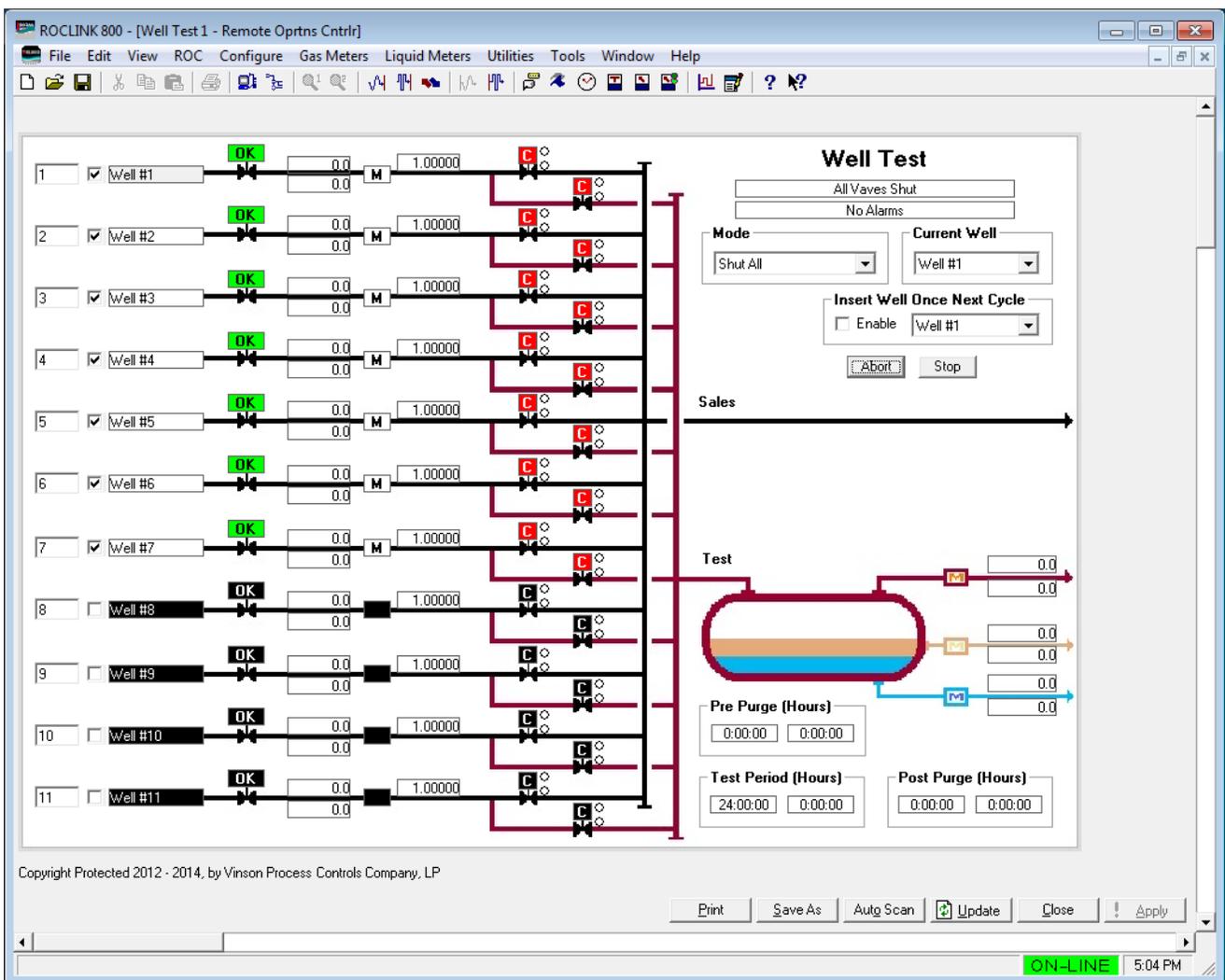


Well Test Manager Program User Manual (for ROC800-Series Remote Operations Controllers)



Revision Tracking Sheet

August 2016

This manual may be revised periodically to incorporate new or updated information. The revision date of each page appears at the bottom of the page opposite the page number. A change in revision date to any page also changes the date of the manual that appears on the front cover. Listed below is the revision date of each page (if applicable):

Page	Revision
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Chapter 1 – Introduction

⚠ Caution When implementing control using this product, observe best industry practices as suggested by applicable and appropriate environmental, health, and safety organizations. While this product can be used as a safety component in a system, it is NOT intended or designed to be the ONLY safety mechanism in that system.

This chapter describes the structure of this manual and an overview of the Well Test Manager program for the ROC800-Series Remote Operations Controller (ROC800).

1.1 Scope and Organization

This document serves as the user manual for the Well Test Manager program, which is intended for use in the ROC800-Series Remote Operations Controllers (ROC800).

This manual describes how to download and configure this program (referred to as the “Well Test Manager program” or “the program” throughout the rest of this manual). You access and configure this program using ROCLINK™ 800 Configuration Software (version 2.41 or greater) loaded on a personal computer (PC) running Windows® 7 (32 or 64-bit).

The sections in this manual provide information in a sequence appropriate for first-time users. Once you become familiar with the procedures and the software running in ROC800, the manual becomes a reference tool.

This manual has the following major sections:

- *Chapter 1 – Introduction*
- *Chapter 2 – Installation*
- *Chapter 3 – Configuration*
- *Chapter 4 – Reference*

This manual assumes that you are familiar with the ROC800 and its configuration. For more information, refer to the following manuals:

- *ROC800 Remote Operations Controller Instruction Manual* (Part D301217X012)
- *ROCLINK 800™ Configuration Software User Manual (for ROC800-Series)* (Part D301250X012)

1.2 Product Overview

The Well Test Manager program is used to determine liquid and gas quantities from a series of wells using a test separator. Wells are aligned to the test separator through a series of valves which can be operated manually or through automation. The program can support multiple well test manifolds, for low, mid, and high pressure well systems. Each well can make use of its own individual meter, or no meter (virtual meter). When virtual meters are used, the program can provided testing and accumulations for up to 64 wells in one device.

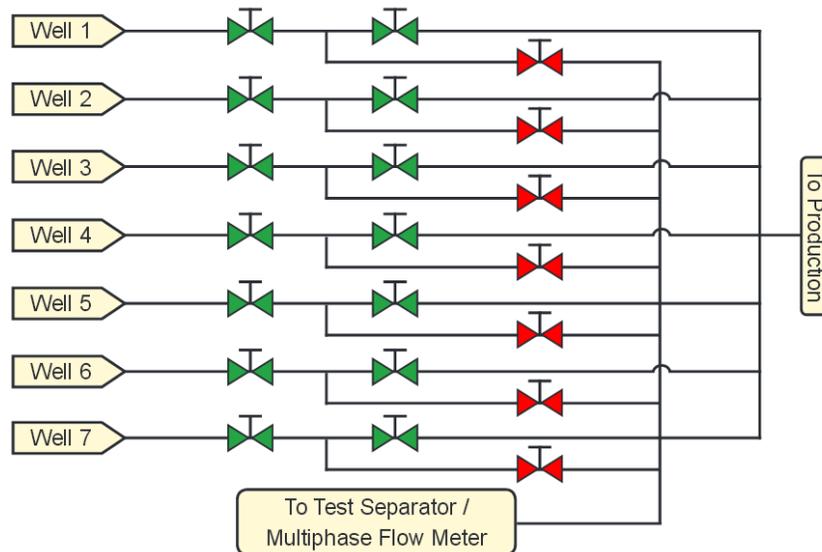


Figure 1-1. Typical Well Testing System

At the end of each test period, the program generates a gas correction factor, calculated based on the unique testing facility. The facility can either have individual well meters or use a total sales meter that resides downstream of a sales separator and includes the recombined test volumes.

By metering the liquids at the test separator, the program can calculate a liquids ratio. If a separate oil meter is present, the program can also calculate an oil ratio. To define settling times before testing, each well supports a pre-purge timer preset. An optional post-purge cycle allows you to meter all liquid accumulated in the separator before the test valves close prior to the next cycle. Further, you can automate the sequencing of test and sales values for each well with or without actuator valves by positioning manually operated valve, selecting a well, and issuing a manual start command.

For simultaneous train testing, you can load the Well Test Manager as multiple programs (for example, 11 wells = 3 trains, or 32 wells = 2 trains). For more details, see below.

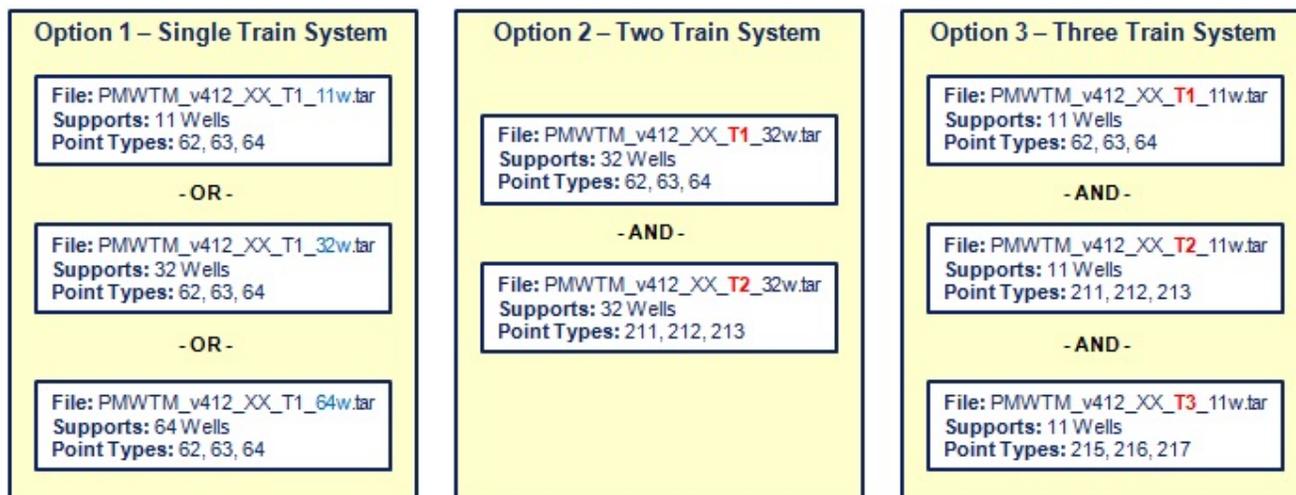


Figure 1-2. Train System Options

1.3 Program Features

1.3.1 Individual Well Meters

This configuration features individual well meters measuring two-phase flow through a physical meter (orifice, V-Cone®, or linear). During a well's test cycle, the program determines the liquid or gas portion of volumes by comparing the test separator to the well measurement. It then applies a correction ratio factor to the well meter, isolating the gas portion of the flows and accumulators. When the well is in its off cycle, the correction ratio factor enables the program to estimate the gas-to-liquids split, which is re-adjusted when the well is retested.

1.3.2 Total Sales Meter and Virtual Well Meters

This test method pairs a total sales meter with an upstream separator. This pairing allows the program to calculate a correction ratio by comparing the tested gas volume to the sales total. To enable this method, you select the Well Meters Virtual test method. Following the test cycle for an individual well, the program calculates and applies a gas correction factor. It then uses this factor to determine the percentage of the total sales meter for the well during an off-cycle.

1.3.3 Liquid or Oil Meters

The program calculates the liquid portion of a test using a test separator with either a common liquid meter or two meters measuring oil and water. Product composition (predominantly liquid or gas) determines which method the program uses to calculate liquid ratios during non-test cycles. If tank accumulated totals (available from Tank Manager) are available, then the program establishes Liq Vol/Liq Vol ratios during the same test cycle used to calculate well liquids during the non-test cycles. If you do not include Tank Manager accumulated totals, the program calculates Liq Vol/Gas Vol ratios using the tested gas portion for that cycle.

1.3.4 Automated Valves

For each well that is enabled, a selection is possible to actuate a single solenoid for a test valve and one for a sales valve through digital output relays. If these are undefined, manually operated valves are assumed. Under the Valve Settings if the Momentary Time On (Sec) setting is non-zero, then options will appear for each well to define close momentary solenoids, and the open solenoids become momentary as well.

The Valve Settings – Travel Time Before Fail setting also controls the sequencing delay as wells switch in and out of test. The delay ensures that each well's flow is not interrupted by opening the both well valves on the current and previous well before closing the valves for the next test.

To start the cycle for automated valves, use the Enable Test mode. In this mode, volumes will be accumulated for the preset Test Period in hours. Individual pre-purge presets can be defined for each well and a common post-purge preset time is possible if needed. If the test and sales limit switch selections are made for each well, failure actions can be defined for illegal valve positions with the Action On Failure selection. If no failure actions are selected, the valve limit switch states can be used for monitoring only.

Another test mode is available called Test One Cycle that will Start from the current well and will test all enabled wells one time, and then automatically stop the cycle.

1.3.5 Manual Valves

The Manual Valves Enable test mode allows you to manually operate test and sales valves. By defining a setpoint and using a local display or SCADA system, you can control the test cycle via Start, Stop, and Abort commands. You can also select a discrete input to manage the Stop or Abort commands. The program also provides a Timed Accum Stop

After Manual Start option that uses the Time Stop timer to stop the cycle.

This test mode supports a Valve DI mode, which you can use to set valve limit switches to DI Monitor Only or to use the same inputs as Start/Test Permissive values. Permissive selections ensure valves are in the correct positions before allowing a test cycle to start. Illegal permissive conditions either disable the Start command or abort the test cycle in progress.

If you choose the Force Well Selection option, you must re-select the Current Well after each test. This forces you to verify that the test well with the well aligned on the valve manifold.

1.3.6 Abort or Stop Commands

All cycle modes support abort or stop actions, which advance the cycle to post-purge status. If you do not define a post-purge time, the cycle ends or advances. The Abort command **does not** apply new gas or liquid factors, but the Stop command immediately stops the test cycle and **applies** new gas or liquid factors. If you do not use the Timed Stop option with the Manual Valves Enabled test mode, you must use a Stop command to end the cycle. You can use a Stop command to interrupt a manual start with a defined Timed Stop option.

In the Enable Test mode, the Abort or Stop commands advance the cycle to the next available well after post-purge. If you issue a Stop command in the pre-purge cycle, the effect is the same as issuing an Abort command (that is, no new gas or liquid factors apply).

For operator control, Start, Abort, and Stop commands all support the ability to browse to an external DI push button. Alternately, the SCADA system or the local display can write the same internal variables to the program.

1.3.7 Additional Program Features

Additional program feature include the abilities to:

- Specify automated testing order for each well
- Insert a well into a testing order for a single instance
- Display status text messages (on a local display)
- Display alarm text messages (on a local display)
- Display current well text messages (on a local display)
- Log (optionally) status message alarms
- Log (optionally) gas correction factor events
- Apply (optionally) each well's meter gas quality to the test meter
- Define minimum test times before the program applies correction factors
- Use multiple validation modes including none, accept, accept/reject and auto

- Define validation criteria, including a minimum threshold for gas correction factors and current versus last tolerances for gas, oil, and water factors
- Use a program-provided test report point type to store well test results, which retains both currently and previously validated results. For backward compatibility, the program also retains the old softpoint table selection.
- Hold last test results, which enables you to retest a well and then accept or reject both results into the test report (based on one set of hold registers for all wells)
- Base (for gas production) liquid factors on liquid/gas ratios
- Base (for liquid production) liquid factors on total accumulation values from Production Manager oil and water tanks.
- Normalize (optionally) off-cycle well gas correction and liquid ratios so that all values equal 100% of sales measurement (applies only to virtual meters)
- Detect post-purge cycle test valve leaks
- Estimate oil tank vapor
- Verify valve positions and define actions on failures
- Monitor shutdown valves for each well and define actions on failures

1.4 Functional Diagram

The functional diagram below represents the program features.

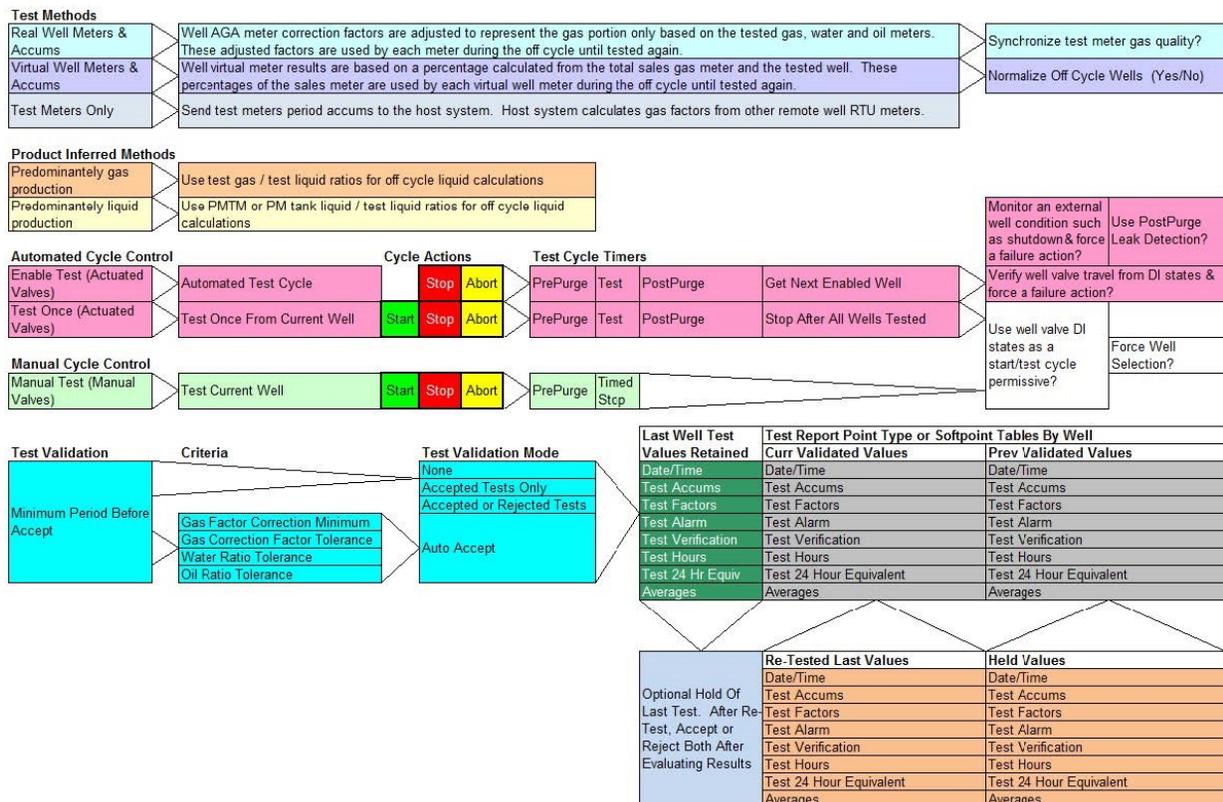


Figure 1-3. Functional Diagram

1.5 Typical Local/Remote Controlling Parameters

- Start – pushbutton or value; Manual Valves or One Cycle modes only
- Abort – pushbutton or value; optional
- Stop – pushbutton or value; optional
- No Test Mode – Enable Test or One Cycle modes only; optional
- Hold Test Mode – Enable Test or One Cycle modes only; optional
- Shut All Mode – Enable Test or One Cycle modes only; optional
- Current Test Well
- Test Period Time / Timed Stop (hours)
- Post-Purge Time (hours); optional
- Insert Well Next Cycle
- Individual Wells – Pre-Purge Time (hours)
- Individual Wells – Enable/Disable
- Individual Wells – Test Order
- Individual Wells – Accept/Reject Test
- Individual Wells – Gas Correction Factor edit
- Individual Wells – Water Factor edit
- Individual Wells – Oil Factor edit
- Individual Wells – Shutdown; optional

1.6 Program Requirements

The Well Test Manager program is compatible with version 3.61 (or greater) of the ROC800 firmware with version 2.41 (or greater) of the ROCLINK 800 software.

Program specifics include:

Note: Load only **one** version of the program, depending on the number of wells supported:

- The **PMWTM_v413_00_T1_11w.tar** program file supports 11 wells and installs in a ROC800 which requires only 1 license.
 - The **PMWTM_v413_00_T1_32w.tar** program file supports 32 wells and installs in a ROC800 which require 2 licenses.
 - The **PMWTM_v413_00_T1_64w.tar** program file supports 64 wells and installs in a ROC800 which require 3 licenses.
 - The **PMWTM_v413_00_T2_11w.tar** program file supports 11 wells and installs in a ROC800 which requires only 1 license.
 - The **PMWTM_v413_00_T2_32w.tar** program file supports 32 wells and installs in a ROC800 which require 2 licenses.
 - The **PMWTM_v413_00_T3_11w.tar** program file supports 11 wells and installs in a ROC800 which requires only 1 license.
-

File Name	Target Unit/ Version	User Defined Points (UDP)	Flash Used (in bytes)	DRAM Used (in bytes)	ROCLINK 800 Version	Display Number
PMWTM_v413_00 _T1_11w.tar	ROC800 v3.61	62, 63, 64	182404	139264	2.41	59, 62, 63, 64
PMWTM_v413_00 _T1_32w.tar	ROC800 v3.61	62, 63, 64	183219	151552	2.41	59, 62, 63, 64
PMWTM_v413_00 _T1_64w.tar	ROC800 v3.61	62, 63, 64	211978	163840	2.41	59, 62, 63, 64
PMWTM_v413_00 _T2_11w.tar	ROC800 v3.61	211, 212, 213	182404	139264	2.41	210, 211, 212, 213
PMWTM_v413_00 _T2_32w.tar	ROC800 v3.61	211, 212, 213	183219	151552	2.41	210, 211, 212, 213
PMWTM_v413_03 _T3_11w.tar	ROC800 v3.61	215, 216, 217	182404	139264	2.41	214, 215, 216, 217

For information on viewing the memory allocation of user programs, refer to the *ROCLINK 800 Configuration Software User Manual (for ROC800)* (part D301250X012).

1.6.1 License Key

License keys, when matched with valid license codes, grant access to applications such as the Well Test Manager program.

For **ROC800**, the term “license key” refers to the physical piece of hardware that can contain up to seven different licenses (refer to *Figure 1-1*). Each ROC800 can have none, one, or two license keys installed. If you remove a license key after enabling an application, the firmware disables the task from running. This prevents unauthorized execution of protected applications in a ROC800.

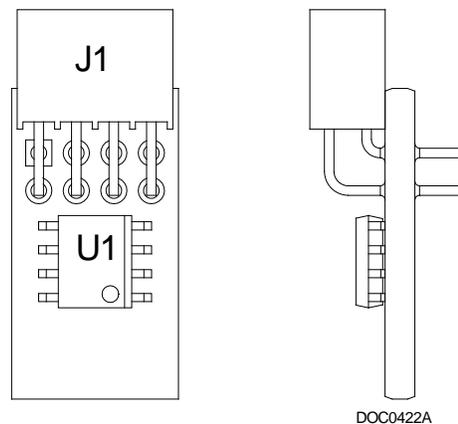


Figure 1-4. License Key

Note: The Well Test Manager program for **ROC800** requires up to 3 **PMWTM** license keys depending on your program requirement.

Chapter 2 – Installation

This section provides instructions for installing the Well Test Manager program into the ROC800. Read *Section 1.6* of this manual for program requirements.

Notes:

- The program and license key can be installed in any order. The manual shows the installation of the license key first.
 - The installation process and functionality is the same for all versions of the Well Test Manager program.
-

2.1 Installing the License Key

If you order the Well Test Manager program for a new ROC800, your ROC800 is delivered with the license key installed.

If you order the program for an existing ROC800, you must install the license key yourself.

**Caution**

Failure to exercise proper electrostatic discharge precautions, such as wearing a grounded wrist strap may reset the processor or damage electronic components, resulting in interrupted operations.

When working on units located in a hazardous area (where explosive gases may be present), make sure the area is in a non-hazardous state before performing these procedures. Performing these procedures in a hazardous area could result in personal injury or property damage.

To install a license key:

1. Remove power from the ROC800.
2. If necessary, remove the wire channel cover.
3. Unscrew the screws from the Central Processing Unit (CPU) faceplate.
4. Remove the CPU faceplate.
5. Place the license key in the appropriate terminal slot (**P4** or **P6**) in the CPU (refer to *Figure 2-1*).

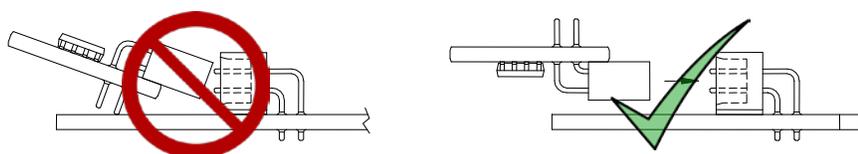


Figure 2-1. License Key Installation

Note: When using a single license key, install it in **slot P4**.

6. Press the license key into the terminal until it is firmly seated (refer to *Figure 2-1*).
7. Re-attach the CPU faceplate.
8. Re-attach the screws on the CPU faceplate.
9. If necessary, re-attach the wire channel cover.
10. Restore power to the ROC800.

2.1.1 Verifying the License Key Installation

After you install the license key, you can verify whether the ROC800 recognizes the key. From the ROCLINK 800 screen, select **Utilities > License Key Administrator**. The License Key Administrator screen displays:

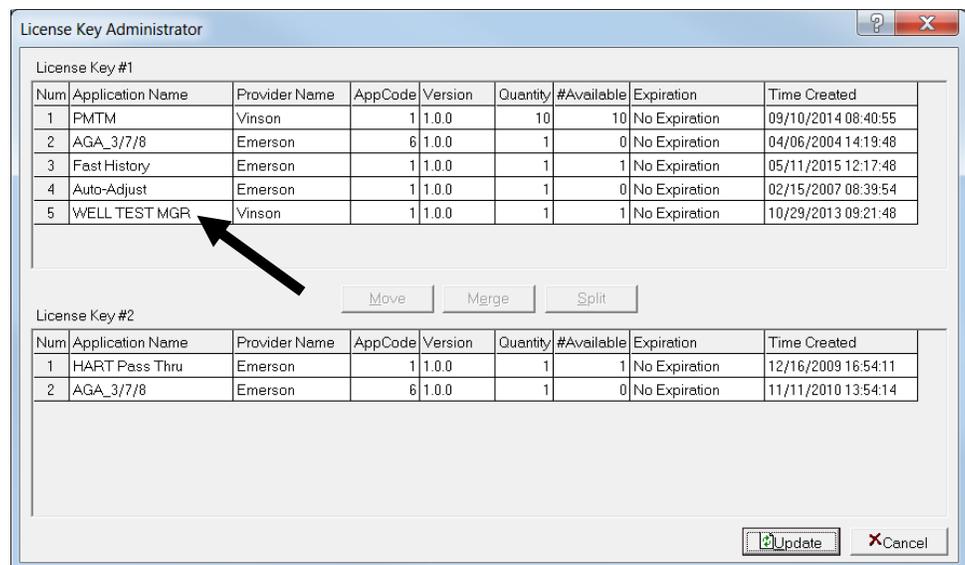


Figure 2-2. License Key Administrator

The Well Test Manager program appears in the Application Name column. (For further information on the License Key Administrator screen, refer to the *ROCLINK 800 Configuration Software User Manual (for ROC800-Series)*, part D301250X012.)

After you verify that the license key is correctly installed and recognized, proceed to *Section 2.2*.

2.2 Downloading the Program

This section provides instructions for installing the program into the Flash memory on the ROC800.

To download the user program using ROCLINK 800 software:

1. Connect the ROC800 to your computer.
2. Start and logon to the ROCLINK 800.

3. Select **ROC > Direct Connect** to connect to the ROC800.
4. Select **Utilities > User Program Administrator** from the ROCLINK menu bar. The User Program Administrator screen displays (see *Figure 2-3*):

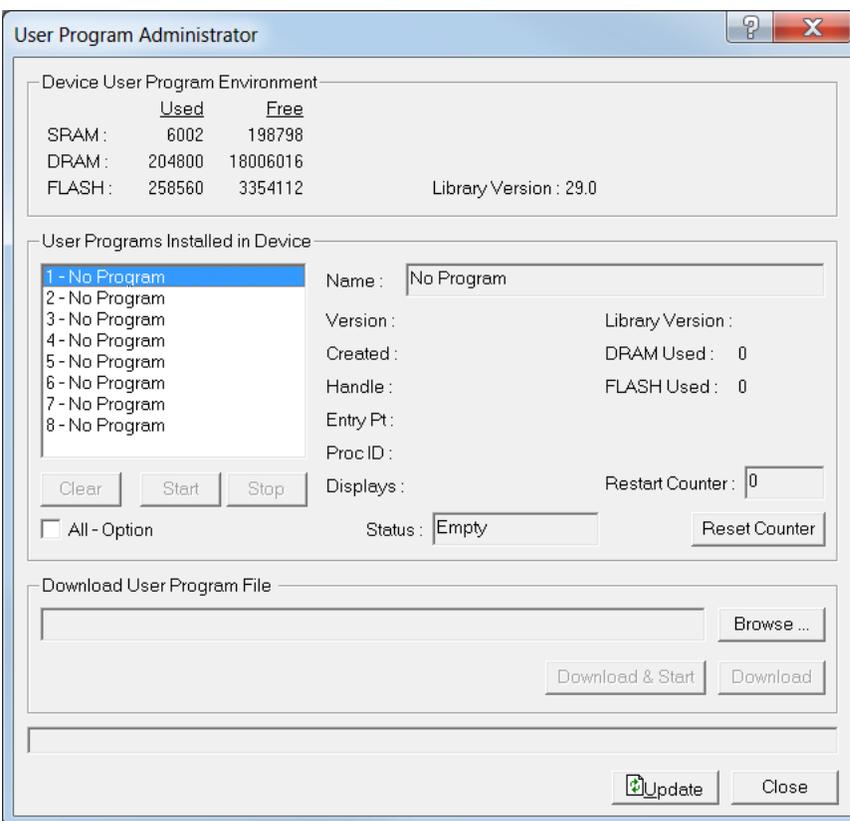


Figure 2-3. User Program Administrator

5. Select any empty program number (in this case, number 1) into which to download the program.
6. Click **Browse** in the Download User Program File frame. The Select User Program File screen displays (see *Figure 2-4*).
7. Select the path and user program file to download from the CD-ROM. (Program files are typically located in the Program Files folder on the CD-ROM.) As *Figure 5* shows, the screen lists all valid user program files with the .TAR extension:

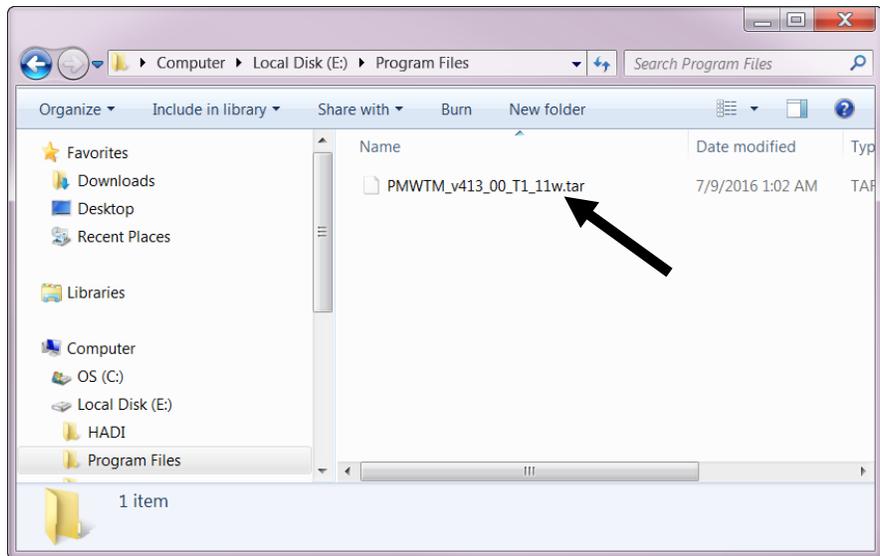


Figure 2-4. Select User Program File

8. Click **Open** to select the program file. The User Program Administrator screen displays. As shown in Figure 2-5, note that the Download User Program File frame identifies the selected program and that the **Download & Start** button is active:

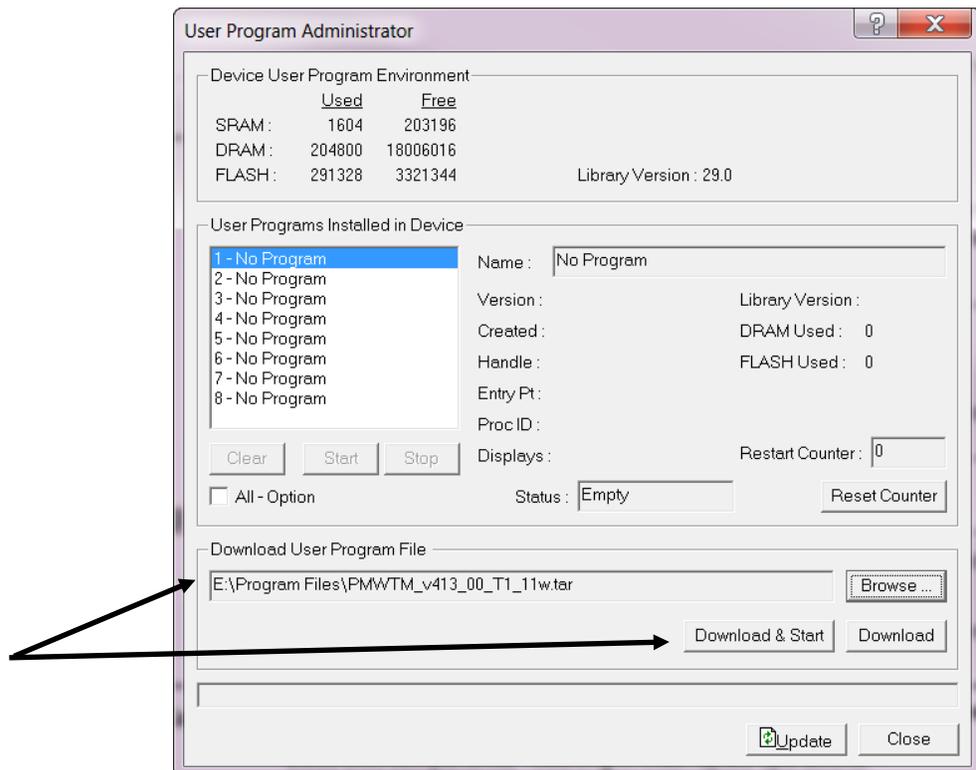


Figure 2-5. User Program Administrator

9. Click **Download & Start** to begin loading the selected program. The following message displays:

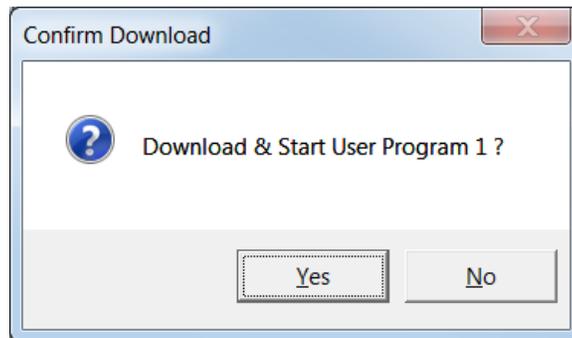


Figure 2-6. Confirm Download

10. Click **Yes** to begin the download. When the download completes the following message displays:

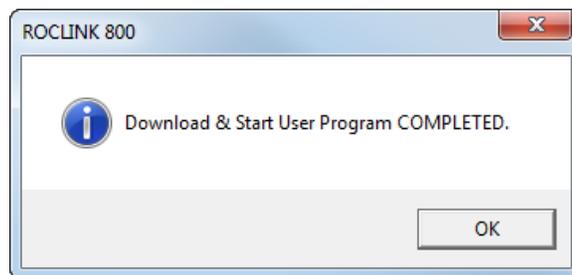


Figure 2-7. ROCLINK 800 Download Confirmation

11. Click **OK**. The User Program Administrator screen displays (see *Figure 2-8*). Note that:
- The Device User Program Environment frame reflects the use of system memory.
 - The User Programs Installed in Device frame identifies the installed program(s).
 - The Status field indicates that the program is running.

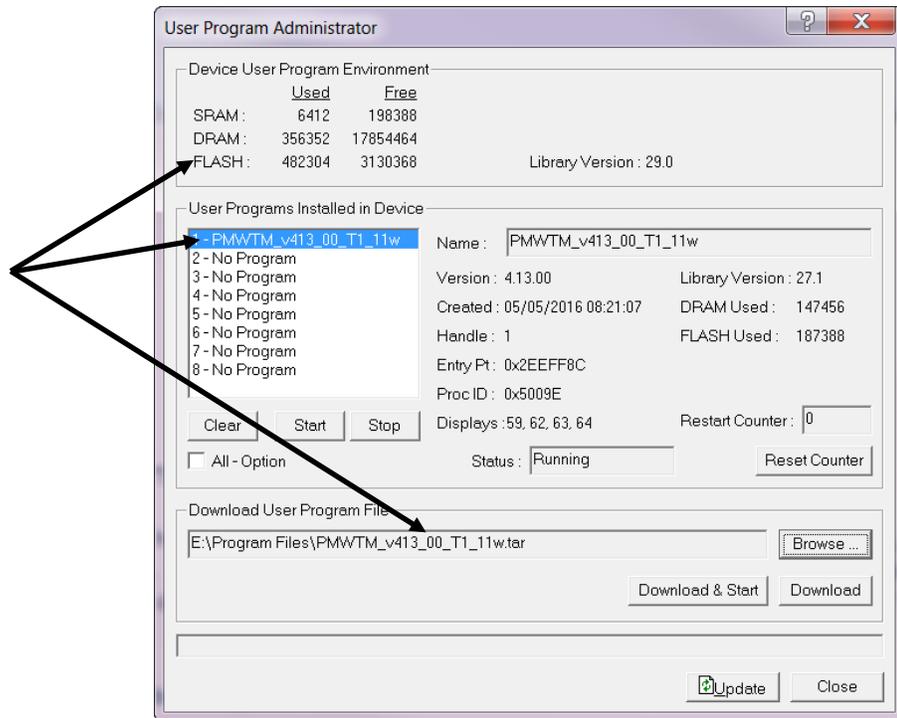


Figure 2-8. User Program Administrator

12. Click **Close**. The ROCLINK 800 screen displays and the download is complete.

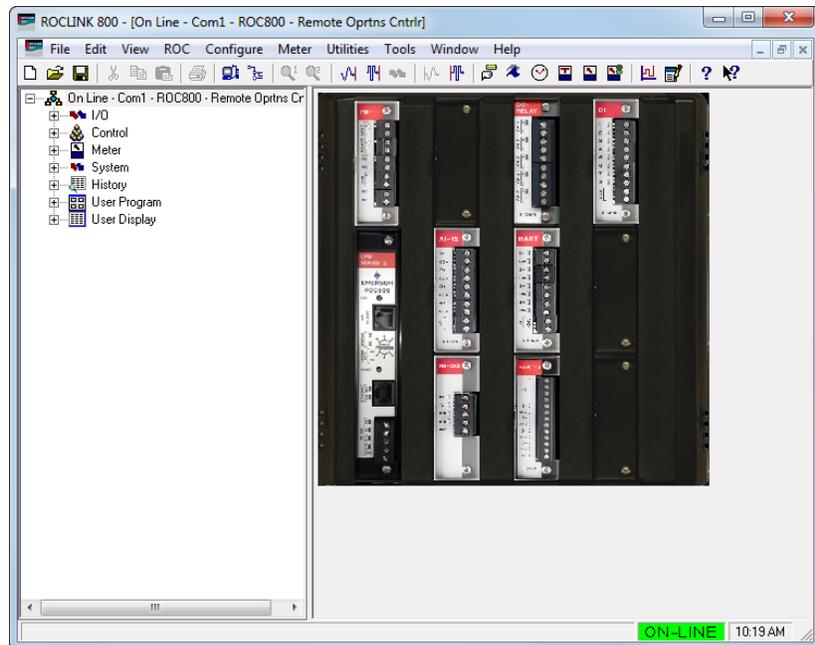


Figure 2-9. ROCLINK 800

13. Proceed to Chapter 3 – Configuration to configure the program.

2.3 MPU Loading Threshold (ROC800)

To maximize the performance of your ROC800 device, always verify the performance of specific application combinations before using them in the field to ensure the MPU load typically remains **below** 85% with peak MPU loading levels **below** 95%.

To check the current MPU load at any time, select **ROC > Information > Other Information** and review the value in the MPU loading field.

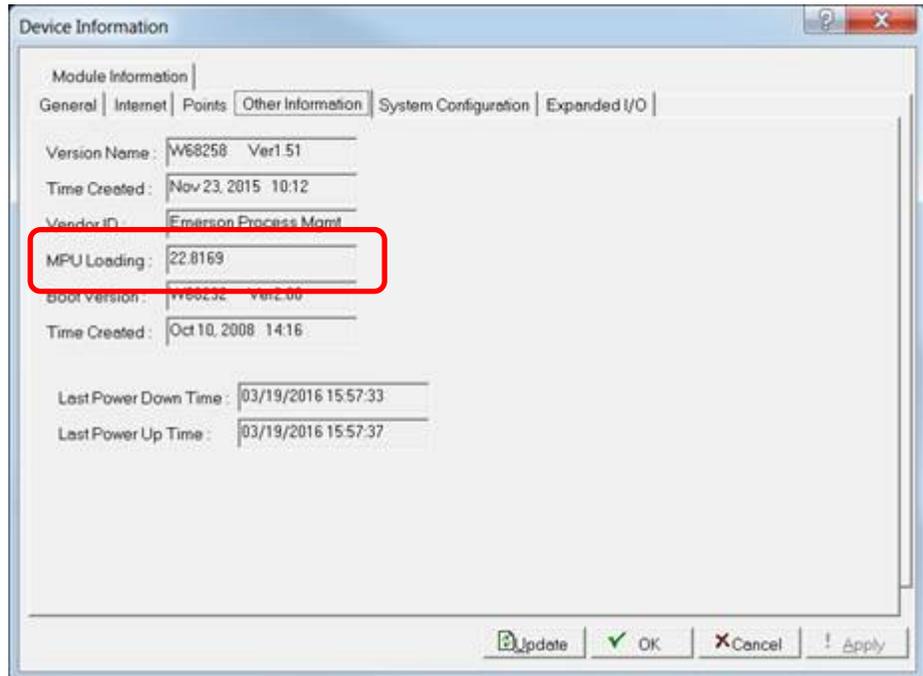


Figure 2-10. MPU Loading

Chapter 3 – Configuration

This section provides information to configure the Well Test Manager program.

After you have download and start the Well Test Manager program, you can configure the program-specific screen using ROCLINK 800 software. The following program-specific screens are:

- Well Test
- Test Report
- Well Test Setup
- Wells

Note: This document demonstrates the installation of Train 1 version, 11 wells. The installation process and functionality is the same to all program versions. Refer to *Section 1.6*, for more information.

3.1 Configuring Well Test Setup

Once you have successfully loaded the Well Test Manager program into the ROC800, you can access the Well Test Setup screen. This screen is used to configure the operating mode of the system, the test separator I/O, and other functionality which is global to the entire program. Items such as the test period and the valve behavior configured on this screen will apply to all wells.

To access the Well Test Setup screen:

1. From the Directory Tree, select **User Program > Program #1, PMWTM_v413_00_T1_11w.**
2. Double-click **Display #63, Well Test Setup 1.** The Well Test Setup screen appears:

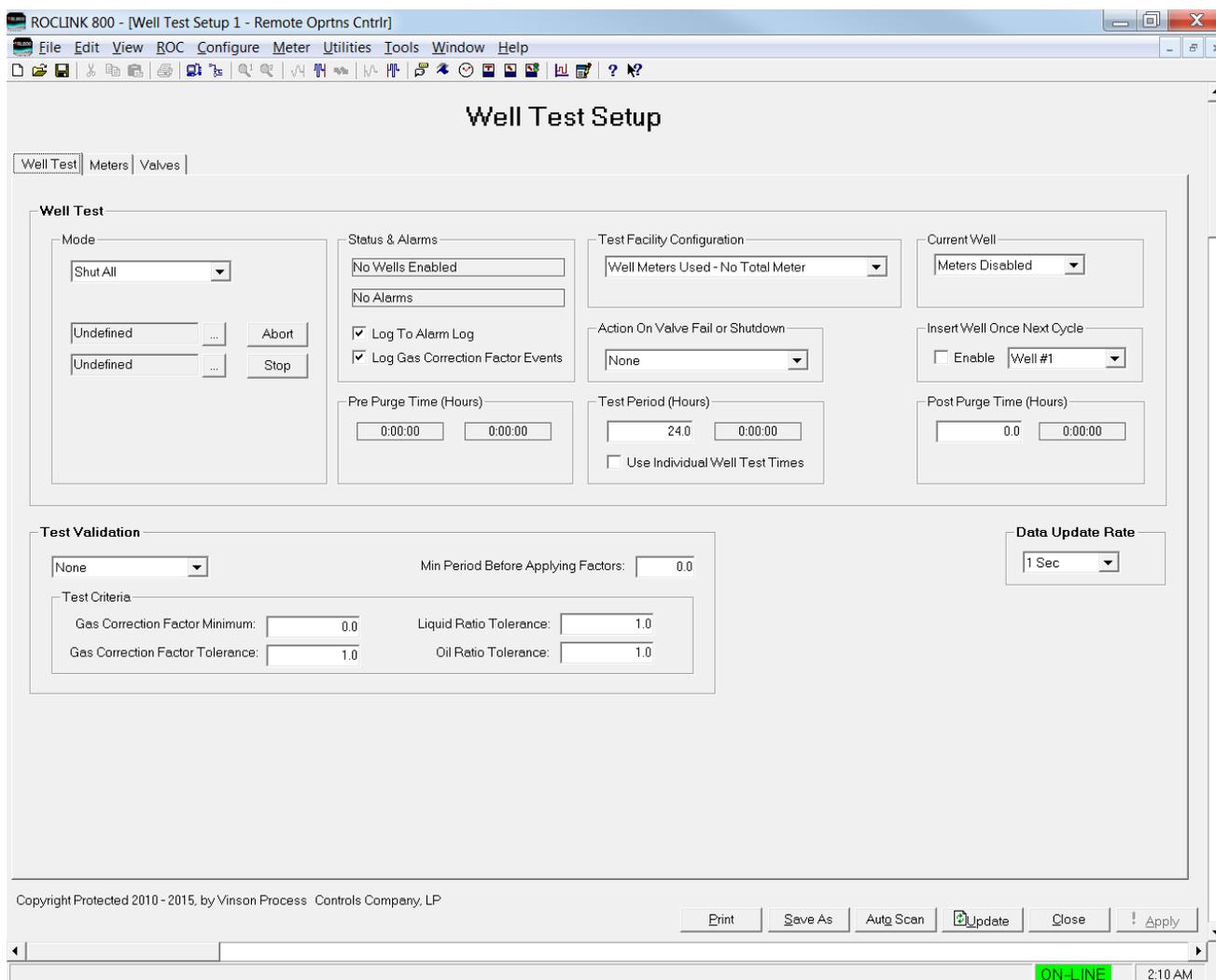


Figure 3-1. Well Test Setup

1. Review the values in the following fields:

Field	Description
Mode	Selects the program test cycle. Click  to display a drop-down menu of all test cycles.
Shut All	Closes all test and sales valves.
Enable Test	Tests continuously all enable wells by controlling the actuated valves.
Manual Valves Enable	Starts the test cycle with the current well selected using manually operated valves. Use the Start/Stop button value to control the cycle. Check the Force Well Selection option and the tested well must be re-selected after every test to insure a new well is chosen. Check the Timed Accum Stop After Manual Stop, the timed stop timer can be use to automatically stop the test cycle.
Hold Test	Applies to Enable Test and Test Once Cycle test mode. Does not advance the current well after the test period.

Field	Description
No Test	Closes all test valves and open all sales valves.
Test Once Cycle	Enables all wells are tested after selecting the current well and Start command.
Cycle Start TLP	Click <input type="checkbox"/> to designate DI status connected to a push start button. Note: This is used with the Manual Valves Enable and Test One Cycle modes.
Cycle Abort TLP	Click <input type="checkbox"/> to designate DI status connected to a push abort button. The abort action stops the cycle, but does not apply new test factors. This command aborts the current test cycle.
Cycle Stop TLP	Click <input type="checkbox"/> to designate DI status connected to a push stop button. The stop action stops the cycle, and applies new test factors. This will also interrupt the timed stop timer. This command will stop the current test cycles.
Cycle Stop Value	Writes to the value to control cycle.
Timed Accum Stop After Manual Start	When you enable this selection, the Timed Stop timer automatically stop the test cycle and apply factors. The Stop command interrupts this timer. Note: This field displays only if you select Manual Valves Enable mode.
Cycle Code	Selects the program test cycle. Click <input type="checkbox"/> to display a drop-down menu of all test cycles.
Status & Alarms	
Log To Alarm Log	When you Enable (checked) this selection, the program sets the ROC alarm logging of alarm messages.
Log Gas Correction Factor Events	When you Enable (checked) this selection, the program sets the ROC event logging of gas correction factors.
Pre Purge Time (Hours)	This display-only field shows the test period in hours. The individual well presets are configured on the Wells display for the current well in test. The elapse timer shows the pre-purge progress.
Test Facility Configuration	Selects the test facility configuration. Click <input type="checkbox"/> to display a drop-down menu of all test facility configuration.
Well Meters Used (No Total Meter)	The physical well meters exist. Their correction factors are adjusted after each test to represent the gas portion of the two phase flow.
Well Meters Virtual (Total Meter Used)	The physical meters do not exist. To calculate the volume (described as virtual flow), it uses the total sales meter ratio by each test meter to calculate a well factor. The well factor is applied to the sales meter for calculating the well's virtual flow.

Field	Description
Test Accum Only (No Total or Well Meters)	The physical well meters exist, but in other RTUs. The Well Test Manager RTU delivers the test accum results and a SCADA host gathers all RTUs and calculate factors.
Normalize Non-Test Wells	When you enable this selection, the program sets to normalize all wells not in test. It is used in conjunction with the sales meter making virtual calculations for each well. This selection insures all well factors will equal the sales meter total, by normalizing the factors of all off cycle wells. The last factors for each well represent the unadjusted values before normalization.
Action on Valve or Shutdown	<p>Selects the action taken for illegal solenoid state and valve positions for well test and sales valves. The same action is taken for the external shutdown monitor. Outlet Separator valve actions only include the options that involve all valves and not the individual well options. Designates which valve the slave valve will follow are:</p> <ul style="list-style-type: none"> • None • Shut Well; Close Sales • Shut Well; Open Sales • Shut all Valves • All Sales Open • Shut Well; Open w/Seq • All Sales Open w/Seq • Abort Test • Stop Test
Test Period (Hours)	Sets the test period. Displays the cycle progress on the elapse timer. This timer functions as the Timed Stop when Timed Accum Stop After Manual Start is selected. If Use Individual Well Test Times is checked, the Test Period times must be configured individually in the Wells Display for each well.
Use Individual Well Test Times	<p>When you Disable (unchecked) this selection, the program allows the global setting for Test Period.</p> <p>When you Enable (checked) this selection, the program allows individual Test Periods set on a well-by-well basis in the Wells Display.</p>
Current Well	Displays the current well in test. Only enabled wells are available for selection. When the mode is Manual Valves Enable, changing the Current Well is only possible during Stop.
Force Well Selection	<p>When you enable this selection, the program defaults the Current Well to be re-selected with the message 'Select A Well after the test cycle has been stopped.'</p> <p>Note: This field displays only if you select Manual Valves Enable or Test Once Cycle mode.</p>

Field	Description
Insert Well Once Next Cycle	<p>When you enable this selection, the program sets the well to be inserted in the test cycle by selecting the well to insert. Click <input type="checkbox"/> and select the next well for testing.</p> <p>Note: This field is not available if you select Manual Valves Enable mode.</p>
Post Purge Time (Hours)	<p>Sets the purge time to be set in hours. The elapsed timer displays the post-purge progress. This is useful to allow the liquid dumps to finish and accumulate the remaining liquids. Enter zero if no post-purge is needed.</p>
Test Validation	<p>Displays the test validation mode. Click <input type="checkbox"/> and select from the following Test Validation Modes:</p> <ul style="list-style-type: none"> • None – This test validation mode means ‘No Test Criteria’ is used before factors are accepted. Status message alarms are available from the last cycle or from the ROC alarm log. • Accept Test Only – This test validation means only accepted tests appear in softpoint table as test reports. Date/Time stamp factors, accums and alarms are kept as last values until they are accepted and recorded as current values in the Test Report. The last test values are kept for each well until the well is tested again. Status message alarms or ROC alarm log information is available to manually determine if a test is valid before accepting. • Accept or Reject Test – This test validation means only accepted and rejected tests appear in softpoint table as test reports. A softpoint table byte indicates this is an Accepted or Rejected report. Date/Time stamp factors, accums and alarms are kept as last values until they are accepted and recorded as current values in the Test Report. Reject will push last values into the test report. The last test values are kept for each well until the well is tested again. Status message alarms or ROC alarm log information is available to manually determine if a test is valid before accepting or rejecting. • Auto Accept – This test validation means by default the current test is accepted.
Wells UnAcknowledged	<p>Displays total enable wells, tested and are waiting for acceptance.</p> <p>Note: This field displays only if you select Accept Test Only or Accept or Reject Test mode.</p>
Minimum Period Before Applying Factors (Hours)	<p>Determines all factors are use or discard when the Test Period Cycle is interrupted before a complete cycle.</p>
Test Criteria	

Field	Description
Gas Correction Factor Minimum	You enter a low limit minimum to prevent unrealistic factors. A high limit maximum of 1.0 is imposed by the program. If a minimum or maximum condition is encountered, the last good gas correction factor is used.
Gas Correction Factor Tolerance	Sets the tolerance between the last gas factor and the current gas factor.
Liquid Ratio Tolerance	Sets the tolerance between the last water factor and the current water factor.
Oil Ratio Tolerance	Sets the tolerance between the last oil factor and the current oil factor
Data Update Rate	Selects for the program to improve MPU loading in larger well version with slower data updates for selected TLPs. Click <input type="button" value="v"/> to display a drop-down menu of data update rate (1, 2, 4, 6, 8, 10 Sec).

2. Click on the **Meters** tab.

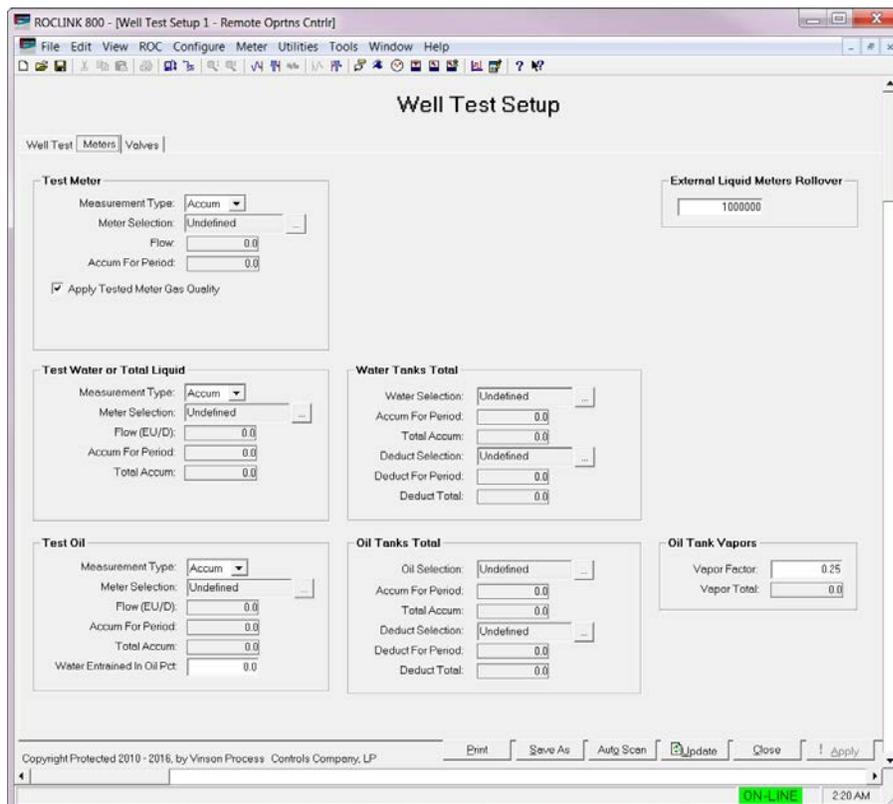


Figure 3-2. Meters Screen

3. Review the values in the following fields:

Field	Description
Test Meter	
Measurement Type	Indicates the behavior of the TLP selected on the Meter Selection field. Note that this field only displays if you select the test facility configuration option of Test Accum Only. Select from the following options: <ul style="list-style-type: none"> • Accum – This parameter is an accumulator value. • Flow – This parameter is a flow rate value.
Meter Selection	Click <input type="text"/> to designate the desired TLP (Orifice or Turbine flow rate) for the test meter. A pulse input (PI) or Advanced Pulse Module (APM) flowrate or accumulation may be used. A ROC800L Liquid Meter may also be selected. Selection of an external accumulator is also possible from a softpoint. If the rollover point of the selected accum is not known, then set the External Liquid Meters Rollover value to zero.
Flow	This is read-only field displays the flow rate for the test meter.
Accum For Period	This is read-only field displays the volume accumulation for the test time period.
Apply Tested Meter Gas Quality	When you enable (checked) this selection, the ROC station gas quality of the well tested to the test meter is the same composition basis used to calculate the gas correction factor. <p>Note: This field displays only if you select the Test Facility Configuration option of Well Meters Used.</p>
Test Valve Leak Delay Preset (Sec)	Sets the post-purge timer used actuated test and sales valves. When this delay is in the post-purge cycle, the test meter is checked for low flow to insure the test valves are not leaking. The Alarm Message and Alarm Log indicate an illegal flow condition. <p>Note: This field displays only if a valid post purge time has been entered and manual valves are not in use.</p>
Test Valve Leak Low Flow	Sets the low flow threshold that indicates that a test valve is leaking during the purge cycle. The Alarm Message and Alarm Log show this illegal flow condition. <p>Note: This field displays only if a valid post purge time has been entered and manual valves are not in use.</p>
Sales Total Meter	

Field	Description
Measurement Type	Indicates the behavior of the TLP selected on the Meter Selection field. Note that this field only displays if you select the test facility configuration option of Test Accums Only . Select from the following options: <ul style="list-style-type: none"> • Accum – This parameter is an accumulator value. • Flow – This parameter is a flow rate value.
Meter Selection	Click <input type="button" value="..."/> to designate the desired TLP (Orifice or Turbine flow rate) for the meter. A pulse input (PI) or Advanced Pulse Module (APM) flow rate or accumulation may be used. A ROC800L Liquid Meter may also be selected. Selection of an external accumulator is also possible from a Softpoint. If the rollover point of the selected accum is not known, then set the External Liquid Meters Rollover value to zero. <p>Note: This field displays only if you select the Test Facility Configuration option of Well Meters Virtual.</p>
Flow	This is read-only field displays the flow rate for the sales meter selected.
Accum For Period	This is read-only field displays the sales volume accumulation for the test period.
Test Water or Total Liquid	
Measurement Type	Indicates the behavior of the TLP selected on the Meter Selection field. Note that this field only displays if you select the test facility configuration option of Test Accums Only . Select from the following options: <ul style="list-style-type: none"> • Accum – This parameter is an accumulator value. • Flow – This parameter is a flow rate value.
Meter Selection	Click <input type="button" value="..."/> to designate the desired TLP (Orifice or Turbine flow rate) for the meter. A ROC800L Liquid Meter may also be selected. Selection of an external accumulator is also possible from a Softpoint. If the rollover point of the selected accum is not known, then set the External Liquid Meters Rollover value to zero.
Flow (EU/Day)	This is read-only field displays the flow rate for the liquid meter selected. The EU units will be what the ROC pulse input conversion represents. Flow is not calculated for externally selected accums.
Accum For Period	This is read-only field displays the liquid volume accumulation for the test period.

Field	Description
Total Accum	This is read-only field displays the total liquid volume accumulation. If this value is brought in externally as a Softpoint value, use the External Liquid Meters Rollover value to determine when the value will roll to zero.
Test Oil	
Measurement Type	Indicates the behavior of the TLP selected on the Meter Selection field. Note that this field only displays if you select the test facility configuration option of Test Accums Only . Select from the following options: <ul style="list-style-type: none"> • Accum – This parameter is an accumulator value. • Flow – This parameter is a flow rate value.
Meter Selection	Click <input type="button" value="..."/> to designate the desired TLP (Orifice or Turbine flow rate) for the oil meter. A Pulse Input (PI) or Advanced Pulse Module (APM) flowrate or accumulation may be used. A ROC800L Liquid Meter may also be selected. The meter is used for the oil ratio calculation. Selection of an external accumulator is also possible from a Softpoint. If the rollover point of the selected accum is not known, then set the External Liquid Meters Rollover value to zero.
Flow (EU/Day)	This read-only field displays the flow rate for the oil meter selected. The EU units will be what the ROC pulse input conversion represents. Flow is not calculated for externally selected accums.
Accum For Period	This read-only field displays the oil volume accumulation for the test period.
Total Accum	This read-only field displays the total oil volume accumulation. If this value is brought in externally as a Softpoint value, use the External Liquid Meters Rollover value to determine when the value will roll to zero.
Water Entrained in Oil Pct.	Sets the percentage of the measured oil for the test separator which is expected to be water or other non-merchantable product. Also referred to as the sediment and water percentage.
Water Tanks Total	
Water Selection	Click <input type="button" value="..."/> to designate the desired TLP of the Production Manager total tank accum for water (Point Type = 196, Parameter = 87).
Accum For Period	This read-only field displays the water tank accumulation for the test period.
Total Accum	This read-only field displays the Production Manager total water tank accum value.

Field	Description
Deduct Selection	Click <input type="button" value="..."/> to designate the desired TLP of any measurement representing an accumulation that should be deducted from the total water tank.
Deduct For Period	This read-only field displays the water deduct accumulation for the test period.
Deduct Total	This read-only field displays the deduct water accum value.
Oil Tanks Total	
Oil Selection	Click <input type="button" value="..."/> to designate the desired TLP of the Production Manager total tank accum for oil (Point Type = 196, Parameter = 86).
Accum For Period	This read-only field displays the oil tank accumulation for the test period.
Total Accum	This read-only field displays the Production Manager total oil tank accum value.
Deduct Selection	Click <input type="button" value="..."/> to designate the desired TLP of any measurement representing an accumulation that should be deducted from the total oil tank.
Deduct For Period	This read-only field displays the oil deduction amount for the test period.
Deduct Total	This read-only field displays the deduct oil accum value.
Oil Tank Vapors	
Vapor Factor	Sets the estimated vapour content for a given volume of oil.
Vapor Total	This read-only field displays the vapors based on tank volumes times the Oil Vapor Factor. The Total Accum Value should represent the total of all tanks, and may need to be summed externally.
External Liquid Meters Rollover	Sets the rollover value known point where this external value rolls over and accumulates again from zero. Enter zero for not known or not used. Note: This field functions with the water or oil for instance when a wireless connection to a remote meter provides a total accumulation as the Meter Selected Softpoint value.

- Click on the **Valves** tab.

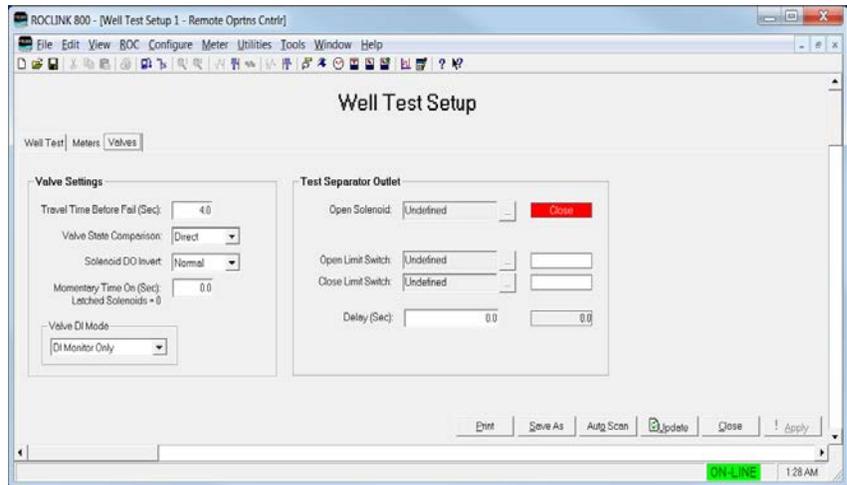


Figure 3-3. Valves Screen

5. Review the values in the following fields:

Field	Description
Valve Settings	
Travel Time Before Fail (Sec)	<p>Sets the two separate time functions:</p> <ul style="list-style-type: none"> If the test and sales limit switches are defined, the time represents the time allowed for all valves to travel before the well is flagged for failure. If test and sales limit switches are not defined, the time represents a delay between valve sequencing giving valves time to travel.
Valve State Comparison	<p>Selects the comparison of the DO solenoid state with the expected valve limit switch state after the valve travels. The comparison is made if the valve limit switches are defined and after the valve travel timer expires. Click <input type="button" value="v"/> and select valid values:</p> <ul style="list-style-type: none"> Direct – This comparison is the test valve solenoid is open (State = 1) and its open limit switch is made (State = 1). Reversed – This comparison is the opposite for either state.
Solenoid DO Invert	<p>Sets the DO actuation states to be Reversed. Click <input type="button" value="v"/> and select Reversed.</p> <p>Note: To invert DI limit switch states, use the ROC Discrete Input - Advanced Inverted setting.</p>
Momentary Time On (Sec)	<p>Sets the momentary reset times in a dual solenoid configuration for each valve. You enter zero, assumes one solenoid latched configuration. If solenoid DOs are selected for each well's valves, this setting will configure the Time On setting for each DO selected.</p>

Field	Description
Valve DI Mode	<p>Sets the usage of of the valve feedback (discrete inputs) for each of the well's valves. Click <input type="button" value="v"/> and select the mode:</p> <ul style="list-style-type: none"> • DI Monitor Only – This mode means the valve discrete input limit switches are monitored, and their status displayed by the program. However should a DI not be in an expected state during operation, no action will be taken. • Valve State Failure – This mode means the discrete Input limit switches are monitored, and should their status not be as expected during a given state of program operation, the program will take action, as defined in the Action on Valve Fail or Shutdown configuration option. • Manual Test – Use as Cont Permissives – This mode means the valve discrete input limit switches at each well are repurposed as program permissives. All states are evaluated continuously through the well tests and will abort the test if changed. The valve state comparison reverses the permissive evaluation of the DI. Note: This option only applies when the overall program mode is set to the Manual Valves Enable mode. • Test Once – Use as State Permissives – This mode means the valve discrete input limit switches are repurposed as program permissives, however these are only evaluated for the well test starting conditions. Note: This option only applies when the overall program mode is set to the Test Only Cycle mode.
Test Separator Outlet	<p>This is a common valve downstream of the test gas separator which is sequence at the beginning (before pre-purge) and end of the test cycle (after post-purge). A point that is not a discrete output can also be selected for control.</p>
Open Solenoid	<p>Click <input type="button" value="..."/> to designate the desired TLP DO selection for the test separator outlet valve. A TLP point that is not a discrete output can be selected for control such as a Softpoint value.</p>
Close Solenoid	<p>Click <input type="button" value="..."/> to designate the desired TLP DO selection for the close test separator outlet valve. The selection becomes available when the Valve Settings - Momentary Time One setting is non-zero. This implies a momentary delay is needed for a dual solenoid configuration. Otherwise the open solenoid is latching.</p>

Field	Description
Open Limit Switch	Click <input type="button" value="..."/> to designate the desired TLP DI selection for the test separator outlet valve open limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Open message appear correctly for a normally closed wiring scheme. Note: The Valve Settings - Valve DI Mode controls the use of this point.
Close Limit Switch	Click <input type="button" value="..."/> to designate the desired TLP DI selection for the test separator outlet valve close limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Close message appear correctly for a normally closed wiring scheme. Note: The Valve Settings - Valve DI Mode controls the use of this point.
Delay Preset (Sec)	Sets the preset in seconds use for the test separator outlet valve after valve open and before valve close.
Timer Sec	This read-only field displays the decrementing timer in seconds use for the test separator outlet valve after valve open and before valve close.

6. Proceed to Section 3.2 – Configuring wells.

3.2 Configuring Wells

Once you have successfully loaded the Well Test Manager program into the ROC800, you can access the Well screen. This screen is used to configure inputs and outputs that are specific to the well. This is also where current well values, including allocation accumulations can be viewed. There are multiple instances (or points) available for this screen, each representing a different well. Configuration on this screen must be repeated for each well to be supported by the program.

To access the Well screen:

1. From the Directory Tree, select **User Program > Program #1, PMWTM_v413_00_T1_11w.**
2. Double-click **Display #64, Well 1.** The Well screen appears:

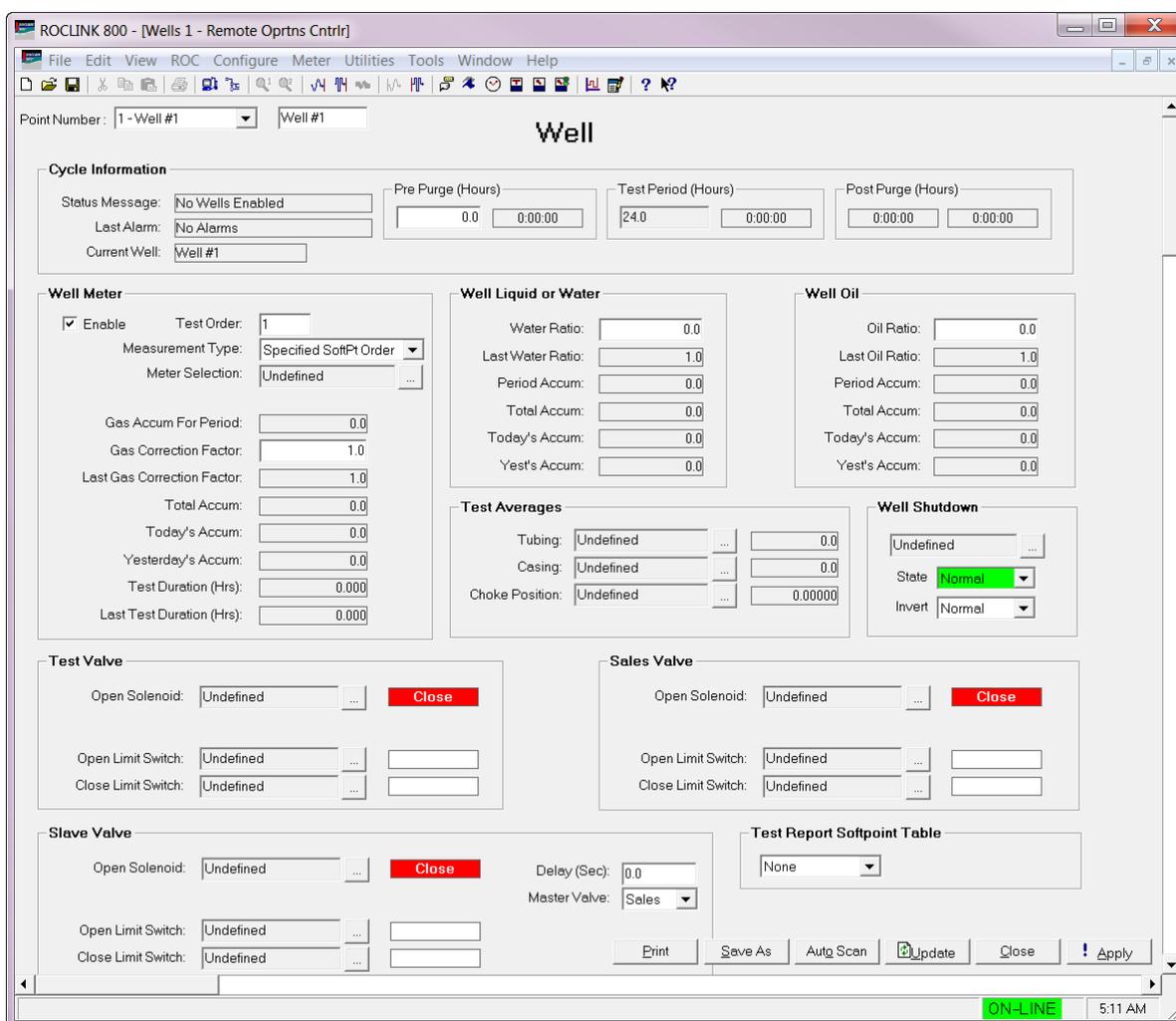


Figure 3-4. Well screen

3. Review the following fields:

Field	Description
Point Number	Displays selection for the well. Click <input type="button" value="v"/> and select a well. The tag can be any 10 character description.
Cycle Information	
Status Message	This read-only field displays the cycle related messages.
Last Alarm	This read-only field displays the test related alarm messages.
Current Well	This read-only field displays the current well in test.
Pre Purge (Hours)	Sets a pre-purge preset you enter for each well. Displays a decrementing pre-purge timer.

Field	Description
Test Period (Hours)	This read-only field displays the test period preset and the decrementing test period timer. If the Use Individual Well Test Times setting is checked in the Test Setup, individual test period presets are entered for each well.
Post Purge (Hours)	This read-only field displays the post-purge preset and displays the decrementing post-purge timer.
Well Meter	
Enable	When you enable (checked) this selection, the meter is available for testing. For the Enable Test or Test One Cycle mode, the next available well will be tested if the well is disabled. For the Manual Valves Enable mode, a test will be prevented if the well is disabled. The program can also disable a well if one of the Shut Well options is selected under Action On Valve Fail or Shutdown. If Normalize Non-Test Factors is checked, enabling or disabling a well will case factors to be renormalized.
Test Order	Sets the numeric order of test wells. The next greater value in order is always tested next. If all test order values are the same, the wells will be tested in the order each well instance is configured.
Measurement Type	<p>Indicates the behavior of the TLP selected on the Meter Selection field. Note that this field only displays if you select the test facility configuration option of Test Accums Only. Select from the following options:</p> <ul style="list-style-type: none"> • Accum – This parameter is an accumulator value. • Flow – This parameter is a flow rate value. • Specified SoftPt Order – this parameter is part of a set of meter data from a remote device saved into soft point float parameters. <p>Note: When selecting this option, the following soft point float data values must be populated in the parameters as shown. Float data values not listed below are not used by the program.</p> <ul style="list-style-type: none"> • SoftPt X, Float 4 = Flow Rate • SoftPt X, Float 5 = Today's Accum • SoftPt X, Float 6 = Yest's Accum • SoftPt X, Float 9 = Volume Accumulated • SoftPt X, Float 11 = Specific Gravity • SoftPt X, Float 13 = N2 % • SoftPt X, Float 14 = CO2

Field	Description
Meter Selection	<p>Click <input type="button" value="..."/> to designate the desired TLP (Orifice or Turbine flow rate) for the meter. A pulse input (PI) or Advanced Pulse Module (APM) flowrate or accumulation may be used. A ROC800L Liquid Meter may also be selected. Selection of an external accumulator is also possible from a Softpoint. If the rollover point of the selected accum is not known, then set the External Liquid Meters Rollover value to zero.</p> <p>Note: This selection is not used for virtual meters.</p>
Gas Flow	This read-only field displays the flow of an actual meter.
Gas Accum For Period	This read-only field displays the accum from the test meter for the tested period.
Gas Correction Factor	<p>Sets the ratio of test meter and well meter accumulations for the test period. By multiplying this factor to the well flow calculation, the well flow will be adjusted to reflect the estimated gas portion of the well flow. The first averaging period for each well will reflect gas and liquid until the first gas correction factor is applied. If the gas correction factor is adjusted manually, the period cycle will restart to avoid problems with partial accumulations using the old factor. If Use Sales Total For Virtual Calcs is selected, this factor becomes the percentage of the sales meter total flows and accums that represents this well. If no validation is selected, the last gas correction factor is immediately pushed into the gas correction factor.</p>
Last Gas Correction Factor	This read-only field displays the un-validated factor that can be reviewed before accepted as the Gas Correction Factor.
Total Accum	This read-only field displays the actual value for metered wells and a percentage of the Sales meter for virtual well calculations.
Today's Accum	This read-only field displays the today's actual value for metered wells and a percentage of the Sales meter for virtual well calculations.
Yesterday's Accum	This read-only field displays the yesterday's actual value for metered wells and a percentage of the Sales meter for virtual well calculations.
Test Duration (Hrs)	This read-only field displays the test period hours available after validation.

Field	Description
Last Test Duration (Hrs)	This read-only field displays the test period hours available before validation. This would represent the time duration of a test that was stopped early.
Well Liquid or Water	
Water Ratio	Sets the current liquid ratio which is the factor taken from the last liquid ratio after the values are validated. The water ratio determines the liquid flows and accums during the off cycle. This value can be edited directly if needed. If virtual meters and normalization are selected, the program will adjust this number directly.
Last Water Ratio	This read-only field displays the last liquid ratio will be calculated if a liquid meter connected to the dump system on the test separator is defined. This is a ratio of the liquid period accumulation to the test meter period accumulation in engineering units per volume (Liq Vol/Gas Vol). If Production Manger tank totals are used, the ratio becomes the liquid period accumulation over the tank total (Liq Vol/Liq Vol). This value can be reviewed before factors are validated.
Period Accum	This read-only field displays the test meter accum for the tested period.
Total Accum	This read-only field displays the volumes determined by the well total accum times the liquid ratio.
Today's Accum	This read-only field displays volumes determined by the well today's accum times the liquid ratio.
Yesterday's Accum	This read-only field displays volumes determined by the well yesterday's accum times the liquid ratio.
Well Oil	
Oil Ratio	Sets the current oil ratio is the factor that is taken from the last oil ratio after the values are validated. The oil ratio determines the oil flows and accums during the off cycle. This value can be edited directly if needed. If virtual meters and normalization are selected, the program will adjust this number directly.

Field	Description
Last Oil Ratio	Sets the last liquid ratio will be calculated if a liquid meter connected to the dump system on the test separator is defined. This is a ratio of the liquid period accumulation to the test meter period accumulation in engineering units per volume. (Oil Vol/Gas Vol). If Production Manger tank totals are used, the ratio becomes the liquid period accumulation over the tank total. (Oil Vol/Oil Vol). This value can be reviewed before factors are validated.
Period Accum	This read-only field displays the test meter accum for the tested period.
Total Accum	This read-only field displays volumes determined by the well total accum multiplied by the oil ratio.
Today's Accum	This read-only field displays volumes determined by the well today's accum multiplied by the oil ratio.
Yesterday's Accum	This read-only field displays volumes determined by the well yesterday's accum multiplied by the oil ratio.
Test Averages	
Tubing TLP	Click <input type="checkbox"/> to designate a floating point parameter in the system which will be averaged during the test period. This is commonly used for the tubing pressure, however any process variable may be selected.
Tubing Value	This read-only field displays the average of the selected value during the test period.
Casing TLP	Click <input type="checkbox"/> to designate a floating point parameter in the system which will be averaged during the test period. This is commonly used for the casing pressure, however any process variable may be selected.
Casing Value	This read-only field displays the average of the selected value during the test period.
Choke Position TLP	Click <input type="checkbox"/> to designate a floating point parameter in the system which will be averaged during the test period. This is commonly used for the choke pressure, however any process variable may be selected.
Choke Position Value	This read-only field displays the average of the selected value during the test period.
Well Shutdown	

Field	Description
Selection	Click <input type="button" value="..."/> to designate the TLP to monitor an external shutdown condition. The point should be a UINT8 data type like the discrete input status point for example. If a TLP point is not selected (undefined), the shutdown trip value can be changed directly to cause a shutdown.
State	<p>Selects the trip state of the Well shutdown. This is controlled by the shutdown TLP if selected or written to directly if the TLP is undefined:</p> <ul style="list-style-type: none"> • Normal • Shutdown
Invert	<p>Selects the trip invert Well shutdown value. Click <input type="button" value="v"/> and choose the following:</p> <ul style="list-style-type: none"> • Normal • Invert
Test Valve	
Open Solenoid	Click <input type="button" value="..."/> to designate the TLP DO for the test valve.
Close Solenoid	Click <input type="button" value="..."/> to designate the TLP DO for the close test valve. The selection becomes available when the Valve Settings - Momentary Time One setting is non-zero. This implies a momentary delay is needed for a dual solenoid configuration. Otherwise the Open solenoid is latching.
Open Limit Switch	Click <input type="button" value="..."/> to designate the TLP DI selection for the test valve open limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Open message appear correctly for a normally closed wiring scheme. The usage of this point is controlled by the Valve Settings - Valve DI Mode . If the mode is Start/Test Permissive, then a DI Status of 1 is a valid permissive for the current well in test. This permissive state is reversed for off cycle wells.

Field	Description
Close Limit Switch	Click <input type="checkbox"/> to designate the TLP DI selection for the test valve close limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Close message appear correctly for a normally closed wiring scheme. The usage of this point is controlled by the Valve Settings - Valve DI Mode . If the mode is Start/Test Permissive, then a DI Status of 0 is a valid permissive for the current well in test. This permissive state is reversed for off cycle wells.
Sales Valve	
Open Solenoid	Click <input type="checkbox"/> to designate the TLP DO selection for the sales valve.
Close Solenoid	Click <input type="checkbox"/> to designate the TLP DO selection for the close sales valve. The selection becomes available when the Valve Settings - Momentary Time One setting is non-zero. This implies a momentary delay is needed for a dual solenoid configuration. Otherwise the Open solenoid is latching.
Open Limit Switch	Click <input type="checkbox"/> to designate the TLP DI selection for the sales valve open limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Open message appear correctly for a normally closed wiring scheme. The usage of this point is controlled by the Valve Settings - Valve DI Mode . If the mode is Start/Test Permissive, then a DI Status of 1 is a valid permissive for the current well in test. This permissive state is reversed for off cycle wells.
Close Limit Switch	Click <input type="checkbox"/> to designate the TLP DI selection for the sales valve close limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Close message appear correctly for a normally closed wiring scheme. The usage of this point is controlled by the Valve Settings - Valve DI Mode . If the mode is Start/Test Permissive, then a DI Status of 0 is a valid permissive for the current well in test. This permissive state is reversed for off cycle wells.
Slave Valve	
Open Solenoid	Click <input type="checkbox"/> to designate the TLP DO selection for the slave valve.

Field	Description
Close Solenoid	Click <input type="text"/> to designate the TLP DO selection for the close slave valve. The selection becomes available when the Valve Settings - Momentary Time One setting is non-zero. This implies a momentary delay is needed for a dual solenoid configuration. Otherwise the Open solenoid is latching.
Open Limit Switch	Click <input type="text"/> to designate the TLP DI selection for the slave valve open limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Open message appear correctly for a normally closed wiring scheme.
Close Limit Switch	Click <input type="text"/> to designate the TLP DI selection for the slave valve close limit switch. This selection is optional. Use the ROC DI Inverted setting to make the display Close message appear correctly for a normally closed wiring scheme.
Delay (Sec)	Sets the delay in seconds to actuate the slave valve after the master valve is actuated. The delay is also applied after the master valve actuation clears before the slave valve actuation is cleared.
Master Valve	Selects the master slave valve. Click <input type="text"/> and select slave valve will follow: <ul style="list-style-type: none">• Sales• Test

4. Proceed to Section 3.3 – Test Report.

3.3 Test Report

Once you have successfully loaded the Well Test Manager program into the ROC800, you can access the Test Report screen. This screen provides results from previously completed well tests, and optionally allows the operator to accept or reject well test results. There are multiple instances (or points) available for this screen, each representing a different well. The current and previous well test results are provided for each of these wells.

To access the Test Report screen:

1. From the Directory Tree, select **User Program > Program #1, PMWTM_v413_00_T1_11w.**
2. Double-click **Display #62, Test Report 1.** The Test Report screen appears:

Figure 3-5. Test Report

1. Review the following fields:

Field	Description
Clear Test Report	When you Enable (checked), clears the test report values for that well. All formatted Date/Time fields show 1/01/1970 when cleared. This feature may be useful when loaded a saved ROC configuration into a unit that has old test report results.
Current and Previous Validated Reports:	This read-only displays the last well test values. These values are retained until the next test for that well. If the Test Validation type is selected such as Accept / Reject test, the operator must validate the last test results before they are moved into the test report. If the Test Validation type is Auto , results are automatically moved when test criteria is met. If Test Validation type is None is selected, no criteria is checked before moving last test results into the test report.

Field	Description
Test Verification Type	This read-only field displays the test verification type: <ul style="list-style-type: none"> • None • Test Accepted • Test Rejected
Alarm Status	This read-only field displays the general alarm that was pending at the end of the test.
Report Date/Time	This read-only field displays the date/time of the completed test. This is the ROC TIME data type.
Report Date	This read-only field displays the date of the test report. This is a floating point data type that represents date (mmdyy).
Report Time	This read-only field displays the time of the test report. This is a floating point data type that represents time (hhmmss).
Test Duration Hours	This read-only field displays the time duration of the test of the well in hours.
Gas Factor	This read-only field displays the factor calculated based on the test period accums.
Liquid Ratio	This read-only field displays the liquid or water ratio to gas or tankage totals depending on the operating setup.
Oil Ratio	This read-only field displays the oil ratio to gas or tankage totals depending on the operating setup.
Test Gas	This read-only field displays the test meter volume accumulated during the test period.
Well Gas	This read-only field displays the well meter volume accumulated during the test period.
Test Water	This read-only field displays the liquid meter volume accumulated during the test period.
Test Oil	This read-only field displays the oil meter volume accumulated during the test period.
24 Hr Equivalent	This read-only field displays the test meter volume accumulated during the test period.
Averages	This read-only field displays the averages of tubing, casing and choke position for the test period. Although these averages are labeled as the tubing, casing, and choke position (which are typically required averages), any floating point parameter in the system may be selected to be averaged in the well configuration. Therefore the average for any three process variables can be recorded in the test report.

2. Proceed to Section 3.4 – Well Test Display – 11 Wells.

3.4 A Well Test Display – 11 Wells

Once you have successfully loaded the Well Test Manager program into the ROC800, you can access the Well Test Setup screen. To access the Well Test Setup screen:

1. From the Directory Tree, select **User Program > Program #1, PMWTM_v413_00_T1_11w**.
2. Double-click **Display #59, Well Test 1**. The Well Test screen appears:

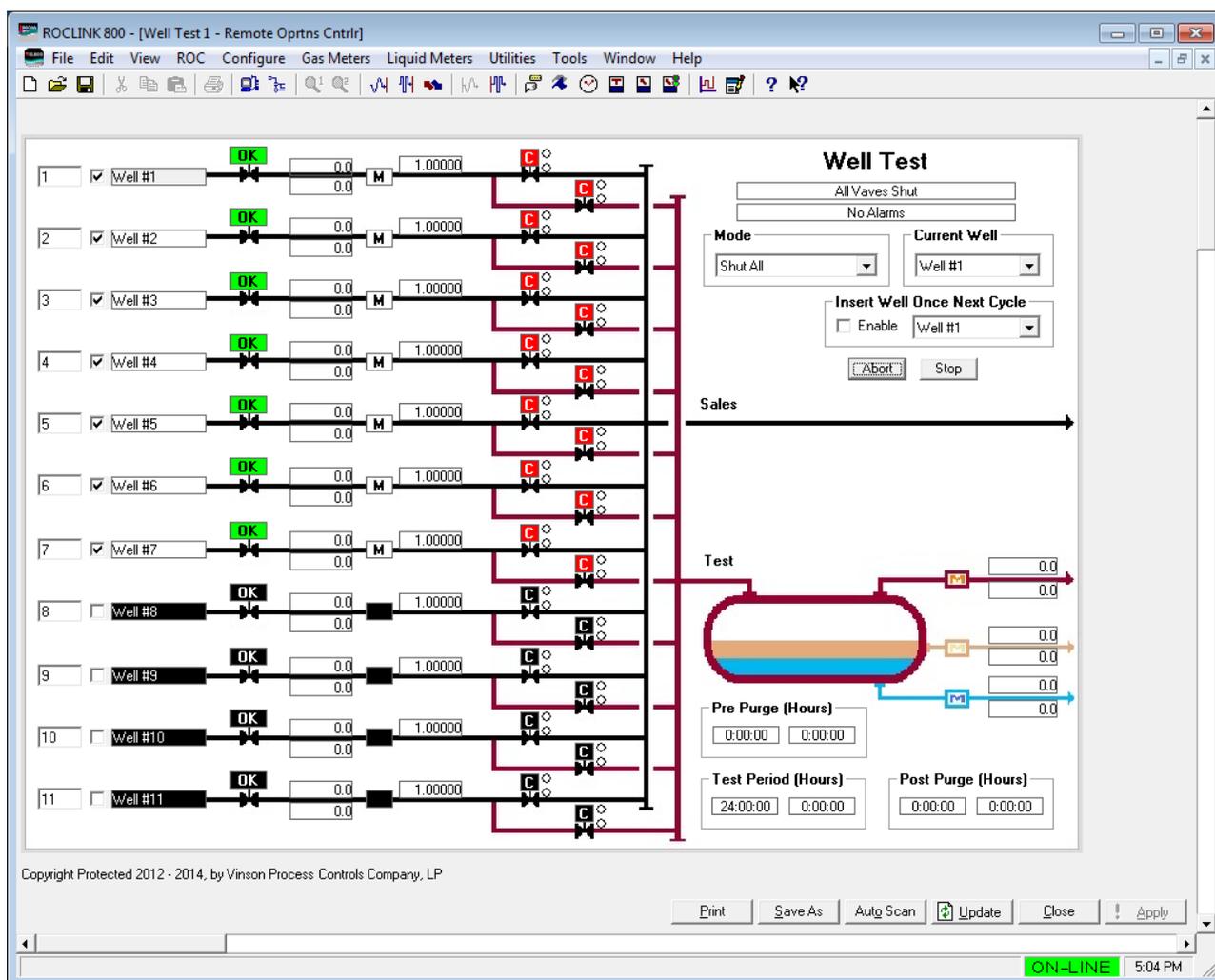


Figure 3-6. Well Test

3.5 Saving the Configuration

Whenever you modify or change the configuration, it is a good practice to save the final configuration to memory. To save the configuration:

Select **ROC > Flags**. The Flags screen displays:

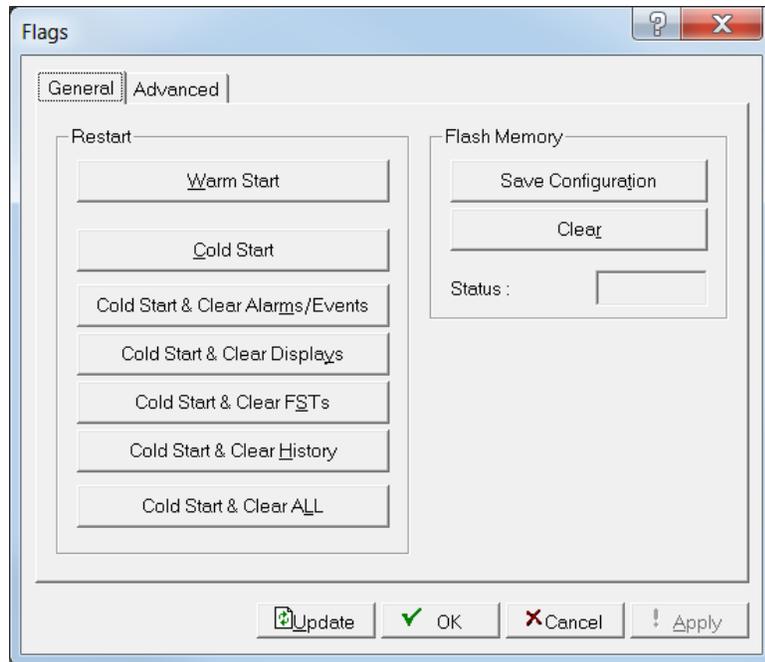


Figure 3-7. Flags

1. Click **Save Configuration**. A verification message displays:

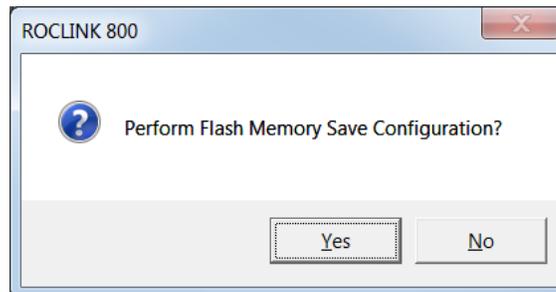


Figure 3-8. Save Verification

- Click **Yes**. When the save process completes, a confirmation message displays:

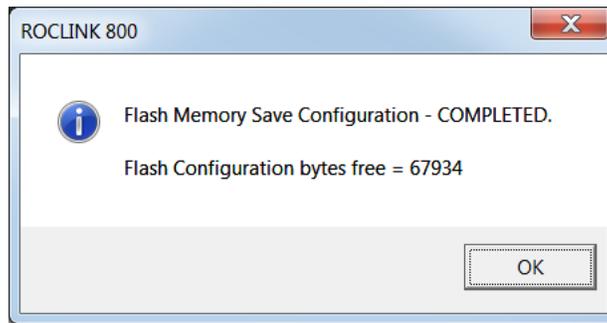


Figure 3-9. Confirmation

Note: Depending on the size and complexity of the user program, this process may take several minutes. When the process ends, the Status field on the Flags screen displays *Completed*.

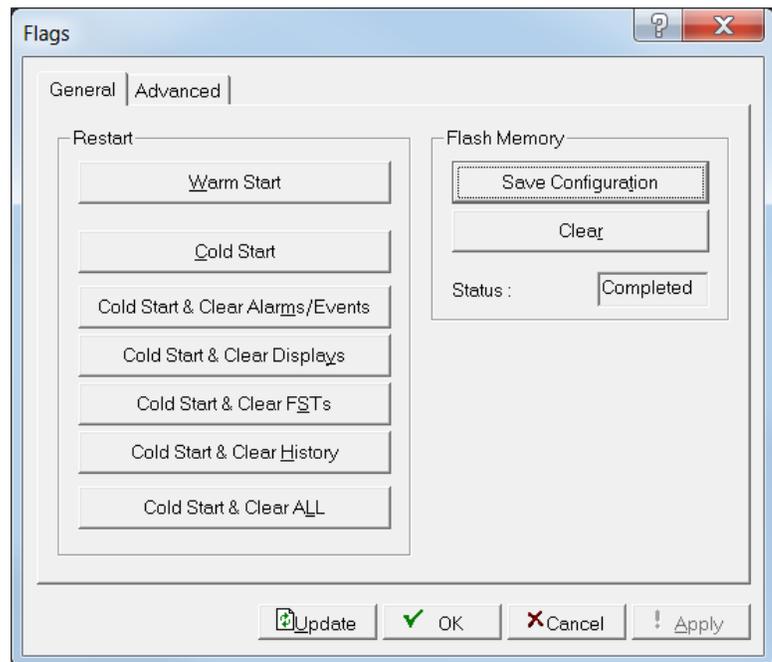


Figure 3-10. Flags, Status - Completed

- Click **Update** on the Flags screen. This completes the process of saving your new configuration.

Note: For archive purposes, you should also save this configuration to your PC's hard drive or a removable media (such as a flash drive) using the **File > Save Configuration** option on the ROCLINK 800 menu bar.

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Chapter 4 – Reference

This section provides information on the user-defined point types the Well Test Manager program uses:

- Point Type 62/211/215: Test Report
- Point Type 63/212/216: Well Test Setup
- Point Type 64/213/217: Wells

4.1 Point Type 62/211/215: Test Report Parameters

Point type 62/211/215 contains the parameters for the configuration of the test report of the program. The program supports up to 64 logicals of point type 62, up to 32 logicals of point type 211, and 11 logicals of point type 215.

Point Type 62/211/215: Test Report Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Report Tag	R/O	System	AC	10	Alpha Numeric	Well 1 to 64	4.00	Report Tag
1	Report Date (mmddy)	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Report Date
2	Report Time (hhmmss)	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Report Time
3	Report Date/Time	R/O	System	TIME	4	Any positive U32	0	4.00	Report Date/Time (Seconds elapsed since 1/01/1970 UTC)
4	Test Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Gas Accum For Period
5	Well Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Well Gas Accum For Period
6	Test Liquid Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Liquid Accum For Period
7	Test Oil Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Oil Accum For Period
8	Gas Factor	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Gas Factor
9	Liquid Ratio	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Liquid Ratio
10	Oil Ratio	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Oil Ratio
11	Alarm Status	R/O	System	UINT8	1	0 → 36	0	4.00	Alarm Status
12	Test Verification	R/O	System	UINT8	1	0 → 2	0	4.00	Test Verification Type: 0 = None 1 = Test Accepted 2 = Test Rejected

Point Type 62/211/215: Test Report Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
13	Test Duration (Hours)	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Duration (Hours)
14	Test Gas 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Gas 24 Hour Equivalent
15	Well Gas 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Well Gas 24 Hour Equivalent
16	Test Liquid 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Liquid 24 Hour Equivalent
17	Test Oil 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Test Oil 24 Hour Equivalent
18	Prev Report Date (mmddyy)	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Report Date (mmddyy)
19	Prev Report Time (hhmmss)	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Report Time (hhmmss)
20	Prev Report Date/Time	R/O	System	TIME	4	Any Positive U32	0	4.00	Prev Report Date/Time
21	Prev Test Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Gas Accum For Period
22	Prev Gas Well Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Gas Well Accum For Period
23	Prev Test Liquid Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Liquid Accum For Period
24	Prev Test Oil Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Oil Accum For Period
25	Prev Gas Factor	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Gas Factor
26	Prev Liquid Ratio	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Liquid Ratio
27	Prev Oil Ratio	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Oil Ratio
28	Prev Alarm Status	R/O	System	UINT8	1	0 → 36	0	4.00	Prev Alarm Status

Point Type 62/211/215: Test Report Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
29	Prev Test Verification Type	R/O	System	UINT8	1	0 → 2	0	4.00	Prev Test Verification Type: 0 = None 1 = Test Accepted 2 = Test Rejected
30	Prev Test Duration (Hours)	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Duration (Hours)
31	Prev Test Gas 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Gas 24 Hour Equivalent
32	Prev Well Gas 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Well Gas 24 Hour Equivalent
33	Prev Test Liquid 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Liquid 24 Hour Equivalent
34	Prev Test Oil 24 Hour Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.00	Prev Test Oil 24 Hour Equivalent
35	Clear Test Report	R/W	Both	UINT8	1	0 → 1	0	4.00	Clear Test Report: 0 = Reset 1 = Clear
36	Tubing Average	R/O	System	FLOAT	4	Any positive floating number	0	4.04	Tubing Average
37	Casing Average	R/O	System	FLOAT	4	Any positive floating number	0	4.04	Casing Average
38	Choke Position Average	R/O	System	FLOAT	4	Any positive floating number	0	4.04	Choke Position Average
39	Prev Tubing Average	R/O	System	FLOAT	4	Any positive floating number	0	4.04	Prev Tubing Average
40	Prev Casing Average	R/O	System	FLOAT	4	Any positive floating number	0	4.04	Prev Casing Average
41	Prev Choke Position Average	R/O	System	FLOAT	4	Any positive floating number	0	4.04	Prev Choke Position Average

4.2 Point Type 63/212/216: Well Test Setup Parameters

Point type 63/212/216 contains the parameters for the configuration of the well test setup of the program. This is the global program setup. There will be 1 logical instance of this for point type 64, or 1 logical instance for point type 212, or 1 logical instance for point type 216.

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Test Mode	R/W	Both	UINT8	1	0 → 5	0	2.07	Test Mode: 0 = Shut All 1 = Enable Test 2 = Manual Valves Enable 3 = Hold Test 4 = No Test 5 = Test One Cycle
1	Cycle Mode	R/O	System	UINT8	1	0 → 14	0	2.05	Cycle Code: 0 = No Wells Enabled 1 = All Valves Shut 2 = All Wells To Sales 3 = Hold Test At Current Well 4 = Waiting Manual Start 5 = Select A Well 6 = Selected Well Disabled 7 = Permissive Fail 8 = Pre Purge 9 = Test In Progress 10 = Post Purge 11 = Outlet Valve Open 12 = Outlet Valve Open Delay 13 = Outlet Valve Close Delay 14 = Outlet Valve Close
2	Test Period/Timed Stop Preset (Hours)	R/W	User	FLOAT	4	Any positive floating number	24	1.00	Test Period/Timed Stop Preset (Hours)
3	Test Period/Timed Stop Timer (Hours)	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Period/Timed Stop Timer (Hours)
4	Post Purge Time Preset (Hours)	R/W	User	FLOAT	4	Any positive floating number	0	1.00	Post Purge Time Preset (Hours)
5	Post Purge Timer (Hours)	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Post Purge Timer (Hours)

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
6	Current Tested Well	R/W	Both	UINT8	1	0 → 63, 255	1	2.01	Current Test Well: 0 - 63 = Current 255 = Select A Well
7	Test Gas Flow	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Gas Flow
8	Test Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Gas Accum For Period
9	Test Gas Last Total For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Gas Last Total For Period
10	Test Gas Flow TLP	R/W	User	TLP	3		0,0,0	1.00	Test Gas Flow TLP
11	Gas Correction Factor Minimum	R/W	User	FLOAT	4	Any positive floating number	0	1.00	Gas Correction Factor Minimum
12	Apply Gas Quality To Test Meter	R/W	User	UINT8	1	0 → 1	1	1.00	Apply Gas Quality To Test Meter
13	Test Liquid Flow	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Liquid Flow
14	Test Liquid Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Liquid Accum For Period
15	Test Liquid Last Total For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Test Liquid Last Total For Period
16	Test Liquid TLP	R/W	User	TLP	3		0,0,0	1.00	Test Liquid TLP
17	Action On Failure	R/W		UINT8	1	0 → 8	0	2.07	Action On Failure: 0 = None 1 = Skip Failed Well; Close Sales & Test 2 = Skip Failed Well; Open Sales & Close Test 3 = Shut All Valves 4 = All Sales Open 5 = Skip Failed Well; Open Sales & Close Test w/Sequencing 6 = All Sales Open w/Sequencing 7 = Abort Test 8 = Stop Test

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
18	Valve Travel Time (Sec)	R/W	User	FLOAT	4	Any positive floating number	0	1.00	Valve Travel Time (Sec)
19	Valve Comparison State	R/W	User	UINT8	1	0 → 1	0	1.00	Valve Comparison State: 0 = Direct 1 = Reversed
20	Solenoid DO Invert	R/W	User	UINT8	1	0 → 1	0	1.00	Solenoid DO Invert: 0 = Normal 1 = Reversed
21	Reserved								
22	Min Period Before New Factor Applied	R/W	User	FLOAT	4	Any positive floating number	0	1.01	Min Period Before New Factor Applied
23	Test Oil Flow	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Test Oil Flow
24	Test Oil Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Test Oil Accum For Period
25	Test Oil Last Total For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Test Oil Last Total For Period
26	Test Oil TLP	R/W	User	TLP	3		0,0,0	1.01	Test Oil TLP
27	Use Sales Total For Virtual Calcs	R/W	User	UINT8	1	0 → 1	0	1.01	Use Sales Total For Virtual Well Calcs: 0 = No Sales Meter 1 = Use Sales Meter
28	Sales Total Gas Flow	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Sales Total Gas Flow
29	Sales Total Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Sales Total Gas Accum For Period
30	Sales Total Gas Last Total For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Sales Total Gas Last Total For Period
31	Sales Total Gas Flow TLP	R/W	User	TLP	3		0,0,0	1.01	Sales Total Gas Flow TLP
32	Sales Total Gas Today's Last	R/O	System	FLT	4	Any positive floating number	0	1.01	Sales Total Gas Today's Last

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
33	Log Gas Correction Factor Events	R/W	User	UINT8	1	0 → 1	1	1.01	Log Gas Correction Factor To Event Log: 0 = Events Not Logged 1 = Log Events
34	Normalize Non-Test Wells	R/W	User	UINT8	1	0 → 1	1	1.01	Normalize Non-Test Wells: 0 = No Normalization 1 = Normalize
35	Cycle Start TLP	R/W	User	TLP	3		0,0,0	2.00	Cycle Start TLP
36	Cycle Start Value	R/W	Both	UINT8	1	0 → 2	0	2.00	Cycle Start Value: 0 = Cycle Stop 1 = Cycle Start 2 = Cycle Abort
37	Timed Stop After Manual Start	R/W	User	UINT8	1	0 → 1	0	2.00	Timed Stop After Manual Start: 0 = No Timed Stop 1 = Stop After Timer
38	Test Meter Low Flow Check Delay Preset (Seconds)	R/W	User	FLOAT	4	Any positive floating number	0.1	2.00	Test Meter Low Flow Check Delay Preset (Seconds)
39	Test Meter Low Flow Between Cycles	R/W	User	FLOAT	4	Any positive floating number	1	2.00	Test Meter Low Flow Between Cycles
40	Tank Oil Vapor Total	R/O	System	FLOAT	4	Any positive floating number	0	2.00	Tank Oil Vapor Total
41	Tank Oil Vapor Factor	R/W	User	FLOAT	4	Any positive floating number	0.25	2.00	Tank Oil Vapor Factor
42	External Total Accum Rollover	R/W	User	U32	4	0 → 4294967295	1000000	2.00	External Total Accum Rollover
43	Oil Total Accum Value	R/W	Both	FLOAT	4	Any positive floating number	0	2.00	Oil Total Accum Value
44	Oil Last Total Accum Value	R/O	System	FLOAT	4	Any positive floating number	0	2.00	Oil Last Total Accum Value
45	H2O Total Accum Value	R/W	Both	FLOAT	4	Any positive floating number	0	2.00	H2O Total Accum Value
46	H2O Last Total Accum Value	R/O	System	FLOAT	4	Any positive floating number	0	2.00	H2O Last Total Accum Value

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
47	Cycle Step	R/O	System	UINT8	1	0 → 7	0	2.07	Cycle Step
48	Log To Alarm Log	R/W	User	UINT8	1	0 → 7	0	2.00	Log To Alarm Log: 0 = No 1 = Log Alarms
49	Cycle Message Text	R/O	System	AC	20	Alpha Numeric		2.00	Cycle Message Text
50	Force Well Selection After Stop	R/W	User	UINT8	1	0 → 1	0	2.01	Force Well Selection After Stop: 0 = Normal Well Select 1 = Force Well Select
51	Current Tested Well Text	R/O	System	AC	10	Alpha Numeric		2.02	Current Tested Well Text
52	Tank Oil Total TLP	R/W	User	TLP	3		0,0,0	2.03	Tank Oil Total TLP
53	Tank Oil Period Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.03	Tank Oil Period Accum
54	Tank Oil Total Accum Value	R/O	System	UINT32	4		0	2.03	Tank Oil Total Accum Value
55	Tank Oil Last Total Accum Value	R/O	System	UINT32	4		0	2.03	Tank Oil Last Total Accum Value
56	Tank Water Total TLP	R/W	User	TLP	3		0,0,0	2.00	Tank Water Total TLP
57	Tank Water Period Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.03	Tank Water Period Accum
58	Tank Water Total Accum Value	R/O	System	UINT32	4		0	2.03	Tank Water Total Accum Value
59	Tank Water Total Accum Value	R/O	System	UINT32	4		0	2.03	Tank Water Total Accum Value
60	Cycle Abort TLP	R/W	User	TLP	3		0,0,0	2.03	Cycle Abort TLP
61	Cycle Stop TLP	R/W	User	TLP	3		0,0,0	2.03	Cycle Stop TLP
62	PrePurge Timer (Hours)	R/O	System	FLOAT	4	Any positive floating number	0	2.05	PrePurge Timer (Hours)

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
63	Test Validation Mode	R/W	User	U8	1	0 → 3	0	2.05	Validation Mode: 0 = No Validation 1 = Accept Test Only 2 = Accept Or Reject Test 3 = Auto Accept
64	Gas Factor Tolerance	R/W	User	FLOAT	4	0 → 1.0	0	2.05	Gas Factor Tolerance
65	Oil Ratio Tolerance	R/W	User	FLOAT	4	0 → 1.0	0	2.05	Oil Ratio Tolerance
66	Water Ratio Tolerance	R/W	User	FLOAT	4	0 → 1.0	0	2.05	Water Ratio Tolerance
67	Momentary Valve Time On Delay	R/W	User	FLOAT	4	Any positive floating number	0	2.05	Momentary Valve Time On Delay
68	Alarm Code	R/O	System	UINT8	1	0 → 142	0	2.05	Alarm Code: 0 = No Alarms 1 = No License Found 2 = Shutdown Well 1 3 = Shutdown Well 2 4 = Shutdown Well 3 5 = Shutdown Well 4 6 = Shutdown Well 5 7 = Shutdown Well 6 8 = Shutdown Well 7 9 = Shutdown Well 8 10 = Shutdown Well 9 11 = Shutdown Well 10 12 = Shutdown Well 11 13 = Illegal Valve State Well 1 14 = Illegal Valve State Well 2 15 = Illegal Valve State Well 3 16 = Illegal Valve State Well 4 17 = Illegal Valve State Well 5 18 = Illegal Valve State Well 6 19 = Illegal Valve State Well 7 20 = Illegal Valve State Well 8 21 = Illegal Valve State Well 9 22 = Illegal Valve State Well 10 23 = Illegal Valve State Well 11 24 = Short Cycle Error 25 = Minimum Gas Factor 26 = Gas Factor > 1 27 = Gas Factor Tolerance

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
									28 = Water Ratio Tolerance
									29 = Oil Ratio Tolerance
									30 = Test Meter Flow Error
									31 = Zero Test Gas Accum
									32 = Zero Sales Gas Accum
									33 = Zero Well Gas Accum
									34 = Last Test Aborted
									35 = DI Permissive Fail
									36 = Outlet Valve Fail
									37 = Shutdown Well 12
									38 = Shutdown Well 13
									39 = Shutdown Well 14
									40 = Shutdown Well 15
									41 = Shutdown Well 16
									42 = Shutdown Well 17
									43 = Shutdown Well 18
									44 = Shutdown Well 19
									45 = Shutdown Well 20
									46 = Shutdown Well 21
									47 = Shutdown Well 22
									48 = Shutdown Well 23
									49 = Shutdown Well 24
									50 = Shutdown Well 25
									51 = Shutdown Well 26
									52 = Shutdown Well 27
									53 = Shutdown Well 28
									54 = Shutdown Well 29
									55 = Shutdown Well 30
									56 = Shutdown Well 31
									57 = Shutdown Well 32
									58 = Shutdown Well 33
									59 = Shutdown Well 34
									60 = Shutdown Well 35
									61 = Shutdown Well 36
									62 = Shutdown Well 37
									63 = Shutdown Well 38
									64 = Shutdown Well 39
									65 = Shutdown Well 40
									66 = Shutdown Well 41
									67 = Shutdown Well 42
									68 = Shutdown Well 43
									69 = Shutdown Well 44
									70 = Shutdown Well 45

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
									71 = Shutdown Well 46
									72 = Shutdown Well 47
									73 = Shutdown Well 48
									74 = Shutdown Well 49
									75 = Shutdown Well 50
									76 = Shutdown Well 51
									77 = Shutdown Well 52
									78 = Shutdown Well 53
									79 = Shutdown Well 54
									80 = Shutdown Well 55
									81 = Shutdown Well 56
									82 = Shutdown Well 57
									83 = Shutdown Well 58
									84 = Shutdown Well 59
									85 = Shutdown Well 60
									86 = Shutdown Well 61
									87 = Shutdown Well 62
									88 = Shutdown Well 63
									89 = Shutdown Well 64
									90 = Valve State Well 12
									91 = Valve State Well 13
									92 = Valve State Well 14
									93 = Valve State Well 15
									94 = Valve State Well 16
									95 = Valve State Well 17
									96 = Valve State Well 18
									97 = Valve State Well 19
									98 = Valve State Well 20
									99 = Valve State Well 21
									100 = Valve State Well 22
									101 = Valve State Well 23
									102 = Valve State Well 24
									103 = Valve State Well 25
									104 = Valve State Well 26
									105 = Valve State Well 27
									106 = Valve State Well 28
									107 = Valve State Well 29
									108 = Valve State Well 30
									109 = Valve State Well 31
									110 = Valve State Well 32
									111 = Valve State Well 33
									112 = Valve State Well 34
									113 = Valve State Well 35

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
									114 = Valve State Well 36 115 = Valve State Well 37 116 = Valve State Well 38 117 = Valve State Well 39 118 = Valve State Well 40 119 = Valve State Well 41 120 = Valve State Well 42 121 = Valve State Well 43 122 = Valve State Well 44 123 = Valve State Well 45 124 = Valve State Well 46 125 = Valve State Well 47 126 = Valve State Well 48 127 = Valve State Well 49 128 = Valve State Well 50 129 = Valve State Well 51 130 = Valve State Well 52 131 = Valve State Well 53 132 = Valve State Well 54 133 = Valve State Well 55 134 = Valve State Well 56 135 = Valve State Well 57 136 = Valve State Well 58 137 = Valve State Well 59 138 = Valve State Well 60 139 = Valve State Well 61 140 = Valve State Well 62 141 = Valve State Well 63 142 = Valve State Well 64
69	Alarm Message	R/O	System	AC	20	Alpha Numeric		2.05	Alarm Message
70	Well Count Acknowledge	R/O	System	UINT8	1	0 → 11	0	2.05	Well Count Acknowledge
71	Water Entrained In Oil Percent	R/W	User	FLOAT	4	Any positive floating number	0	2.05	Water Entrained In Oil Percent
72	Tank Oil Deduct TLP	R/W	User	TLP	3		0,0,0	2.05	Tank Oil Deduct TLP
73	Tank Oil Deduct Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Tank Oil Deduct Accum
74	Tank Oil Deduct	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Tank Oil Deduct

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
75	Tank Oil Deduct Last	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Tank Oil Deduct Last
76	Tank Water Deduct TLP	R/W	User	TLP	3		0,0,0	2.05	Tank Water Deduct TLP
77	Tank Water Deduct Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Tank Water Deduct Accum
78	Tank Water Deduct	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Tank Water Deduct
79	Tank Water Deduct Last	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Tank Water Deduct Last
80	Valve DI Mode	R/W	User	UINT8	1	0 → 2	0	2.07	Valve DI Mode: 0 = DI Monitor Only 1 = Valve State Failure 2 = Start/Test Permissives
81	Previous Tested Well	R/O	System	UINT8	1	0 → 11	0	2.07	Previous Tested Well
82	Sales Gas Total Accum Value	R/O	System	FLOAT	4	Any positive floating number	0	2.10	Sales Gas Total Accum Value
83	Test Separator Outlet Sole Open TLP	R/W	User	TLP	3		0,0,0	2.11	Test Separator Outlet Sole Open TLP
84	Test Separator Outlet Open Value	R/O	System	UINT8	1	0 → 1	0	2.11	Test Separator Outlet Open Value
85	Test Separator Outlet Sole Close TLP	R/W	User	TLP	3		0,0,0	2.11	Test Separator Outlet Sole Close TLP
86	Test Separator Outlet Close Value	R/O	System	UINT8	1	0 → 1	0	2.11	Test Separator Outlet Close Value
87	Test Separator Outlet Open Limit Switch TLP	R/W	User	TLP	3		0,0,0	2.11	Test Separator Outlet Open Limit Switch TLP
88	Test Separator Outlet Open Limit Switch Value	R/O	System	UINT8	1	0 → 1	0	2.11	Test Separator Outlet Open Limit Switch Value
89	Test Separator Outlet Close Limit Switch TLP	R/W	User	TLP	3		0,0,0	2.11	Test Separator Outlet Close Limit Switch TLP

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
90	Test Separator Outlet Close Limit Switch Value	R/O	System	UINT8	1	0 → 1	0	2.11	Test Separator Outlet Close Limit Switch Value
91	Test Separator Outlet Valve Delay Preset (Sec)	R/W	User	FLOAT	4	Any positive floating number	0	2.11	Test Separator Outlet Valve Delay Preset (Sec)
92	Test Separator Outlet Valve Timer (Sec)	R/O	System	FLOAT	4	Any positive floating number	0	2.11	Test Separator Outlet Valve Timer (Sec)
93	Max Logicals	R/O	System	UINT8	1		11, 32, 64	4.00	Max Logicals
94	Insert Well Once	R/O	Both	UINT8	1	0 → 2	0	4.04	Insert Well Once: 0 = None 1 = Insert Next 2 = Restore Well Order (System Only)
95	Well To Insert	R/W	User	UINT8	1	0 → 10, 31, 63	1	4.04	Well To Insert
96	Well To Restore	R/O	System	UINT8	1	0 → 10, 31, 63	1	4.04	Well To Restore
97	Use Individual Well Test Times	R/W	User	UINT8	1	0 → 1	0	4.04	Use Individual Well Test Times
98	Held Test Report	R/O	System	UINT8	1	0 → 11, 32, 64	0	4.10	Held Test Report
99	Held Test Report Date	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Report Date
100	Held Test Report Time	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Report Time
101	Held Test Report Date/Time	R/O	System	FLOAT	4		0	4.10	Held Test Report Date/Time (Seconds elapsed since 1/01/1970 UTC)
102	Held Test Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Gas Accum For Period
103	Held Well Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Well Gas Accum For Period
104	Held Test Liquid Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Liquid Accum For Period

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
105	Held Test Oil Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Oil Accum For Period
106	Held Gas Factor	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Gas Factor
107	Held Liquid Ratio	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Liquid Ratio
108	Held Oil Ratio	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Oil Ratio
109	Held Alarm Status	R/O	System	U8	1		0	4.10	Held Alarm Status
110	Held Test Duration (Hrs)	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Duration (Hrs)
111	Held Test Gas 24 Hr Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Gas 24 Hr Equivalent
112	Held Well Gas 24 Hr Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Well Gas 24 Hr Equivalent
113	Held Test Liquid 24 Hr Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Liquid 24 Hr Equivalent
114	Held Test Oil 24 Hr Equivalent	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Test Oil 24 Hr Equivalent
115	Held Tubing Press Avg	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Tubing Press Avg
116	Held Casing Press Avg	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Casing Press Avg
117	Held Choke Position Avg	R/O	System	FLOAT	4	Any positive floating number	0	4.10	Held Choke Position Avg
118	Data Update Rate	R/W	User	UINT8	1	1, 2, 4, 6, 8, 10	1	4.11	Data Update Rate
119	Watchdog Timer	R/O	System	UINT16	2	0 → 65,535	0	4.13.00	Shows the current value of the user program watchdog timer. This value increments by a value of 1 for each execution cycle of the user program.
120	Test Gas Meas Type	R/W	User	UINT8	1	0 → 1	0	4.13.00	Describes the behavior of the parameter being selected for the test gas meter input. When

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
									accumulation is selected, it is expected that an incrementing accumulator parameter is selected. When flowrate is selected, it is expected that a live flowrate which drops to 0 when there is no flow is selected. 0 = Accumulated 1 = Flowrate
121	Sales Gas Meas Type	R/W	User	UINT8	1	0 → 1	0	4.13.00	Describes the behavior of the parameter being selected for the sales gas meter input. When accumulation is selected, it is expected that an incrementing accumulator parameter is selected. When flowrate is selected, it is expected that a live flowrate which drops to 0 when there is no flow is selected. 0 = Accumulated 1 = Flowrate
122	Test Water Meas Type	R/W	User	UINT8	1	0 → 1	0	4.13.00	Describes the behavior of the parameter being selected for the test water meter input. When accumulation is selected, it is expected that an incrementing accumulator parameter is selected. When flowrate is selected, it is expected that a live flowrate which drops to 0 when there is no flow is selected. 0 = Accumulated 1 = Flowrate
123	Test Oil Meas Type	R/W	User	UINT8	1	0 → 1	0	4.13.00	Describes the behavior of the parameter being selected for

Point Type 63/212/216: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
									the test oil meter input. When accumulation is selected, it is expected that an incrementing accumulator parameter is selected. When flowrate is selected, it is expected that a live flowrate which drops to 0 when there is no flow is selected. 0 = Accumulated 1 = Flowrate
124	PrePurge Timer Start	R/O	System	UINT32	4	0 → 4294967295	0	4.13.00	The starting time of the pre-purge process. This allows the current value of the timer to be saved correctly following a system or program restart.
125	Test Timer Start	R/O	System	UINT32	4	0 → 4294967295	0	4.13.00	The starting time of the well test process. This allows the current value of the timer to be saved correctly following a system or program restart.
126	Post Purge Timer Start	R/O	System	UINT32	4	0 → 4294967295	0	4.13.00	The starting time of the post-purge process. This allows the current value of the timer to be saved correctly following a system or program restart.
127	Valve Timer Start	R/O	System	UINT32	4	0 → 4294967295	0	4.13.00	The starting time of the valve process. This allows the current value of the timer to be saved correctly following a system or program restart.
128	Valve Seq Timer Start	R/O	System	UINT32	4	0 → 4294967295	0	4.13.00	The starting time of the valve sequence process. This allows the current value of the timer to be saved correctly following a system or program restart.

4.3 Point Type 64/213/217: Wells

Point type 64/213/217 contains the parameters for the configuration of the wells of the program. The program supports up to 64 logicals of point type 64, up to 32 logicals of point type 213, and 11 logicals of point type 217.

Point Type 64/213/217: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Well Tag	R/W	User	AC	10	Alpha Numeric	Well 1 to 64	1.00	Test Well Tag
1	Well Enable	R/W	Both	UINT8	1	0 → 1	0	1.00	Scan Enable: 0 = Disable 1 = Enable
2	Well Flow	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Well Flow Composite
3	Well Gas Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Well Gas Accum For Period
4	Well Gas Last Total For Period	R/O	System	FLOAT	4	Any positive floating number	0	1.00	Well Gas Last Total For Period
5	Well Flow TLP	R/W	User	TLP	3		0,0,0	1.00	Well Flow TLP
6	Well Gas Correction Factor	R/W	Both	FLOAT	4	Any positive floating number	1	1.00	Well Gas Correction Factor
7	Well Liquid Ratio	R/W	Both	FLOAT	4	Any positive floating number	1	1.00	Well Liquid Ratio
8	Test Solenoid TLP	R/W	User	TLP	3		0,0,0	1.00	Test Solenoid TLP
9	Test Solenoid Value	R/O	System	UINT8	1	0 → 1	0	1.00	Test Solenoid Value
10	Test Valve Open Limit Switch TLP	R/W	User	TLP	3		0,0,0	1.00	Test Valve Open Limit Switch TLP
11	Test Valve Open Limit Switch Value	R/W	User	UINT8	1	0 → 1	0	2.00	Test Valve Open Limit Switch Value
12	Test Valve Close Limit Switch TLP	R/W	User	TLP	3		0,0,0	1.00	Test Valve Close Limit Switch TLP
13	Test Valve Close Limit Switch Value	R/W	User	UINT8	1	0 → 1	0	2.00	Test Valve Close Limit Switch Value
14	Sales Solenoid TLP	R/W	User	TLP	3		0,0,0	1.00	Sales Solenoid TLP

Point Type 64/213/217: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
15	Sales Solenoid Value	R/O	System	UINT8	1	0 → 1	0	1.00	Sales Solenoid Value
16	Sales Valve Open Limit Switch TLP	R/W	User	TLP	3		0,0,0	1.00	Sales Valve Open Limit Switch TLP
17	Sales Valve Open Limit Switch Value	R/W	User	UINT8	1	0 → 1	0	1.00	Sales Valve Open Limit Switch Value
18	Sales Valve Close Limit Switch TLP	R/W	User	TLP	3		0,0,0	1.00	Sales Valve Close Limit Switch TLP
19	Sales Valve Close Limit Switch Value	R/W	User	UINT8	1	0 → 1	0	1.00	Sales Valve Close Limit Switch Value
20	Test Report Accum Softpoint Table	R/W	User	UINT8	1	0 → 32	1	1.00	Test Report Accum Softpoint Table: 0 = Disable 1 - 32 = Softpoint Table Selection
21	Well Shutdown Trip	R/W	User	UINT8	1	0 → 1	0	1.00	Well Shutdown Trip: 0 = Normal 1 = Shutdown 0 = Shutdown (Inverted) 1 = Normal (Inverted)
22	Well Shutdown TLP	R/W	User	TLP	3		0,0,0	1.00	Well Shutdown TLP
23	Well Oil Ratio	R/W	Both	FLOAT	4	Any positive floating number	0	1.01	Well Oil Ratio
24	Well Total Accum	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Well Virtual Total Accum
25	Well Today's Accum	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Well Virtual Today's Accum
26	Well Yesterday's Accum	R/O	System	FLOAT	4	Any positive floating number	0	1.01	Well Virtual Yesterday's Accum
27	Oil Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	2.00	Oil Accum For Period
28	Oil Total Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.00	Oil Total Accum
29	Oil Today's Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.00	Oil Today's Accum

Point Type 64/213/217: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
30	Oil Yesterday's Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.00	Oil Yesterday's Accum
31	H2O Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	2.00	H2O Accum For Period
32	H2O Total Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.00	H2O Total Accum
33	H2O Today's Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.00	H2O Today's Accum
34	H2O Yesterday's Accum	R/O	System	FLOAT	4	Any positive floating number	0	2.00	H2O Yesterday's Accum
35	PrePurge Timer Preset (Hours)	R/W	User	FLOAT	4	Any positive floating number	0	2.05	PrePurge Timer Preset (Hours)
36	Last Test Date	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Last Test Date
37	Last Test Time	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Last Test Time
38	Last Test Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Last Test Accum For Period
39	Last Well Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Last Well Accum For Period
40	Last Liquid Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Last Liquid Accum For Period
41	Last Oil Accum For Period	R/O	System	FLOAT	4	Any positive floating number	0	2.05	Last Oil Accum For Period
42	Last Well Gas Correction Factor	R/O	System	FLOAT	4	Any positive floating number	1	2.05	Last Well Gas Correction Factor
43	Last Well Liquid Ratio	R/O	System	FLOAT	4	Any positive floating number	1	2.05	Last Well Liquid Ratio
44	Last Well Oil Ratio	R/O	System	FLOAT	4	Any positive floating number	1	2.05	Last Well Oil Ratio
45	Last Alarm Status	R/O	System	UINT8	1	0 → 35	0	2.05	Last Alarm Status
46	Test Close Solenoid TLP	R/W	User	TLP	3		0,0,0	2.05	Test Close Solenoid TLP

Point Type 64/213/217: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
47	Test Close Solenoid Valve	R/O	System	UINT8	1	0 → 1	0	2.05	Test Close Solenoid Valve
48	Sales Close Solenoid TLP	R/W	User	TLP	3		0,0,0	2.05	Sales Close Solenoid TLP
49	Sales Close Solenoid Value	R/O	System	UINT8	1	0 → 1	0	2.05	Sales Close Solenoid Value
50	Slave Open Solenoid TLP	R/W	User	TLP	3		0,0,0	2.05	Slave Open Solenoid TLP
51	Slave Open Solenoid Value	R/O	System	UINT8	1	0 → 1	0	2.05	Slave Open Solenoid Value
52	Slave Close Solenoid TLP	R/W	User	TLP	3		0,0,0	2.05	Slave Close Solenoid TLP
53	Slave Close Solenoid Valve	R/O	System	UINT8	1	0 → 1	0	2.05	Slave Close Solenoid Valve
54	Slave Valve Open Limit Switch TLP	R/W	User	TLP	3		0,0,0	2.05	Slave Valve Open Limit Switch TLP
55	Slave Valve Open Limit Switch Value	R/O	System	UINT8	1	0 → 1	0	2.05	Slave Valve Open Limit Switch Value
56	Slave Valve Close Limit Switch TLP	R/W	User	TLP	3		0,0,0	2.05	Slave Valve Close Limit Switch TLP
57	Slave Valve Close Limit Switch Value	R/O	System	UINT8	1	0 → 1	0	2.05	Slave Valve Close Limit Switch Value
58	Slave Valve Delay Preset (Sec)	R/W	User	FLOAT	4	Any positive floating number	0	2.05	Slave Valve Delay Preset (Sec)
59	Master Valve	R/W	User	UINT8	1	0 → 1	0	2.05	Master Valve: 0 = Sales Valve As Master 1 = Test Valve As Master
60	Validation Command	R/W	User	UINT8	1	0 → 5	0	2.05	Validation Command: 0 = UnAcknowledge 1 = Test Accept 2 = Test Reject 3 = Hold Last Test 4 = Last/Hold Accepted 5 = Last/Hold Accepted

Point Type 64/213/217: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
61	Well Tested	R/O	System	UINT8	1	0 → 1	0	2.07	Well Tested (Test Once Cycle): 0 = Untested 1 = Tested
62	Well Shutdown Trip Invert	R/W	User	UINT8	1	0 → 1	0	2.09	Well Shutdown Trip Invert: 0 = Untested 1 = Tested
63	Test Duration Hours	R/O	System	FLOAT	4	Any Positive Float Point Number	0	2.09	Test Duration Hours
64	Last Test Duration Hours	R/O	System	FLOAT	4	Any Positive Float Point Number	0	2.09	Last Test Duration Hours
65	Tubing Average TLP	R/W	User	TLP	3		0,0,0	2.09	Tubing Average TLP
66	Tubing Average Value	R/O	System	FLOAT	4	Any Positive Float Point Number	0	2.09	Tubing Average Value
67	Casing Average TLP	R/W	User	TLP	3		0,0,0	2.09	Casing Average TLP
68	Casing Average Value	R/O	System	FLOAT	4	Any Positive Float Point Number	0	2.09	Casing Average Value
69	Choke Position Average TLP	R/W	User	FLOAT	3		0,0,0	2.09	Choke Position Average TLP
70	Choke Position Average Value	R/O	System	FLOAT	4	Any Positive Float Point Number	0	2.09	Choke Position Average Value
71	Last Test Gas 24 Hour Equivalent	R/O	System	FLOAT	4	Any Positive Float Point Number	0	4.00	Last Test Gas 24 Hour Equivalent
72	Last Well Gas 24 Hour Equivalent	R/O	System	FLOAT	4	Any Positive Float Point Number	0	4.00	Last Well Gas 24 Hour Equivalent
73	Last Test Liquid 24 Hour Equivalent	R/O	System	FLOAT	4	Any Positive Float Point Number	0	4.00	Last Test Liquid 24 Hour Equivalent
74	Last Test Oil 24 Hour Equivalent	R/O	System	FLOAT	4	Any Positive Float Point Number	0	4.00	Last Test Oil 24 Hour Equivalent
75	Well Test Order	R/W	User	U8	1	0 → 255	0 → 11, 32, 64	4.04	Well Test Order
76	Test Period/Timed Stop Preset (Hours)	R/W	User	FLOAT	4	Any Positive Float Point Number	24	4.04	Test Period/Timed Stop Preset (Hours)

Point Type 64/213/217: Well Test Setup Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
77	Last Test Date/Time	R/O	System	TIME	4		0	4.10	Last Test Date/Time (Seconds elapsed since 1/01/1970 UTC)
78	Well Meas Type	R/W	User	UINT8	1	0 → 2	0	4.13.00	<p>Describes the behavior of the parameter being selected for the sales gas meter input. When accumulation is selected, it is expected that an incrementing accumulator parameter is selected. When flowrate is selected, it is expected that a live flowrate which drops to 0 when there is no flow is selected. The option of Specified Soft Point Order allows meter data from a remote device to be used.</p> <p>0 = Accumulated 1 = Flowrate 2 = Specified Soft Point Order</p>

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Well Test Manager Program User Manual (for ROC800-Series)

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