

Cypress EnviroSystems Web Application

Welcome to the Cypress Envirosystems Web Application. From this application the user can monitor, configure, add and delete Cypress Envirosystems field devices, including the:

- WGR (Wireless Gauge Reader)
- WTR (Wireless Transducer Reader)
- WSTM (Wireless Steam Trap Monitor)
- WFM (Wireless Freezer Monitor)
- WBM (Wireless Battery Monitor)

The menu tabs across the top of the page give the user access to the various capabilities, such as: Readings, Graph, Table, Reports, Alarm History, Status, Configuration, Site Settings, and Help.

If the BBS has been configured to talk with various device types, they will each have their own Readings, Graph, Table, Alarm History, and Configuration pages. Figure 1 below is an example of how each device type is listed when hovering the mouse over the “Readings” Menu tab. For example, to select the WSTM Readings page, hover the mouse over the “Readings” menu item then click on the “WSTM” item.

Note: If only one field device has been configured for the BBS, there will not be any sub-menus under the Readings, Graph, Table, Alarm History, and Configuration Pages.

Readings	Graph	Table	Reports	Alarm H
WGRWTR				
WFM				
WSTM	1 Items			
WBM		NodeID	Description	
	03:15	1	Miles per	Miles

Figure 1. BBS Configured to talk with Multiple Device Types

Upon launching the Web Application, the “Readings” page is displayed, as shown in Figure 2.

WGR/WTR Readings Page



Figure 2. Readings page for WGRs and WTRs

Figure 2 represents the Readings page designed to summarize the latest readings of all WGR/WTR nodes. Readings are based on a percentage of full scale determined from the "Min" and "Max" on the Node Configuration page. If the "Min" and "Max" are not set up correctly, the "Reading" value may be incorrect.

The columns can be rearranged simply by clicking and dragging the column to the desired location, however, columns will revert back to the default location the next time this page is loaded.

If a node is set up as a binary node, the "Reading" column will display "Off", "False" or "Inactive" if the reading value is 0, and "On", "True" or "Active" if the reading value is greater than 0.

The Export button on the Readings page also allows the user to export the data on the current page to an MS Excel file.


If a node reading exceeds the user specified limit, the Alarm Status button at the top right corner of the screen will turn Red. Individual nodes may have different statuses based on the reading values.

Error	Reported by field device. The row is highlighted in red.
Verify	If Node readings have not changed in past 2 days, the row is highlighted in yellow. By default this feature is disabled. To enable this feature contact Cypress EnviroSystems field service group by sending an email to cys_support@cypress.com .
Upper Ctl Limit (UCL)	If the reading for the UCL limit exceeds the limit for the node set by the user, the row is highlighted in orange.
Lower Ctl Limit (LCL)	If the reading for the UCL drops below the limit for the node set by the user, the row is highlighted in orange.
Low Battery	This status will show if a batteries are low. Please contact cys_support@cypress.com to schedule battery replacement. The row is highlighted in yellow.
No Data	This status is displayed if a field device has been configured on the BBS, but no data has ever been sent from that field device. The row is highlighted in gray.
OK	This is the default status of the node. The row is not highlighted.
Inactive	This status is displayed if a field device has stopped sending data to the BBS. The row is highlighted in blue.

Figure 3. Status column details

Readings pages are available for each type of Cypress EnviroSystems field device the user has installed. These pages are accessible through the dropdown menu under the Readings tab and are organized as: WGR/WTR, WFM, WSTM, and WBM. Sample Readings pages for the WFM, WSTM and WBM are shown below.

WFM Readings Page



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Readings

Graph

Table

Reports

Alarm History

Status

Configuration

Site Settings

Help

Export

Alarm Status

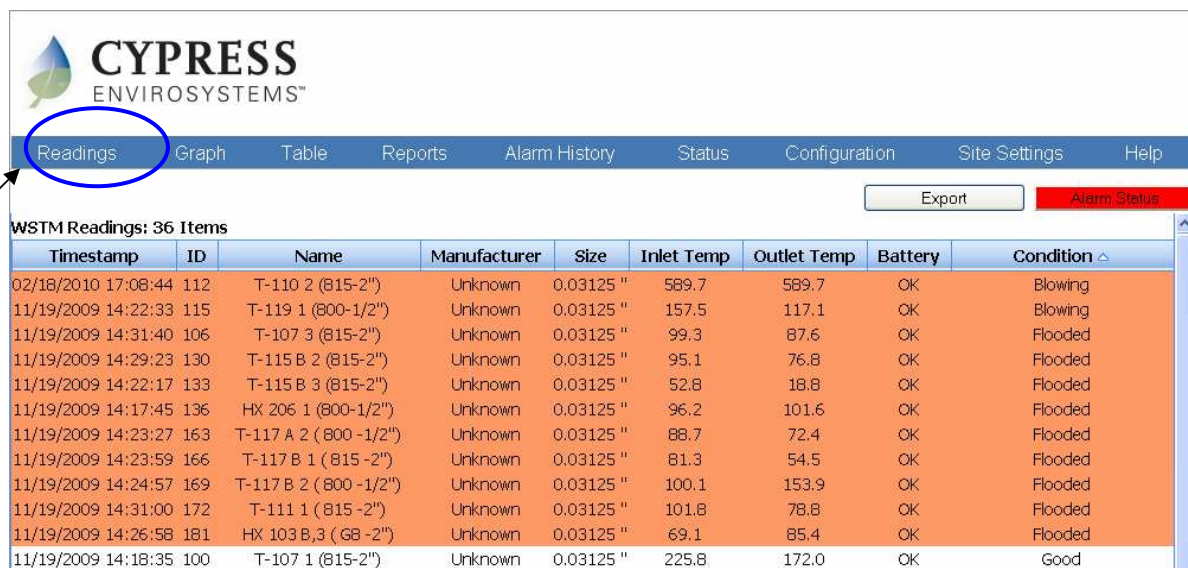
WFM Readings: 1 Items

Timestamp	NodeID	Description	LowStageCurrent	HighStageCurrent	Temperature	DoorSwitch
08/19/2010 08:48:59	234	LowStage	0.02 -OK	0.02 -OK	39.50 -Upper Ctl Limit	CLOSE

Figure 4. Readings Page for WFM

Similar to the WGR/WTR readings page, the WFM readings page, as seen in Figure 4, will show all WFMs installed on the Blue Box. Each WFM will display a Low Stage Current value, High Stage Current value, Temperature and Door Switch position. For values that exceed limits set on the configuration page, each row will highlight in orange, and the status next to the appropriate value will change from “OK” to the alarm message. See Figure 3 for Status details.

WSTM Readings Page



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Readings	Graph	Table	Reports	Alarm History	Status	Configuration	Site Settings	Help
<div>Export</div> <div>Alarm Status</div>								
WSTM Readings: 36 Items								
Timestamp	ID	Name	Manufacturer	Size	Inlet Temp	Outlet Temp	Battery	Condition
02/18/2010 17:08:44	112	T-110 2 (815-2")	Unknown	0.03125 "	589.7	589.7	OK	Blowing
11/19/2009 14:22:33	115	T-119 1 (800-1/2")	Unknown	0.03125 "	157.5	117.1	OK	Blowing
11/19/2009 14:31:40	106	T-107 3 (815-2")	Unknown	0.03125 "	99.3	87.6	OK	Flooded
11/19/2009 14:29:23	130	T-115 B 2 (815-2")	Unknown	0.03125 "	95.1	76.8	OK	Flooded
11/19/2009 14:22:17	133	T-115 B 3 (815-2")	Unknown	0.03125 "	52.8	18.8	OK	Flooded
11/19/2009 14:17:45	136	HX 206 1 (800-1/2")	Unknown	0.03125 "	96.2	101.6	OK	Flooded
11/19/2009 14:23:27	163	T-117 A 2 (800 -1/2")	Unknown	0.03125 "	88.7	72.4	OK	Flooded
11/19/2009 14:23:59	166	T-117 B 1 (815 -2")	Unknown	0.03125 "	81.3	54.5	OK	Flooded
11/19/2009 14:24:57	169	T-117 B 2 (800 -1/2")	Unknown	0.03125 "	100.1	153.9	OK	Flooded
11/19/2009 14:31:00	172	T-111 1 (815 -2")	Unknown	0.03125 "	101.8	78.8	OK	Flooded
11/19/2009 14:26:58	181	HX 103 B,3 (68 -2")	Unknown	0.03125 "	69.1	85.4	OK	Flooded
11/19/2009 14:18:35	100	T-107 1 (815-2")	Unknown	0.03125 "	225.8	172.0	OK	Good

Figure 5. Readings Page for WSTM

The WSTM Readings page, as seen in Figure 5, displays various data fields for each WSTM installed. Users can specify which columns they want to see on the WSTM Readings page by selecting the columns from the Site Settings page on the WSTM tab (see Figure 6 below). The column selections will then be saved as a cookie to the local computer, so the browser will remember how to display the readings.

WSTM Readings

☒Time Stamp
 ☒Type
 ☒Model
 ☒Outlet Temp
 ☒RSSI

☒ID
 ☒Application
 ☒Size
 ☒Battery
 ☒Cold Junction Temp

☒Name
 ☒Pressure
 ☒Inlet Temp
 ☒Delta Temp
 ☒Condition

☒Location
 ☒Manufacturer

Figure 6. Available WSTM fields (found in the Site Settings Page)

The condition field will show the following conditions based on configurable set point limits:

Blowing	The trap is blowing steam. The row is highlighted in red.
Leaking	The trap is starting to blow steam. The row is highlighted in orange.
Flooded	The trap is building up condensate on the inlet. The row is highlighted in red.
Out of Service	There is no steam going to the trap. It is not being used in the system. The row is highlighted in blue.
Offline	The WSTM is not reporting data to the BBS. The row is highlighted in yellow.
No Data	The WSTM has never reported any data to the BBS. The row is highlighted in yellow.
Good	This is the default status of the Node. The row is not highlighted.

WBM Readings Page

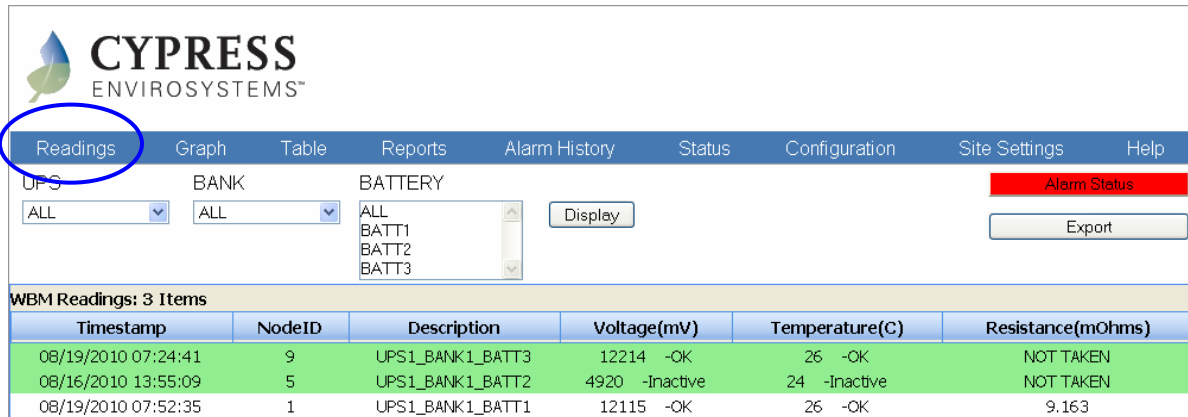


Figure 7. Readings Page for WBM

Similar to the WGR/WTR Readings page, the WBM Readings page, as seen in Figure 7, will show all WBMs that fit the criteria of selected UPS, BANK, and BATTERY controls. Simply choose which UPS (or choose All), Bank (or choose All) and Batteries (or choose All) you would like to see, and they will be displayed. Each WBM will display the voltage, temperature and resistance values for the battery. For values that exceed limits set on the configuration page, each row will highlight in orange, and the status next to the appropriate value will change from OK to the alarm message. See Figure 3 for Status details. Note that in addition to the status details listed in Figure 3, the row will highlight green when a Resistance value has not yet been recorded.

Graph Page

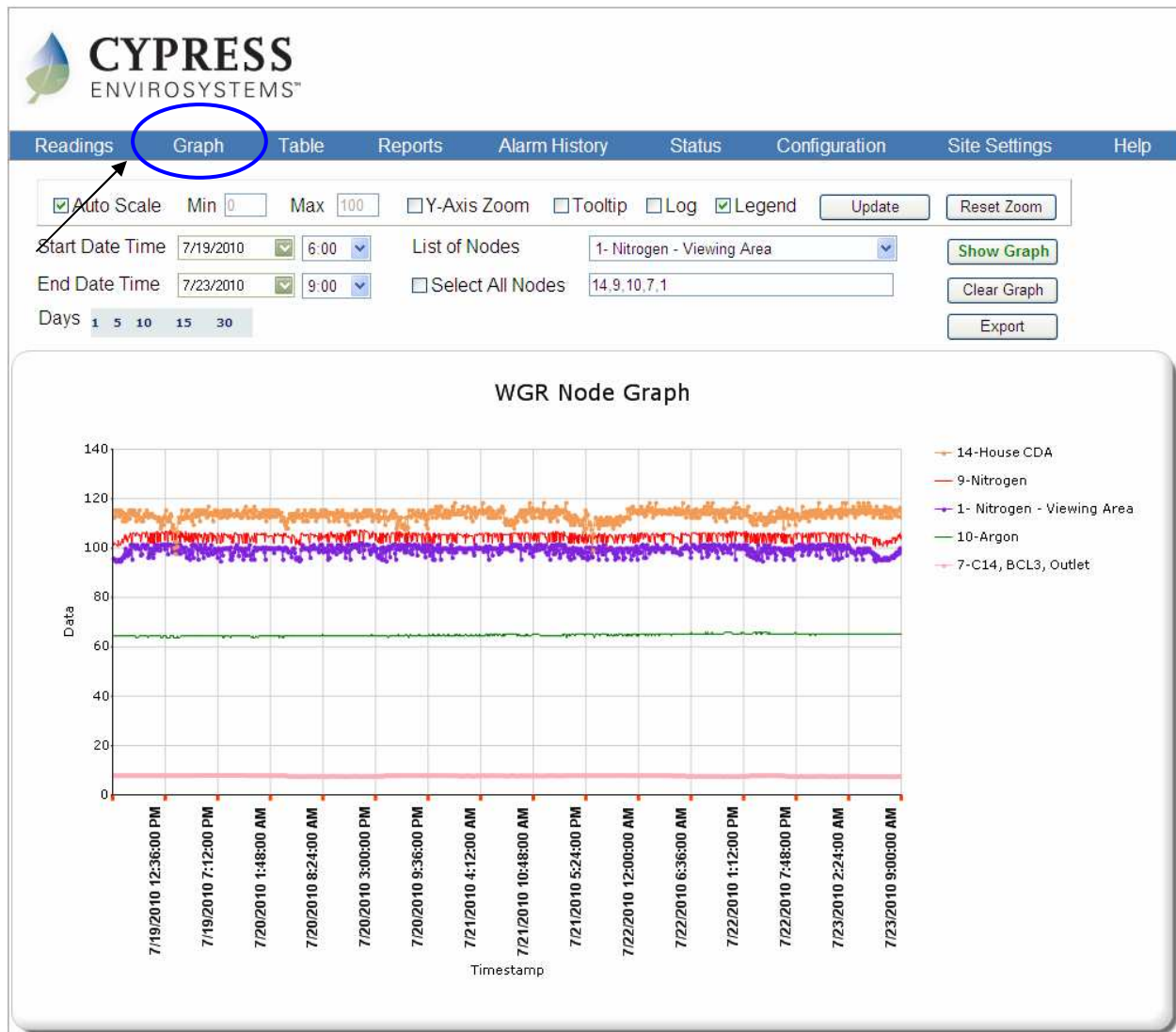


Figure 8. Graph Page

Figure 8 is an example of node data displayed in graphical format. On this page users can view node data between a defined “Start Date Time” and “End Date Time”. Users can enter a start date and end date using the date picker field, then choose a start time and end time from the dropdown menus.

The user specifies which node ID(s) to be displayed. The user can select any node from the dropdown list or enter node ID(s) in the text field under the dropdown (e.g. 1 or 1,2,5,9 or 1-5,9,20), or check “Select All Nodes” to load all the node IDs into the text field. To display the graph, click “Show Graph”.

For WSTM graphs, users may select which values to display for each WSTM. They have the option to display the Inlet, Outlet and Delta temperature values by checking the appropriate checkbox above the graph (see Figure 9).

☒ Auto Scale Min Max ☐ Y-Axis Zoom ☐ Tooltip ☐ Log ☒ Legend

Start Date Time: 8/18/2010 16:00 List of Nodes: Select

End Date Time: 8/18/2010 19:00 ☐ Select All Nodes

Days: 1 5 10 15 30 ☒ Inlet Temp ☒ Outlet Temp ☐ Delta Temp

Figure 9. WSTM graph page

For WFM graphs, users may select which values to display for each WSTM. They have the option to display the Temperature, Door Switch, High and Low Stage Current values by checking the appropriate checkbox above the graph (see Figure 10).

☒ Auto Scale Min Max ☐ Y-Axis Zoom ☐ Tooltip ☐ Log ☒ Legend

Start Date Time: 8/18/2010 16:00 List of Nodes: Select

End Date Time: 8/18/2010 19:00 ☐ Select All Nodes

Days: 1 5 10 15 30 ☒ Temperature ☒ Door Switch ☒ Highstage Current ☒ Lowstage Current

Figure 10. WFM graph page

For WBM graphs, users can select which WBMs to graph using the “UPS” and “Bank” dropdowns as well as the “Battery” list. Note that multiple batteries may be selected from the “Battery” list by holding down the Ctrl key while selecting multiple entries. Additionally, users may select which values to display for each WBM. They have the option to display the Voltage, Temperature and Resistance values by checking the appropriate checkbox above the graph (see Figure 11).

☒ Auto Scale Min Max ☐ Y-Axis Zoom ☐ Tooltip ☒ Legend

Start Date Time: 8/18/2010 16:00 UPS: ALL Bank: ALL Battery: ALL

End Date Time: 8/18/2010 19:00

Days: 1 5 10 15 30 ☒ Voltage ☒ Temperature ☒ Resistance

Figure 11. WBM graph page

Graphing options include:

Auto Scale	The graph will automatically scale based on node values. This is the default scale. To turn off auto scale, uncheck the checkbox, and the “Min” and “Max” fields will be enabled.
Min	If auto scale is turned off, the user must specify the minimum Y value on the graph.
Max	If auto scale is turned off, the user must specify the maximum Y value on the graph.
Y-Axis Zoom	Allows the user to zoom into data on both the x and y axis. By default all zooming occurs only on the x axis.
Tooltip	This allows the user to see the actual reading value on the graph by hovering the mouse pointer over a point on the graph.
Log	The user can check this box to display the Y-axis on a logarithmic scale (not available for WBM).
Legend	The user can check this box to display the legend for the nodes.
Reset Zoom	This button resets the graph back to the default view (no zoom).
Show Graph	If graphing parameters have changed, the user may click the “Show Graph” button for the changes to take effect on the graph.
Clear Graph	The user can clear the current graph parameters and enter new parameters and nodes by clicking the “Clear Graph” button.
Days	Pre-programmed durations of the last 1, 5, 10, 15 or 30 days can be graphed by pressing the corresponding button. This prevents the user from having to manually enter start and end dates.

When graphing multiple nodes, nodes will be listed from highest reading value to lowest reading value in the legend. To improve graphing performance, values may be removed for very large sets of data (e.g. several months worth of data). To ensure all points are graphed, the user may need to adjust the Start Date and End Date. To zoom into data on the graph, using the mouse pointer, left click and drag the desired zooming area. By default, zooming occurs in the x direction only. To zoom in on the y axis as well, the user must check the “Y-Axis Zoom” button.

Graph pages are available for each type of Cypress EnviroSystems field device the user has installed. These pages are accessible through the dropdown menu under the Graph tab and are organized as: WGR/WTR, WFM, WSTM and WBM.

Table Page

Figure 12 shows node data in table format. Similar to the Graph page, the user must choose a start and end time as well as a list of nodes. The data will be displayed on the web application and can also be exported to MS Excel using the “Export To Excel” button.

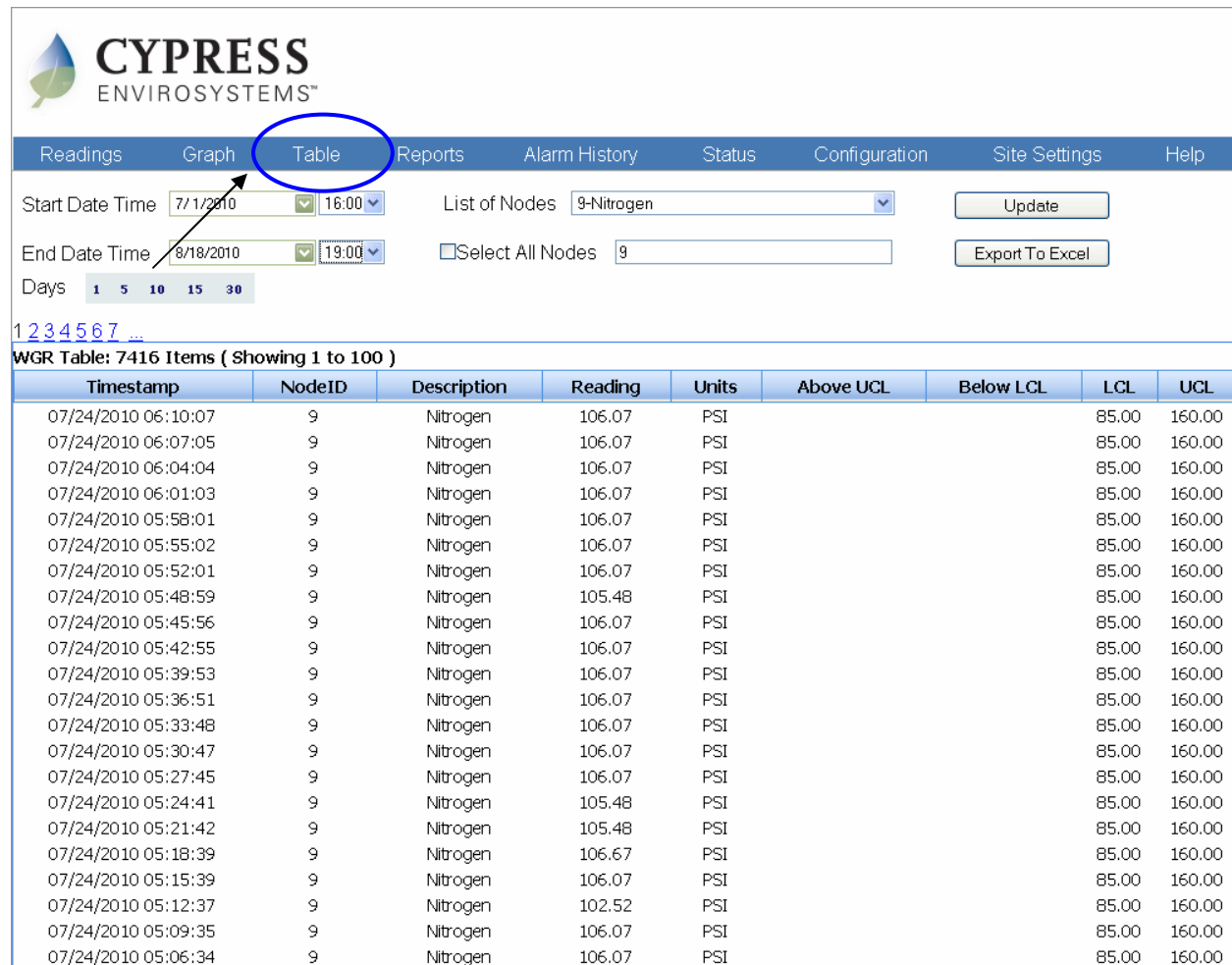


Figure 12. Table Page

Table pages are available for each type of Cypress EnviroSystems field device the user has installed. These pages are accessible through the dropdown menu under the Table tab and are organized as: WGR/WTR, WSTM, WFM, and WBM. Column headers may differ for the various field devices.

Alarm History Page

The user can view all past alarms on the Alarm History page, shown in Figure 13. This page can be accessed by clicking the “Alarm Status” button on any Readings page, or by clicking the dropdown menu under the Alarm History tab and are organized as: WGR/WTR, WSTM, WFM, and WBM. Column headers may differ for the various field devices.

This page will provide the user with a list of occurrences for each time a node exceeded an alarm limit for the node(s) specified, within the time specified.

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Readings Graph Table Reports **Alarm History** Status Configuration Site Settings Help

Start Date Time: 1/31/2008 16:00 List of Nodes: 2 Process Vacuum - Viewing Area
End Date Time: 8/18/2010 19:00 ☒ Select All Nodes 1,2,3,4,5,6,7,9,10,11,12,13,14,15,16,17,1
Days: 1 5 10 15 30

Alarm Reset
Update
Export To Excel

1 2 3 4 5 6 7 ...

WGR Alarm History: 2839 Items (Showing 1 to 100)

Timestamp	NodeID	Description	MinValue	MaxValue	LCL	UCL	Reading	Units	Above UCL	Below LCL	BatteryStatus
5/9/2008 8:56:56 PM	4		0	3000	300	3000	288.90	PSI		TRUE	100
5/9/2008 7:26:44 PM	4		0	3000	300	3000	266.65	PSI		TRUE	100
5/9/2008 4:25:43 PM	4		0	3000	300	3000	266.65	PSI		TRUE	100
5/9/2008 3:55:35 PM	4		0	3000	300	3000	266.65	PSI		TRUE	100
5/9/2008 1:18:21 PM	13		0	200	57	90	56.30	PSI		TRUE	100
5/8/2008 10:16:55 AM	4		0	3000	300	3000	266.65	PSI		TRUE	100
5/7/2008 4:38:37 AM	4		0	3000	300	3000	266.65	PSI		TRUE	100
5/6/2008 1:34:10 PM	4		0	3000	300	3000	266.65	PSI		TRUE	100
4/13/2008 8:56:38 PM	13		0	200	57	90	56.30	PSI		TRUE	100
4/13/2008 8:56:38 PM	13		0	200	57	90	56.30	PSI		TRUE	100
4/12/2008 7:17:47 PM	13		0	200	57	90	56.30	PSI		TRUE	100

Figure 13. Alarm History Page

Alarm Notification

If a node has exceeded a configured alarm limit and the alarm function has been enabled for the node, then a notification message will be sent via SMS text message or email to the configured recipients. This alarm message will only be sent one time, and subsequent alarms for the alarm limit will not trigger additional messages until the alarm has been reset by the user.

Alarm Reset

To reset an active alarm, click the “Alarm Reset” button on the “Alarm History” page. This will take the user to the Alarm Reset page, shown in Figure 14. The user can either click “Reset All” to reset all active alarms, or find the individual node alarm and click the associated “Reset” button.

Reset	NodeID	Description	MinValue	MaxValue	LCL	UCL	LCLTripped	UCLTripped	AlarmControlLimit
Reset		Nitrogen - Viewing Area	0	200	80	190	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3
Reset	2	Process Vacuum - Viewing Area	-30	30	-30	-10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3

Figure 14. Alarm Reset Page

Status Page

This read-only screen, shown in Figure 15, displays the status conditions of nodes configured on the BBS, including battery status and wireless signal strength (RSSI value). Nodes that do not use batteries will also be displayed showing a battery status of 100%, but this value can be ignored.

Timestamp	NodeID	Description	BatteryStatus (%)	RSSI	DeviceType
8/19/2010 8:53:56 AM	234	LowStage	100	21	WFM
8/19/2010 8:52:59 AM	222	WSTM_222	100	8	WSTM
8/19/2010 8:52:07 AM	229	NodeID 229	100	7	WTR
8/19/2010 8:52:07 AM	228	NodeID 228	100	7	WTR
8/19/2010 7:41:11 AM	231	WFM as Switch	100	3	WTR
8/19/2010 7:41:11 AM	230	WFM as WTR	100	3	WTR

Figure 15. Battery and Signal Strength Status Page

WBM Status Page

If WBMs are installed, this read-only screen, shown in Figure 16, will display the status conditions of UPS nodes configured on the BBS and can be used to view the latest status of UPS Nodes. This page displays Voltage, Temperature, Resistance for UPS Nodes. The user can select the Nodes using the filter at the top of the page, then select the “Show Graph” button. Check the “Legend” checkbox to show the legend for the UPS nodes displayed.

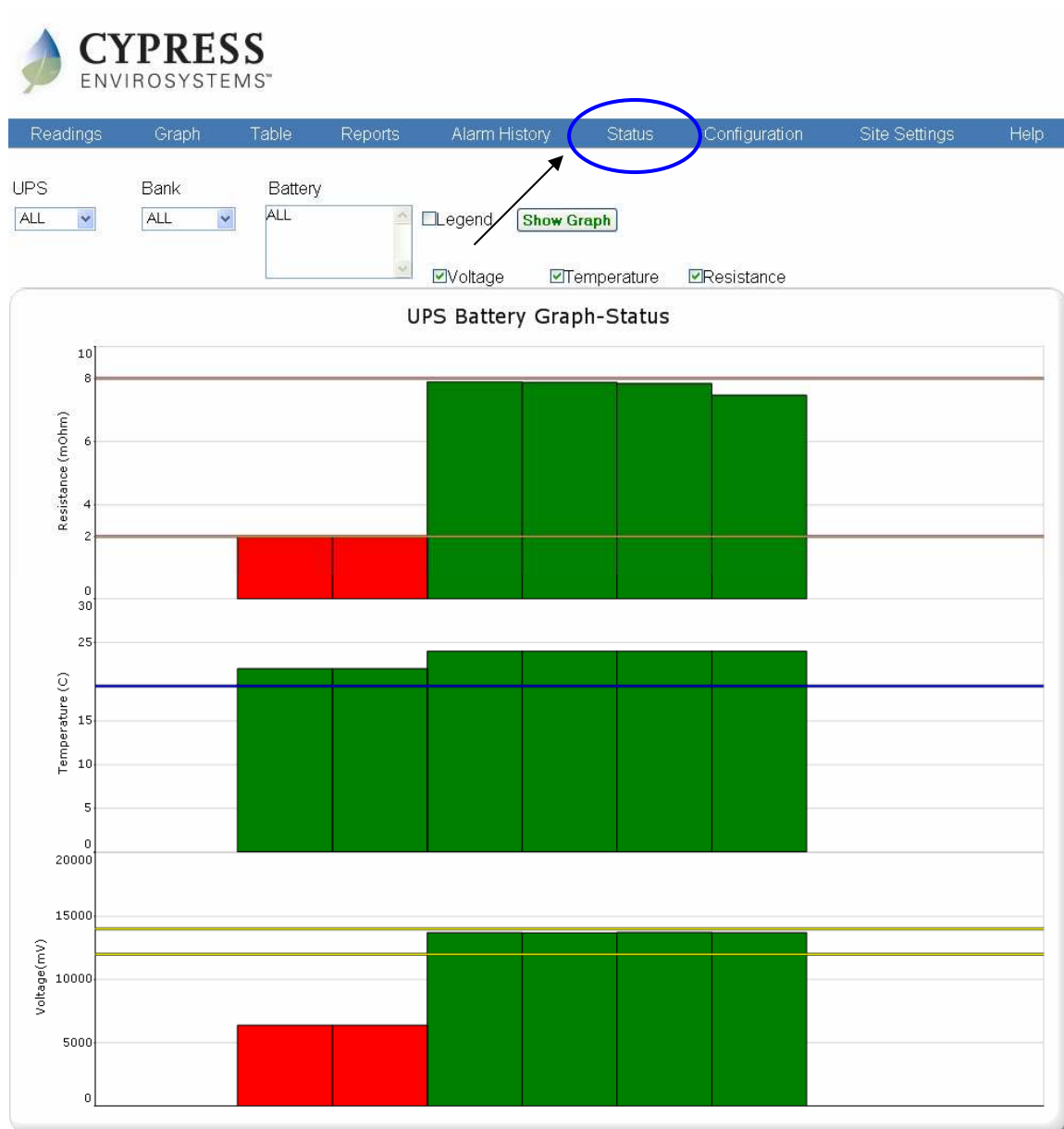


Figure 16. WBM Status Page

Configuration Page

Each field device has its own node configuration page. Each configuration page is password protected to limit uncontrolled modifications to the system. The user must have Admin rights in order to access the Configuration page. The login page is shown in Figure 17.




Enter your User Name and Password to access protected pages.

A screenshot of a login form titled "WGR Server Login". The form has a blue background. It contains two input fields: "User Name:" and "Password:". To the right of the "Password:" field is a "Log In" button.

Figure 17. Configuration Login Page

Once the user has successfully logged into the Configuration page, configured nodes for the selected field device are displayed, as shown in Figure 18. Note that the column headers may differ between field devices.



Readings
Graph
Table
Reports
Alarm History
Status
Configuration
Site Settings
Help

NodeID Add... Delete

Load from File Browse... Download Upload

Version - 04.1.0.1032.2

Show Change Log

Node configuration: 21 Items

	Edit	NodeID	DeviceID	Description	MinValue	MaxValue	LCL	UCL	SMSAlarm	Units	DeviceDetail
▶	Edit	1	1	Nitrogen - Viewing Area	0	200	80	190	True	PSI	WGR
	Edit	2		Process Vacuum - Viewing Area	-30	30	-30	-10	True	" Hg	WGR
	Edit	3		ASML Lens purge, He/O2, Left Cylinder, Outlet	-15	100	80	105	False	PSI	WGR
	Edit	4		ASML Lens purge, He/O2, Left Cylinder, Inlet	0	3000	300	3000	False	PSI	WGR
	Edit	5		ASML Lens purge, He/O2, Right Cylinder, Outlet	-15	100	80	105	False	PSI	WGR
	Edit	6		ASML Lens purge, He/O2, Right Cylinder, Inlet	0	3000	300	3000	False	PSI	WGR
	Edit	7		C14, BCL3, Outlet	-15	30	4	10	False	PSI	WGR
	Edit	8		LPCVD, Burn Box, Exhaust	-15	15	-15	1.5	False	in H2O	WGR
	Edit	9		Nitrogen	0	160	85	160	False	PSI	WGR
	Edit	10		Argon	0	200	60	200	False	PSI	WGR
	Edit	11		Oxygen	0	200	70	200	False	PSI	WGR
	Edit	12		Hydrogen	0	200	80	200	False	PSI	WGR
	Edit	13		UHP Nitrogen	0	200	57	90	False	PSI	WGR
	Edit	14		House CDA	0	400	85	130	False	PSI	WGR
	Edit	15		Compressed Air-Viewing Area	0	200	0	200	False	PSI	WGR
	Edit	16		C10A,Chlorine,Outlet	-15	30	-15	30	False	PSI	WGR
	Edit	17		C10A,Chlorine,Inlet	0	200	0	200	False	PSI	WGR
	Edit	18		C10B,HBr,Outlet	-15	100	-15	100	False	PSI	WGR
	Edit	19		C10B,HBr,Inlet	0	1000	0	1000	False	PSI	WGR
	Edit	20		ASML Tool Purging Pressure,Outlet	0	160	59	61	False	PSI	WGR
	Edit	21		EPI reactor,Exhaust Burn Box,Hydrogen	0	100	0	100	False	PSI	WGR

Figure 18. WGR/WTR Configuration Page

From this screen, additions and deletions can be done for individual or multiple nodes. Use the box at the top of the Node list to add or delete nodes. Additionally, the user can see which version of the Web Application they are using (located just above the “Show Change Log” button).

Add, Edit, or Delete a Node

To Add a node, enter the new Node ID in the “NodeID” field and click Add to open the “Node Configuration Dialog box shown in Figure 19.

To edit individual node information, locate the node number in the Node ID column and click on “Edit” on the left of the node number to open “Node Configuration Dialog” box, shown in Figure 19.

To Delete a node, enter the Node ID of the configured node in the “NodeID’ field, and click delete. Multiple nodes may be deleted at the same time (e.g. 1 or 1,2,5,9 or 1-5,9,20).

To add multiple nodes at the same time, the user must first download the tab delimited template file by clicking the “Download” button. Once the file has been modified with the new node information, the user may upload the new file by first clicking “Browse”, locating the new file, followed by clicking the “Upload” button.

Click the “Show Change Log” button on the Configuration Page to see the log of changes made.

Each field device has its own Node Configuration dialog box. Figure 19 is an example of adding a new WGR/WTR. If a device has already been configured as a WGR or WTR, only the appropriate fields will be displayed when editing. (see Figure 20).

The image shows a software dialog box titled "WGR/WTR". It contains several sections for configuring a node. At the top, there's an "Available Node List" with a dropdown showing "136" and a ">>" button. To the right are input fields for "NodeID" (value 1) and "Device ID" (value 1), along with "OK", "Close", and "Refresh" buttons. Below this, the "Name" field contains "Nitrogen - Viewing Area". The "Unit" section has radio buttons for "Units" (selected) and "Binary", with a dropdown showing "PSI" and another showing "0-TRUE/FALSE". There's also a "Node Math function" section with a dropdown showing "-". The "Decimal Precision" is set to "1" and "Sample Rate(Sec)" is set to "600". A callout box points to a checkbox labeled "Enable Alarm" which is checked, with the text "Check box to set SMS alarms". Below this, "Alarm Excursion #" is set to "3", and "Alarm Thresholds" show "Min" as "80" and "Max" as "190". The "WGR Configuration" section has a selected radio button, "Min" set to "0", and "Max" set to "200". The "WTR Configuration" section has an unselected radio button, a "Log Scale" checkbox, and a "Device Type" dropdown set to "WTR". Below this, "Sensor Responsivity" is unselected, and "Sensor Type" is a dropdown set to "0-5V". There are input fields for "Volts or mA 1", "Value1", "Volts or mA 2", and "Value2". The "One point Calibration" checkbox is unselected, followed by input fields for "Value Measured", "Value Desired", and "Cold Junction".

Figure 19. Node Configuration Dialog Box for WGR/WTR

The OK button must be clicked to save the newly edited fields. Select the right device type (WGR or WTR) by selecting appropriate radio button. Clicking the Close Button will ignore all the changes made.

WGR/WTR Node Configuration Dialog Box Details

Available Node List	Nodes that can be seen by the BBS but have not been configured.
NodeID	NodeID of the Cypress Envirosystems field device
Device ID	A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.
Name	A basic description of the node.
Unit	Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page. For WTRs with Device Type = Thermocouples or Thermistors the this field can be either "C" for Celsius or "F" for Fahrenheit
Node Detail	If a binary value was used in the "Unit" column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.
Node Math function	Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision	Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate	Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm	This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #	This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)

Min Alarm Threshold	This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.
Max Alarm Threshold	This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.
WGR Configuration	Select this radio button if configuring a WGR
WGR Configuration - Min	Minimum gauge value for the WGR
WGR Configuration - Max	Maximum gauge value for the WGR
WTR Configuration	Select this radio button if configuring a WTR type node. Use this for WFM and WSTM nodes as well
WTR Configuration – Log Scale	Select this check box if the reading needs to be calculated in Log scale
WTR Device Type	Select the proper WTR type for the device
WTR Sensor Type	Select this for to specify the right sensor type. Based on the readings select the sensor type. E.g. in case of Freezer WTR, reading1 is current sensor1 and sensor type is OPT1-2, Reading2 is current sensor2 and the sensor type is OPT1-2, Reading3 is Thermocouple and sensor type is Thermocouple Type-K, Reading4 is Door switch, can be set to OPT1-2. For Binary unit type sensor type is ignored.
Sensor Responsivity - Volts or mA1, Volts or mA2, Value1, Value2	Select this to calculate slope and intercept values in $y = mx + B$ Enter these readings for calculating the slope and intercept. This will be used later to calculate the Min and Max values and engineering reading. These can be either noted down from the data sheet or the actual reading from the device. E.g. For WTR type 0-10 V, Volts1 = 0, Volts2 = 10.35, Value1 = 0.0001, Value2 = 1000
WTR One-Point Calibration	Check this box if a 1 point calibration can be done. This is typically used for calibrating thermocouples.
One Point Calibration – Value Measured , Value desired, Cold junction	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40 C. And user might say the right temp is 45C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction
Ok	Save data, but keep window open
Close	Don't save any data, just close dialog
Refresh	Get the latest data from the database

WGR

Available Node List

136

>>

NodeID

1

Device ID

1

OK

Close

Refresh

Name

Nitrogen - Viewing Area

Unit

☒ Units

☐ Binary

PSI

0-TRUE/FALSE

☐ Node Math function

-

Decimal Precision

1

Sample Rate(Sec)

600

☒ Enable Alarm

Alarm Excursion #

3

Alarm Thresholds

Min

80

Max

190

☒ WGR Configuration

Min

0

Max

200

Figure 20. Editing a WGR

WFM Node Configuration Dialog Box

WFM

Available Node List
136 >> NodeID 2334 Device ID

Name

Unit ☒ Units ☐ Binary 0-TRUE/FALSE ☐ Node Math function -

Decimal Precision Sample Rate(Sec)

☐ Enable Alarm Alarm Excursion #

Alarm Thresholds Min Max

☒ WTR Configuration ☐ Log Scale Device Type WFM

☐ Sensor Responsivity Sensor Type 0-5V

Volts or mA 1 Value1

Volts or mA 2 Value2

☐ One point Calibration Value Measured Value Desired Cold Junction

OK Close Refresh

Figure 21. Node Configuration Dialog Box for the WFM

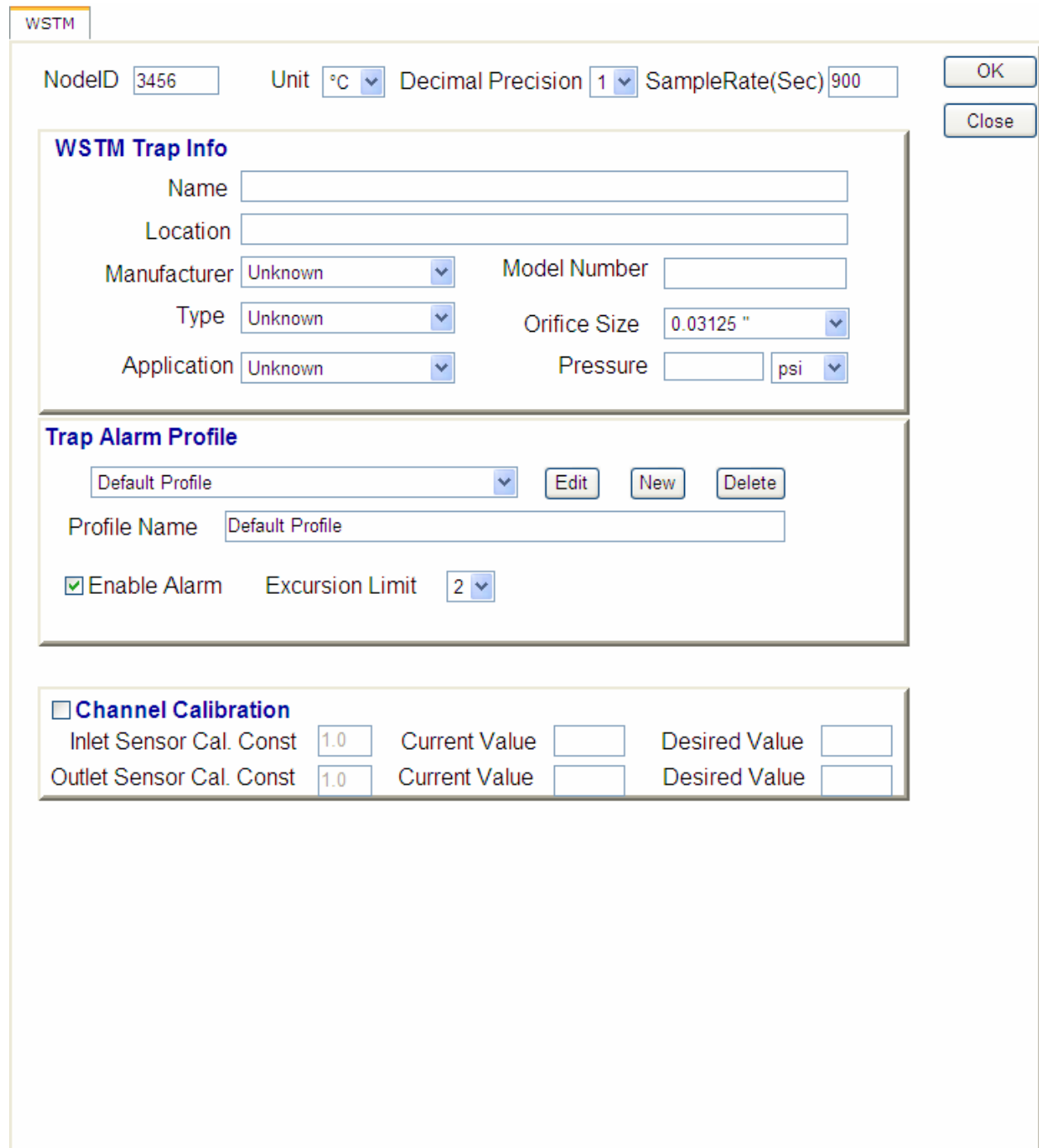
WFM Node Configuration Dialog Box Details

Available Node List	Nodes that can be seen by the BBS but have not been configured.
NodeID	NodeID of the Cypress Envirosystems field device
Device ID	A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.
Name	A basic description of the node
Unit	Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page.
Node Detail	If a binary value was used in the "Unit" column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.
Node Math function	Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision	Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate	Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm	This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #	This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)
Min Alarm Threshold	This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.

Max Alarm Threshold	This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.
WTR Configuration	Since a WFM is a modified WTR, this radio button will be selected by default.
Log Scale	Select this check box if the reading needs to be calculated in Log scale
Device Type	WFM is selected by default
Sensor Type	Select this for to specify the right sensor type. Based on the readings select the sensor type. E.g. in case of Freezer WTR, reading1 is current sensor1 and sensor type is OPT1-2, Reading2 is current sensor2 and the sensor type is OPT1-2, Reading3 is Thermocouple and sensor type is Thermocouple Type-K, Reading4 is Door switch, can be set to OPT1-2. For Binary unit type sensor type is ignored.
Sensor Responsivity - Volts or mA1, Volts or mA2, Value1, Value2	Select this to calculate slope and intercept values in $y = mx + B$ Enter these readings for calculating the slope and intercept. This will be used later to calculate the Min and Max values and engineering reading. These can be either noted down from the data sheet or the actual reading from the device. E.g. For WTR type 0-10 V, Volts1 = 0, Volts2 = 10.35, Value1 = 0.0001, Value2 = 1000
One-Point Calibration	Check this box if a 1 point calibration can be done. This is typically used for calibrating thermocouples.
One Point Calibration – Value Measured , Value desired, Cold junction	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40 C. And user might say the right temp is 45C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction
Ok	Save data, but keep window open
Close	Don't save any data, just close dialog
Refresh	Get the latest data from the database

WSTM Node Configuration Dialog Box

The WSTM configuration dialog box (seen in Figure 22) is slightly different than the other field devices' configuration dialog boxes. This is because users can enter steam trap specific information that will help better monitor their steam system and calculate steam loss.



The image shows a software dialog box titled "WSTM" in the top-left corner. The dialog is used for configuring a WSTM node. At the top, there are input fields for "NodeID" (3456), "Unit" (°C), "Decimal Precision" (1), and "SampleRate(Sec)" (900). To the right of these fields are "OK" and "Close" buttons. Below this is a section titled "WSTM Trap Info" containing fields for "Name", "Location", "Manufacturer" (Unknown), "Model Number", "Type" (Unknown), "Orifice Size" (0.03125"), "Application" (Unknown), and "Pressure" (psi). The next section is "Trap Alarm Profile", which includes a "Default Profile" dropdown, "Edit", "New", and "Delete" buttons, a "Profile Name" field (Default Profile), a checked "Enable Alarm" checkbox, and an "Excursion Limit" dropdown (2). The final section is "Channel Calibration", which is currently unchecked. It contains two rows of calibration data: "Inlet Sensor Cal. Const" (1.0) and "Outlet Sensor Cal. Const" (1.0), each with "Current Value" and "Desired Value" input fields.

WSTM Node Configuration			
NodeID	3456	Unit	°C
Decimal Precision	1	SampleRate(Sec)	900
WSTM Trap Info			
Name			
Location			
Manufacturer	Unknown	Model Number	
Type	Unknown	Orifice Size	0.03125 "
Application	Unknown	Pressure	psi
Trap Alarm Profile			
Default Profile	▼	Edit	New Delete
Profile Name	Default Profile		
<input checked="" type="checkbox"/> Enable Alarm	Excursion Limit	2 ▼	
Channel Calibration			
Inlet Sensor Cal. Const	1.0	Current Value	Desired Value
Outlet Sensor Cal. Const	1.0	Current Value	Desired Value

Figure 22. Node Configuration Dialog Box for the WSTM

WSTM Alarm Profiles

Each WSTM is assigned to an alarm profile in order to determine the condition of a trap. The default alarm profile may be modified, but not deleted. All WSTMs are required to be assigned to an alarm profile. If an alarm profile has been created, assigned to multiple WSTMs, then deleted, the default alarm profile will then be assigned. The selected alarm profile in the dropdown menu will be assigned to the WSTM.

Add/Edit/Delete Alarm Profiles

To add an alarm profile from the WSTM Node Configuration Dialog screen, click “New” and the alarm profile details will be displayed as seen in Figure 23. The alarm profile is saved along with the WSTM Node details when clicking the OK button.

To modify an alarm profile, select the profile from the dropdown, and click “Edit”. Note that selecting a different profile from the dropdown list will assign that profile to the WSTM node being configured. The alarm profile is saved along with the WSTM node details when clicking the OK button.

To delete a profile, select the desired profile in the dropdown list, and click delete. Note that the default profile may not be deleted.

WSTM

NodeID

1

Unit

°C

Decimal Precision

1

SampleRate(Sec)

900

OK

Close

WSTM Trap Info

Name

Location

Manufacturer

Unknown

Model Number

Type

Unknown

Orifice Size

0.03125 "

Application

Unknown

Pressure

psi

Trap Alarm Profile

Default Profile

Edit

New

Delete

Profile Name

Default Profile

☒ Enable Alarm

Excursion Limit

2

Inlet Temperature Limits(°C)

Good

↑

Min Good Temp

105.00

Flooded

↕

Max Out of Service Temp

50.00

Out of Service

↓

Outlet Temperature Limits (°C)

Blowing

↑

Max Leaking Temp

115.00

Leaking

↕

Max Good Temp

95.00

Good

↕

Max Out Of Service Temp

50.00

Out of Service

↓

☐ Channel Calibration

Inlet Sensor Cal. Const

1.0

Current Value

Desired Value

Outlet Sensor Cal. Const

1.0

Current Value

Desired Value

Figure 23. WSTM Node Configuration Dialog Box with Alarm Profile

WSTM Node Configuration Dialog Box Details

NodeID	NodeID of the WSTM.
Unit	Dropdown box containing the supported units for WSTMs.
Update Rate	Update rate configured to the WSTM. This is used to determine if the device has lost wireless connectivity. The WSTM update rate cannot be changed from the web application.
Name	A basic description of steam trap.
Location	A basic description of the location of the steam trap.
Manufacturer	Manufacturer of the steam trap. Dropdown list of user configured manufacturers. See the section on Site Settings – WSTM tab (Figure 29) for information on how to add or remove Manufacturers from the list.
Model Number	Model Number of the steam trap.
Type	Type of trap used. i.e bucket or thermostatic. Dropdown list of user configured types. See the section on Site Settings – WSTM tab (Figure 29) for information on how to add or remove types from the list.
Orifice size	Size of the orifice on the steam trap. Dropdown list of user configured orifice sizes. See the section on Site Settings – WSTM tab (Figure 29) for information on how to add or remove sizes from the list.
Application	User defined dropdown field to describe how the steam trap is used in the plant. See the section on Site Settings – WSTM tab (Figure 29) for information on how to add or remove applications from the list.
Pressure	Saturated steam pressure. Select the units from the dropdown.
Trap Alarm Profile	Profile to set temperature limits that control the trap condition on the readings page. A single trap profile can be created for all WSTMs, or individual profiles can be created for each trap. Choose from the list of created trap profiles or create a new one.
Enable Alarm	Checkbox to turn on and off SMS and email alarms for this WSTM.
Excursion Limit	Number of consecutive times the set points are tripped before an alarm is sent.
Inlet Temperature – Min Good Temp	Minimum inlet temperature which the steam trap is still considered in good condition.

Inlet Temperature – Max out of service temperature	Maximum inlet temperature where the trap is considered out of service. Above this value and below the Min Good temp, the trap is considered to be flooded. Below this value, the trap is considered to be out of service.
Outlet Temp – Max leaking temp	Maximum outlet temperature where the trap is considered to be leaking. Above this value, the trap is considered to be completely blown.
Outlet Temp – Max Good temp	Maximum outlet temperature where the trap is considered to be in good working condition. Above this value, the trap is considered to be leaking or blowing.
Outlet Temp – Max out of service temperature	Maximum outlet temperature where the trap is considered out of service. Above this value the Max Good temp, the trap is considered to be in good working condition. Below this value, the trap is considered to be out of service.
One Point Calibration – Value Measured, Value desired	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40°C. And u ser might say the right temp is 45°C. Then enter the in puts here to calculate the gain constant (correction factor) that is used internally for the correction.
OK	Save data, but keep window open.
Close	Do not save any data, just close dialog.
Refresh	Get the latest data from the database.

WBM Node Configuration Dialog Box

The best way to configure WBMs is to upload the multinode entry template. However if only a few WBMs are added, the configuration dialog box shown in Figure 24 may be used.

WBM

Available Node List
136 >> NodeID 24432 Device ID

OK

Close

Refresh

Name

Unit ☒ Units

☐ Binary 0-TRUE/FALSE

☐ Node Math function -

Decimal Precision Sample Rate(Sec)

☐ Enable Alarm Alarm Excursion #

Alarm Thresholds Min Max

☒ WBM Configuration Min Max ☐ WBC

☐ One Point Calibration Gain Offset

Figure 24. Node Configuration Dialog Box for the WBM

WBM Node Configuration Dialog Box Details

Available Node List	Nodes that can be seen by the BBS but have not been configured.
NodeID	NodeID of the Cypress Envirosystems field device.
Device ID	A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.
Name	A basic description of the node.
Unit	Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page.
Node Detail	If a binary value was used in the "Unit" column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.
Node Math function	Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision	Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate	Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm	This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #	This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)
Min Alarm Threshold	This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.
Max Alarm Threshold	This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.

WBM Configuration	Select this radio button if configuring a WBM node.
WBM Configuration - Min	Minimum WBM value.
WBM Configuration - Max	Maximum WBM value.
WBC	Check this box if configuring a Battery Current monitor node.
WBM One-Point Calibration	Used to calibrate the WBM Thermocouple.
WBM One-Point Calibration Gain	Used to calibrate the WBM Thermocouple.
WBM One-Point Calibration Offset	Used to calibrate the WBM Thermocouple.
Ok	Save data, but keep window open.
Close	Do not save any data, just close dialog.
Refresh	Get the latest data from the database.

Site Settings Page

If the user has enabled alarms on configured nodes, the Site Settings page can be used to configure the devices that receive alarm notifications. The Site Settings page is password protected to limit uncontrolled modifications to the system. In order to access the Site Settings page, the user must first login to the system. The user must have Admin rights in order to access the Site Settings page. The login page is shown in Figure 25.



Enter your User Name and Password to access protected pages.

A blue rectangular login form titled "WGR Server Login". It contains two input fields: "User Name:" and "Password:". Below the password field is a "Log In" button.

Figure 25. Site Settings Login Page

Site Details

Once the user has successfully logged in, the Site Setting Page, shown in Figure 26, will appear.

The screenshot shows the "Site Settings" page with the "Site Details" tab selected. The page has a header with the CYPRESS ENVIROSYSTEMS™ logo and a navigation bar with tabs: Readings, Graph, Table, Reports, Alarm History, Status, Configuration, Site Settings (circled in blue), and Help. Below the navigation bar, the "Site Details" tab is active, showing a form with fields for Site Name, Site ID (149), SMTP server, SMTP Port, User ID, Domain, Password, and Proxy Server. There is a checkbox for "Use Local SMTP Server for Email Alarms". A "Show Change Log" button is on the right, and an "Update" button is at the bottom right. Arrows point from the "Site Details" tab and the "Site Settings" navigation item to the form area.

Figure 26. Site Settings Page – Site Detail Tab

On the Site Details tab the user can change the Site Name that appears in the upper right of the Menu Bar by changing the name in the Site Name text field and clicking Update.

The Site ID, which is a unique value for each BBS, can be found on the top right half of the Site Details tab.

To use a local SMTP server to send email notifications, check the “Use Local SMTP Server for Email Alarms” check box. Specify the SMTP Server name (e.g. mailhost.mis.mycompany.com), SMTP port (e.g. 25). If credentials are required to access the SMTP server, then specify the UserID, Password and Domain name. Click Update to save the data.

If a manual proxy server is required for internet access on the BBS, enter the proxy server and port information.

Alarm Recipients

The screenshot shows the CYPRESS ENVIROSYSTEMS interface. The top navigation bar includes tabs: Readings, Graph, Table, Reports, Alarm History, Status, Configuration, Site Settings (circled in blue), and Help. Below this, the Site Settings sub-tabs are: Site Details, WSTM Settings, Alarm Recipients (circled in blue), and Archived Data. A 'Show Change Log' button is visible on the right. The main content area is divided into two sections. The top section is a form for adding a new recipient, with fields for Name (Test User), Phone# (1555555554), and Email (test@test.com). There are 'Add' and 'Delete' buttons. The bottom section is a table titled 'Alarm Recipients: 2 Items'.

Name	Phone#	Email
Test User1	1555555553	test@test.com
Test User	1555555554	test@test.com

Figure 27. Site Settings Page - Alarm Recipients tab

Node alarms can be sent to any device capable of receiving an SMS message or email by clicking on the Alarm Recipients tab on the Site Settings page seen in Figure 27. This screen allows the user to select which alarm recipients will receive alarms messages. All recipients in the list will receive all active alarms.

Alarms must be reset after they are triggered in order to receive subsequent alarms for that node. This mechanism is designed so that recipients do not receive constant alarm messages for the same node. Clicking on the red “Alarm Status” tab from any screen takes the user to the WGR Alarm History page. The alarm is reset from here by clicking on the green “Alarm Reset” button.

To add alarm recipients, enter the recipient’s name, phone number (e.g. 15554443333) and/or email address and click the “Add” button. Area codes and the “1” prefix are required on all phone numbers. International codes are required for international SMS. Click on “Edit” to edit the name, number, or email of the recipient. Then click on “Update” to save the values. To add an email only for a recipient, a “1” must be entered into the “Phone#” field.

SMS Commands

From an authorized text messaging device enter the SMS phone number 32075 (for SMS within the US) or 447786204951 (for international SMS). From there the user can enter any one of the commands listed below to query the server remotely. An authorized text messaging device is one that has been added to the SMS Alarm page for the specific site.

Command	Function
CYWGR ?AS?SiteID#,NodeID	Find Node status for specified Node ID
CYWGR ?TR?SiteID#,NodeID	Get Node reading for specified Node ID
CYWGR ?AR? SiteID#,NodeID	Reset Alarm for specified Node ID
CYWGR ?TH? SiteID#,NodeID,hh	Get Node history for specified Node ID in Last hh Hour
CYWGR ??SiteID	SMS command Help

Always remember to include site ID in the SMS command. The site ID can be found on the Site Setting page.

Archive Data Access

Data older than 1 year will automatically be archived. The archived data may be accessed from the Site Settings tab as seen in Figure 28 below. Archived data may be viewed in Graph form (by clicking on the Graph button) or Table form (by clicking on the Table Button). To export data to MS Excel, use the Table function.

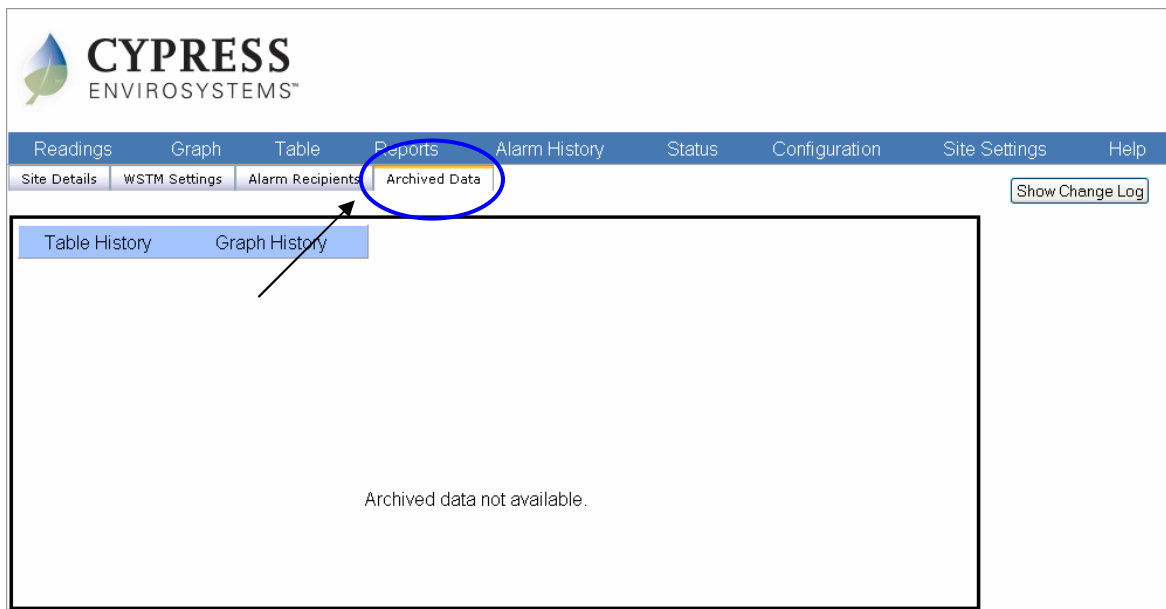


Figure 28. Site Settings Page - Archive Data Access

WSTM Specific Settings

WSTM specific settings can be updated on the WSTM Settings tab as seen in Figure 29. Each user can specify which columns they want to see on the WSTM readings tab by checking the boxes next to the column header names in the “WSTM Readings” tab.

For all the dropdown menus in the WSTM Node configuration dialog, the user can modify the entries from the WSTM Categories window on the WSTM Settings tab as seen in Figure 29. In order to provide an accurate estimation steam loss, the user can enter the cost of steam in the “Cost of Steam” text box seen at the bottom of Figure 29.

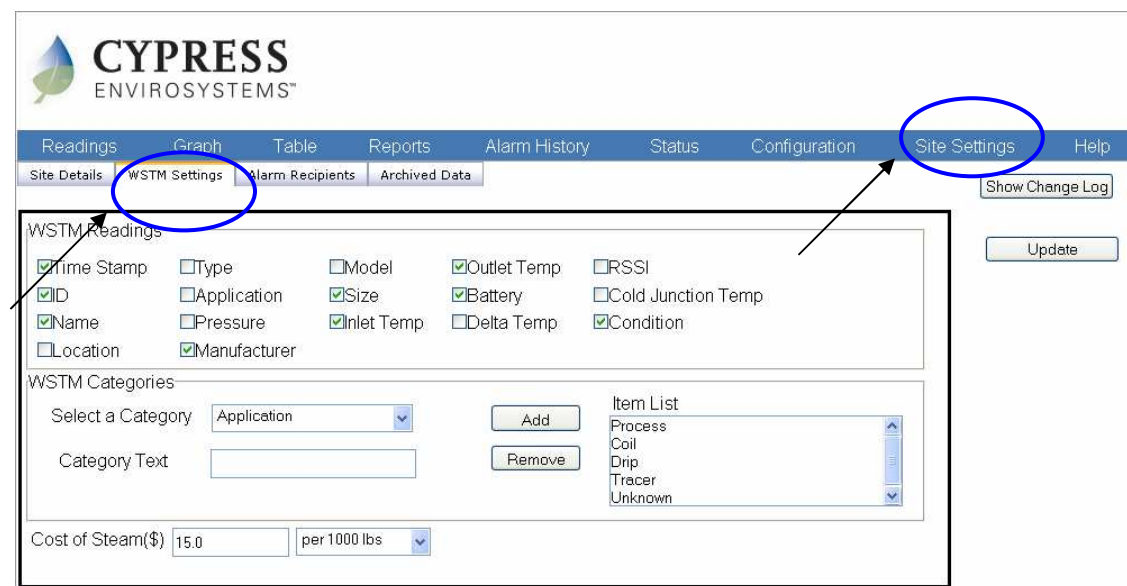


Figure 29. Site Settings Page - WSTM Settings tab

WSTM Reports

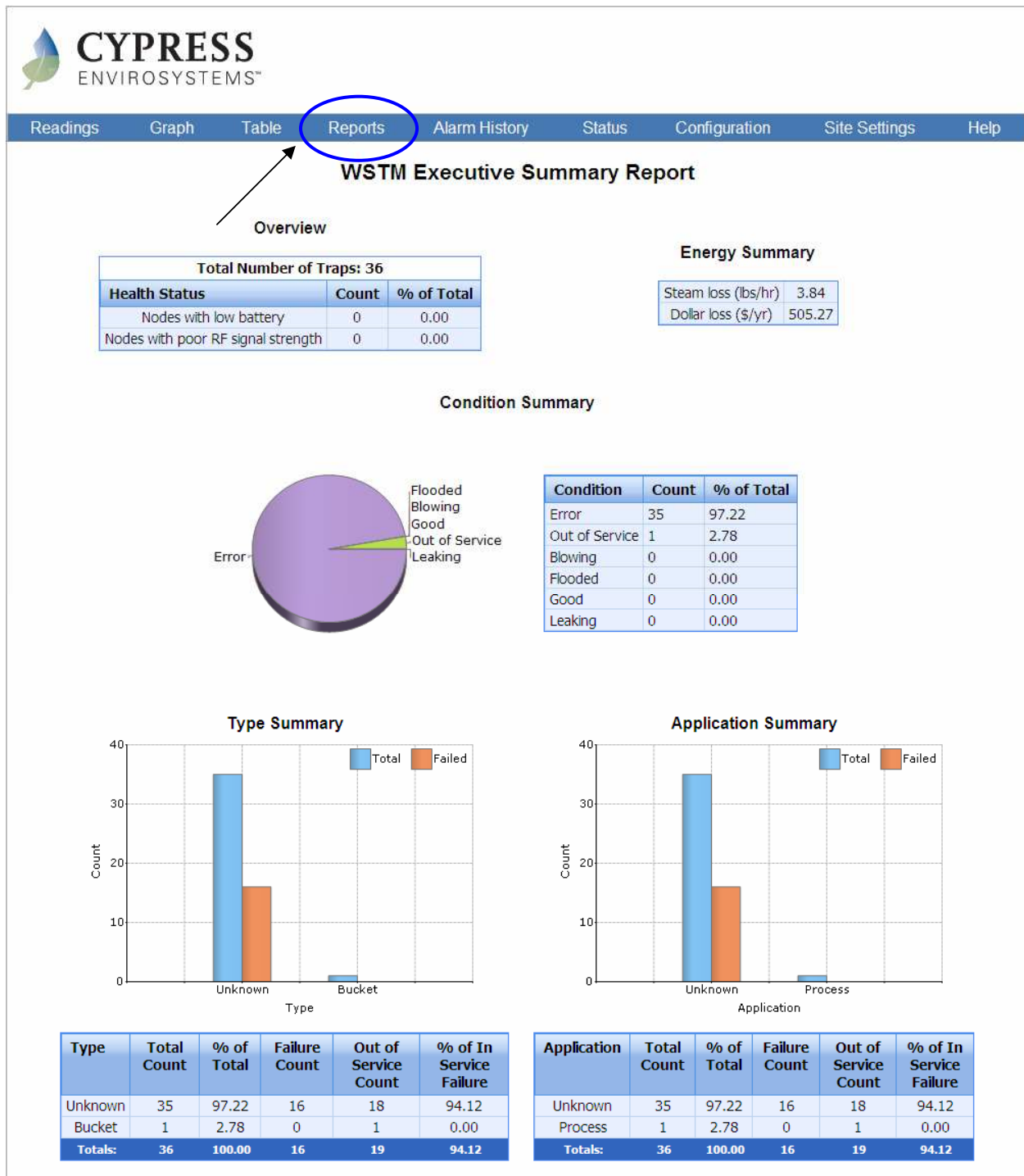


Figure 30. WSTM Executive Summary report

An executive summary is available for WSTMs which gives an overall status of all the steam traps that are currently being monitored. An energy summary is calculated which shows amount of steam loss and money associated with the loss. This is based on the orifice sizes entered for each trap during configuration, as well the cost of steam entered on the Site Settings page (Figure 29). WSTMs statistics are also broken down by Condition, Trap Type, and Application.

Technical Support

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