum) rpmarsh@spectrumsyste CO2 Analyzer Fault Unit 1 CO2 Analyzer Fault Unit 1 Dow Monitor Fault Unit 1 Opacity Monitor Fault Unit 1 NOx Rate Alarm Unit 1	.andon	landonz@gmail.com			SO2 Assess Fault Unit 1	
ich (spectrum) rpmarsh@spectrumsyste Flow Monitor Fault Unit 1 Opacity Monitor Fault Unit 1 NOx Rate Alarm Unit 1 NOx Rate Alarm Unit 1	Rich (spectrum) rpmarsh@spectrumsyste Flow Monitor Fault Unit 1 Opacity Monitor Fault Unit 1 Opacity Monitor Fault Unit 1 NOx Rate Alarm Unit 1 NOx Rate Alarm Unit 1 NOx Ib/mmBtu exceedance	Landon (spectrum)	landon@spectrumsystem			SO2 Analyzer Fault Unit 1	
Opacity Monitor Fault Unit 1 Opacity Monitor Fault Unit 1 NOx Rate Alarm Unit 1 NOX Rate	Now Monitor Fault Unit 1 Opacity Monitor Fault Unit 1 NOx Rate Alarm Unit 1 NOx Rate Alarm Unit 1	Rich (spectrum)	rpmarsh@spectrumsyste			CO2 Analyzer Pault Unit 1	
NOx Rate Alarm Unit 1 NOx Ib/mmBtu exceedance	NOx Rate Alarm Unit 1 NOx Ib/mmBtu exceedance					Opacity Monitor Fault Unit 1	
						obderty monitor rubit officer	
						NOx Rate Alarm Unit 1	NOx Ib/mmBtu exceedance

Figure 13-8 Outputs Sub-Tab

Sources Configuration

NOTE: ADDING OR REMOVING SOURCES WOULD BE BEST LEFT TO SPECTRUM SYSTEMS, INC. AS MISCONFIGURATIONS COULD CAUSE DATA LOSS.

The Sources Configuration Tool in the Admin Tab allows the end-user to view, Add, or Retire sources, as seen in **FIGURE 13-9**. The Sources Configuration Sub-Tab also allows for basic confirmation of the SpectraPak® Prism Servers and Modbus configurations.

Show Retired Sources

Source Type	Name	Description	Address	Port	Modbus ID	Service Alarm	Database Alarm	Device Alarm	WCF Endpoint	Effective Date
SpectraPak-E	SpectraPak 1	Unit A - Controlle	192.168.1.201	1234		SpectraPak 🐂 🔻	SpectraPak 🗧 🔻	SpectraPak 🔭	net.tcp://172.16.3	2/25/2014 12:00:
SpectraPak-E	SpectraPak 2	Unit A - Controlle	192.168.1.202	1234		•	SpectraPak i 🔻	SpectraPak 7 🔹	net.tcp://172.16.3	2/25/2014 12:00:
Modbus over Ethe	ModbusESlave	Test Slave	172.16.3.12	502	1	•	ModbusESIa 🔻	ModbusESIa 🔻	net.tcp://172.16.3	5/22/2014 12:00:
Modbus over Ethe	ModbusEMaster	Test Master	192.168.1.80	502	1	•	ModbusEMa 🔻	ModbusEMa 🔻	net.tcp://172.16.3	2/25/2014 12:00:
Modbus over Ethe	ModbusEMaster	Rao	172.16.5.222	502	1	•	•	•	net.tcp://172.16.3	2/25/2014 12:00:
Modbus over Ethe	RAO T1	RAO Test 1	192.168.1.111	502	1	•	•	•	net.tcp://172.16.3	4/15/2014 12:00:
Modbus over Ethe	RAO T2	RAO Test 2	192.168.1.112	502	1	•	÷		net.tcp://172.16.3	4/15/2014 12:00:
Modbus over Ethe	RAO T3	RAO Test 3	192.168.1.113	502	1	•			net.tcp://172.16.3	4/15/2014 12:00:
Modbus over Ethe	RAO T4	RAO Test 4	192.168.1.114	502	1	•	•		net.tcp://172.16.3	4/15/2014 12:00:
Modbus over Ethe	RAO T5	RAO Test 5	192.168.1.115	502	1	•	•	•	net.tcp://172.16.3	4/15/2014 12:00:
Modbus over Ethe	Hg Analyzer		172.16.5.80	502	80	•	•	•	net.tcp://172.16.3	7/1/2014 12:06:1
Modbus over Ethe	Hg Calibrator		172.16.5.81	502	81	•		•	net.tcp://172.16.3	7/1/2014 12:35:3
Modbus over Ethe Modbus over Ethe Modbus over Ethe	RAO T5 Hg Analyzer Hg Calibrator	RAO Test 5	192.168.1.115 172.16.5.80 172.16.5.81	502 502 502	1 80 81	· · ·			net.tcp://172.16.3 net.tcp://172.16.3 net.tcp://172.16.3	4/15/20 7/1/20 7/1/20

Figure 13-9 Sources Configuration

Tags Configuration

The *Tags Configuration Tool* in the *Admin Tab* allows the end-user to view, *Add, Edit,* or *Delete* tags, as seen in **FIGURE 13-10**. Tags are the fundamental building blocks of the *SpectraView® Prism System*. A *Tag* may have as its basis a *Raw Point*, a *Calculation*, or *Database*.

Raw Point

A Raw Point can be defined as a Digital Input, a Digital Output, an Analog Input, or an Analog Output.

Calculated Point

A Calculated Point can be defined as a Calculated Analog Value, or a Calculated Digital (Logical) Value.

Database Point

A *Database Point* allows Database values to be added as a *Tag*. For example, the *Compliance Hourly* values could be added as a *Tag*.

Show Inactive Tags	Select Tag Type: All	•	Select Reporting Group: All 🔹 Select Source: All
Barometric (Barometric Pressure)	N 29.5 in Hg	^	Analog Tag Details
Cal Gas 2 MW (Cal Gas 2 Molecular Weight)	N 0 g/mol		Engineering Units: in Hg Decimal Precision: 2 Default Max: N/A
202	₩ 7.06 %		Delay Seconds: 0 Default Min: N/A
Flow (Stack Flow)	✓ 1082.3 kscfm		Dave Daint Dave stars
.oad (Generation Edited)	✓ 325.3 MW		Raw Point Parameters
NOx High (High Range NOx)	✓ 54.82 ppm		Source: SpectraPak 2 Address: Al2 Register Type: N/A Point Type: N/A
VOx Low (Low Range NOx)	₩ 54.2125 ppm		Scale High: 32 Scale Low: 26 Raw Scale High: N/A Raw Scale Low: N/A
Opacity	৵ 54.19 %		
Opacity AO 2 (Opacity Analog Out Inverted)	₩ 185.37 %		
Dpactiy AO (Opacity Analog Output)	৵ 54.46 %		
RAO1	Never		
6O2 High (High Range SO2)	✓ 28.57 ppm		
SO2 Low (Low Range SO2)	✓ 27.094 ppm		
itack Pressure	✓ -22,77 in WC		
itack Temperature	✓ 230.68 deg. F		
est FAI2 (Modbus test)	₩ 0 MW		
Boiler On (Unit Online)	٩		
al Gas 1 (Zero Gas)	0		
al Gas 2 (High Range Span Gas)	0		
Cal Gas 3 (Low Range Span Gas)	0	•	

Figure 13-10 Tags Configuration

Expected Values

The *Expected Values Tool* in the *Admin Tab* allows the end-user, through the *Bottle Manager*, to view, *Add, Edit,* and *Retire* bottles, along with the ability to *Edit Other Expected Values*, as seen in **FIGURE <u>13-11</u>**.

pected Values	
Bottle Manager Other Expecte	I Values
Unit 1 Stack	QA Outputs (3)
Cal Gas 1 Cal Gas 2	Cal Gas 3 Cal Gas 3 Cuitet Cui
	Bottle Inventory (4)
HR Linearity Low S/N: SDFLK/SHD	HR Linearity Mid 5/N: TEST234234
HR Linearity High S/N: sdlfkjsdf	New CG2 Test 5/N: TEST1234
Add <table-cell-rows> Edit 🧭</table-cell-rows>	Retire Refresh
	Back

Figure 13-11 Expected Values Tool

The Expected Values Tool contains two sub-tabs; the Bottle Manager Sub-Tab, and the Other Expected Values Sub-Tab.

Bottle Manager Sub-Tab

The *Bottle Manager Sub-Tab*, as seen in **FIGURE 13-12**, is used to view, *Add*, *Edit*, and *Retire* calibration gas cylinder inventory used by the *CEMS*.

nit 1 Stack	QA	Outputs (3)	Unit 1 Stack
O Cal Gas 1	Cal Gas 2	Cal Gas 3	
i i	1		Outlet
			Training Room Training I
[No Bottle]	Expires: 6/2/2025 Landon Test	Expired: 7/31/2015 Cal Gas 3	
	Bottle	e Inventory (4)	
HR Linearity Low S/N: SDFLKJSHD	HR L S/N:	inearity Mid TEST234234	
HR Linearity High S/N: sdlfkjsdf	New S/N:	CG2 Test TEST1234	

Figure 13-12 Bottle Manager Sub-Tab

Other Expected Values Sub-Tab

The *Other Expected Values Sub-Tab*, as seen in **FIGURE 13-13**, is used for other instruments that have daily calibration values that are not dependent on a calibration cylinder, (*i.e., Hg, Opacity, Flow, etc.*).

Init 1 Opacity Stack Opacity Span: 80 Last Updated: 1/5/20	% 15 9:02:55 AM	Unit 1 Flow Stack Flow Span: 1500 k Last Updated: 9/4/201	scfm 4 9:19:42 AM	Test Unit 1 Stack Unit 2 Test Unit 2 Stack
Zero Cal Expected Value: 0 % Changed: 1/5/2015 9:02:55 AM	Span Cal Expected Value: 79 % Changed: 11/4/2014 2:25:26 PM	Zero Cal Expected Value: 0 kscfm Changed: 1/1/2012 12:00:00 AM	Span Cal Expected Value: 160 kscfm Changed: 9/4/2014 9:19:42 AM	Slave Test Training Room
Stack Low Range NO. Span: 100 Last Updated: 1/1/20	x cable corrected ppm 113 12:00:00 AM			
Zero Cal Expected Value: 0 ppm Changed: 1/1/2013 12:00:00 AM	Span Cal Expected Value: ppm			

Figure 13-13 Other Expected Values Sub-Tab

Application Messages

The *Application Messages Tool* in the *Admin Tab* allows the Administrator to view, or *Add* site-wide *CEMS* messages which are broadcast to every end-user, immediately, as seen in **FIGURE 13-14**.

Added By	Effective Date	Expiration Date	Reporting Group	Current Sessions Only?	Message	
Z-LAPTOP\LANDON	8/13/2015 5:41:21 AM	8/13/2015 5:43:20 AM		V	test	
SPECTRUMSYSTEMS\WAYNE	1/6/2015 2:34:14 PM	1/6/2015 2:35:38 PM			Please Restart Graphics	
PECTRUMSYSTEMS\ANDREW	1/6/2015 8:20:08 AM	1/6/2015 8:21:59 AM			test	
PECTRUMSYSTEMS\LANDON	12/18/2014 10:54:28 AM	12/18/2014 10:56:23 AM			landon test	
PECTRUMSYSTEMS\LANDON	12/18/2014 10:24:18 AM	12/18/2014 10:26:14 AM			another test	
PECTRUMSYSTEMS\LANDON	12/18/2014 10:14:12 AM	12/18/2014 10:16:06 AM		V	test again	
PECTRUMSYSTEMS\LANDON	12/17/2014 2:50:04 PM	12/17/2014 2:52:02 PM			test	
Z-LAPTOP\SPECTRUM	11/4/2014 2:26:41 PM	11/4/2014 2:41:24 PM			test message	
PECTRUMSYSTEMS\ANDREW	10/15/2014 10:21:14 AM	10/15/2014 10:30:54 AM			reports test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 10:19:49 AM	10/15/2014 10:29:37 AM			ecmps test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 10:14:44 AM	10/15/2014 10:24:30 AM			sic test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 10:12:05 AM	10/15/2014 10:21:45 AM			linearity test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 10:07:14 AM	10/15/2014 10:16:58 AM			data module test 2	
PECTRUMSYSTEMS\ANDREW	10/15/2014 9:53:01 AM	10/15/2014 9:54:45 AM		\checkmark	data module test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 8:48:56 AM	10/15/2014 8:50:45 AM			ecmps test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 8:25:16 AM	10/15/2014 8:27:04 AM	Unit 1		test test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 8:17:33 AM	10/15/2014 8:19:24 AM	Unit 1		test	
PECTRUMSYSTEMS\ANDREW	10/15/2014 8:15:00 AM	10/15/2014 8:16:45 AM			test	
PECTRUMSYSTEMS\LANDON	10/14/2014 3:39:51 PM	10/14/2014 3:41:58 PM	Unit 2		TEst	
PECTRUMSYSTEMS\LANDON	10/14/2014 3:29:48 PM	10/14/2014 3:32:02 PM	Unit 1		new one	
PECTRUMSYSTEMS\LANDON	10/14/2014 3:28:59 PM	10/14/2014 3:31:10 PM		V	reports only	
PECTRUMSYSTEMS\LANDON	10/14/2014 3:28:32 PM	10/14/2014 3:30:37 PM			again	
PECTRUMSYSTEMS\LANDON	10/14/2014 3:13:15 PM	10/14/2014 3:15:18 PM			asdfasdfa	
PECTRUMSYSTEMS\LANDON	10/14/2014 3:02:10 PM	10/14/2014 3:04:18 PM			GASDFJASLDKJF	
PECTRUMSYSTEMS\LANDON	10/14/2014 2:53:05 PM	10/14/2014 2:55:10 PM			another test	
PECTRUMSYSTEMS\LANDON	10/14/2014 2:39:30 PM	10/14/2014 2:41:34 PM			testsetstst	

Figure 13-14 Application Messages Tool

New messages flash at the top of the window, in the *Title Bar*, and the end-user has the ability to delete those messages after viewing.

The *Application Messages*, at addition, can be set to expire in a set number of minutes, on a certain date/time, or after the current end-user session is ended.

Startup Sessions

The Startup Sessions Tool in the Admin Tab allows the end-user to create new Startup Session files. As mentioned in **LAUNCH**, the SpectraView® Prism Client requires a Startup Session file to launch the application. The Startup Sessions Tool provides the end-user the ability to create this file from scratch, Create New, or from the current session file, Create From Current.

Current Session
Application Name: MainApplication
Site Name:
Site ID: 1
Reporting Group IDs: N/A
Role IDs: N/A
Database Provider: System.Data.SqlClient
Theme Color: blue
Disable Alarm Sounds: False
Repeat Alarm Sounds: False
Navigation Hidden: False
Daylog Hidden: False
Animations Enabled: False
Use Cached Site: False
Base Address:
Display 24 Hour Time: False
Always On Top: False
Tile View Selected: False
Create New 🕂 Create From Current 🕈 Back 📀

Part 75

The Part 75 Tool in the Admin Tab allows the Administrator to import Monitoring Plans, run Federal Part 75 Reports, and view DAHS Verification history. The Part 75 Tool contains three sub-tabs; the Monitoring Plans Sub-Tab, the Reports Sub-Tab, and the DAHS Verification Sub-Tab; as seen in Figure 13-15.

t 75								
Monitoring Plans	Report	s DAHS	Verification					
Add New Monitoring Pla	n .							Construction Direct
				AI	l Monite	oring Pla	uns (1)	Spectrum Plant
Imported	Imported By	Unit	Status	Ozone	RGGI	Version	Comments	1
4/7/2015 10:05:55 AM	Bill	Spectrum Plant	Default Active	No	No	1.3		
Save 🙂								

Figure 13-15 Part 75 Tool

Monitoring Plans Sub-Tab

The *Monitoring Plans Sub-Tab*, as seen in **FIGURE 13-16**, allows the end-user to view or upload the facility's current *Monitoring Plan* into *SpectraView® Prism*. A facility's *Monitoring Plan* is initially loaded by *Spectrum Systems, Inc.* If revisions are made to the existing *Monitoring Plan*, requiring the plan be updated in *SpectraView® Prism*, click on *Add New Monitoring Plan* at the top left of the sub-tab.

	Monitoring Plans	Report	s DAHS	Verification					
	Add New Monitoring Pla	in							Spectrum Plant
					All	Monite	oring Pla	ns (1)	
	Imported	Imported By	Unit	Status	Ozone	RGGI	Version	Comments	
μ	4/7/2015 10:05:55 AM	Bill	Spectrum Plant	Default Active	No	No	1.3		
	Save 🙂								

Figure 13-16 Monitoring Plans Sub-Tab

Reports Sub-Tab

The Reports Sub-Tab allows the end-user to run reports required by Federal Regulations pertaining to Part 75, as seen in **FIGURE 13-17**.



Figure 13-17 Reports Sub-Tab

DAHS Verification Sub-Tab

The DAHS Verification Sub-Tab allows the end-user to view the DAHS Verifications for the unit(s) at the site, as seen in **FIGURE 13-18**.

Monitoring Plans	Reports	DAHS Verification				
Date	Added		Name	Description	Status	
08/12/15 00:00:00	landon		test		Active	View Report
8/12/13 00:00:00	tandon		test		Active	view Report

Figure 13-18 DAHS Verification Sub-Tab

ACTIONS

Calibration Gas Cylinders

All of the following actions are performed on the *Bottle Manager Sub-Tab* of the *Expected Values Tab*.

Adding Calibration Gas Cylinders

To add a calibration gas cylinder, perform the following steps.

- 1. Click on **Add** at the bottom of the pane.
- 2. A pop-up window will appear titled, Add a Bottle. Click on Next.
- 3. The pop-up will switch to the *Bottle Data* view.
- 4. Enter a **Description** for the bottle.
- 5. Enter the **Vendor ID** as provided on the *Certificate of Analysis* from the calibration gas vendor.
- 6. Enter the **Serial Number** as provided on the *Certificate of Analysis* from the calibration gas vendor.
- 7. Enter the **Certification Date** as provided on the *Certificate of Analysis* from the calibration gas vendor.
- 8. Enter the **Expiration Date** as provided on the *Certificate of Analysis* from the calibration gas vendor.

- 9. Click on Next.
- 10. The pop-up will switch to the *Expected Values* view.
- 11. Click on Add.
- 12. Select the **Gas Type** from the drop down list.
- 13. Double-click on the **Value** field and enter the calibration gas value.
- 14. Engineering Units are automatically populated with the proper units for the calibration gas.
- 15. For a blend of multiple types of calibration gases, repeat steps 1 14 for each gas type.
- 16. Once all gas types are added, click on **Finish**.

Editing Calibration Gas Cylinders

To edit a calibration gas cylinder, perform the following steps.

- 1. Select the desired calibration gas cylinder.
- 2. Click on **Edit** at the bottom of the pane.
- 3. A pop-up window will appear titled, *Edit an Active Bottle*. Click on **Next**.
- 4. The pop-up will switch to the *Bottle Data* view.
- 5. Update the information, as required. Click on **Next**.
- 6. The pop-up will switch to the *Expected Values* view.
- 7. Update the information, as required.
- 8. Click on **Finish**.

Activating Calibration Gas Cylinders

To activate a calibration gas cylinder, perform the following steps.

- 1. In the **Bottle Inventory** section, on the desired bottle, left-click and hold the mouse button down.
- 2. Drag the bottle into the **QA Outputs** section, and release the mouse button.

Retiring Calibration Gas Cylinders

To retire a calibration gas cylinder, perform the following steps.

- 1. Select the relevant calibration gas cylinder in the *Bottle Inventory* section.
- 2. Click on Retire.
- 3. A pop-up window will appear with the question, Are you sure you want to retire this bottle?
- 4. Click on Retire.

Other Expected Values

All of the following actions are performed on the *Other Expected Values Sub-Tab* of the *Expected Values Tab*.

Editing Other Expected Values

To edit an expected value, perform the following steps.

WARNING: THE INFORMATION IN THE EXPECTED VALUES FIELD MAY BE BASED ON CALCULATIONS SUBMITTED TO STATE AND FEDERAL REGULATORY AGENCIES. DO NOT MAKE CHANGES TO THE EXPECTED VALUES WITHOUT CONSULTING THE REGULATORY DOCUMENTS TO ENSURE ACCURACY.

- 1. Select either Zero Cal or Span Cal of the relevant expected value.
- 2. Click on Edit at the bottom of the pane. A pop-up window will appear
- 3. Enter the **New Expected Value**.
- 4. Click on **OK**.

Chapter 14 - TROUBLESHOOTING

LOG FILES

In some circumstances, a log file may need to be downloaded and emailed to *Spectrum Systems, Inc.* for troubleshooting assistance.

To obtain and send the file to Spectrum System, Inc., perform the following steps.

1. Open Windows File Explorer and type *%localappdata%* into the location box.

	= This PC			
F Computer	View		^ @ E	
Properties Open Rename	Access Map network Add a network media • drive • location	Open Control Panel Manage	a program	
(e) (a) ▼ ↑ (m) %/	ocalappdata%	system ♥ →	Search This PC 🔎	
Favorites Desktop Downloads Recent places WPF Library Frojects	Folders (6) Desktop Downloads	Documents Music	Â	
1 This PC	Pictures	Videos		
Desktop Documents Downloads Munic 19 items	Devices and drives (8) OS (C:) 77.0 GR free of 729 GR	DATA (D:)	s GR III ■	

- 2. Hit Return.
- 3. Click on the *Spectrum Systems* folder, then on the *SpectraView® Prism* folder.
- 4. Select the MainApplication-log.txt file and email the file to Spectrum Systems, Inc.

Name	Date modified	Туре	Size
📓 MainApplication-log.txt	10/29/2015 1:54 PM	TXT File	8,877 KB
MainApplication-log.txt.1	10/27/2015 3:23 PM	1 File	9,768 KB
MainApplication-log.txt.2	10/26/2015 1:27 AM	2 File	9,768 KB
MainApplication-log.txt.3	10/20/2015 1:17 PM	3 File	9,769 KB
MainApplication-log.txt.4	10/20/2015 8:06 AM	4 File	9,768 KB

APPLICATION MESSAGES

In the event that the *SpectraView® Prism Client* crashes, an exception window will appear, as seen in **FIGURE 14-1**.

APPLICATION ERROR	-	•	×
We're sorry, an error has occurred and this application must be closed			
Error Details:			
ArgumentOutORRangeException: "Index was out of range. Must be non-negative and less than the size of the collection. Parameter name: index" System Collections.ArmyListInserRangeIInt32 index, ICollection () Infragitics.FastItemsSource.dataSourceAddInt32 position. List newItems) System.Collections.parkiteWhatmateLinvokeOlject sender, NotifyCollectionChangedEventArgs e) System.Windows.Threading.ExceptionFilterHelper.TryCatchWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler)		Ì	
Copy Details to Clipboard			
Support: /8001.422.6110			
Visit Help Dek Am Horizo 1 2004 0			
App Version: 1.2.104.0			
Close			

Figure 14-1 Application Message

Click on *Copy Details to Clipboard* to create a .txt file that can be saved and emailed to Spectrum Systems, Inc. for assistance in troubleshooting the system.