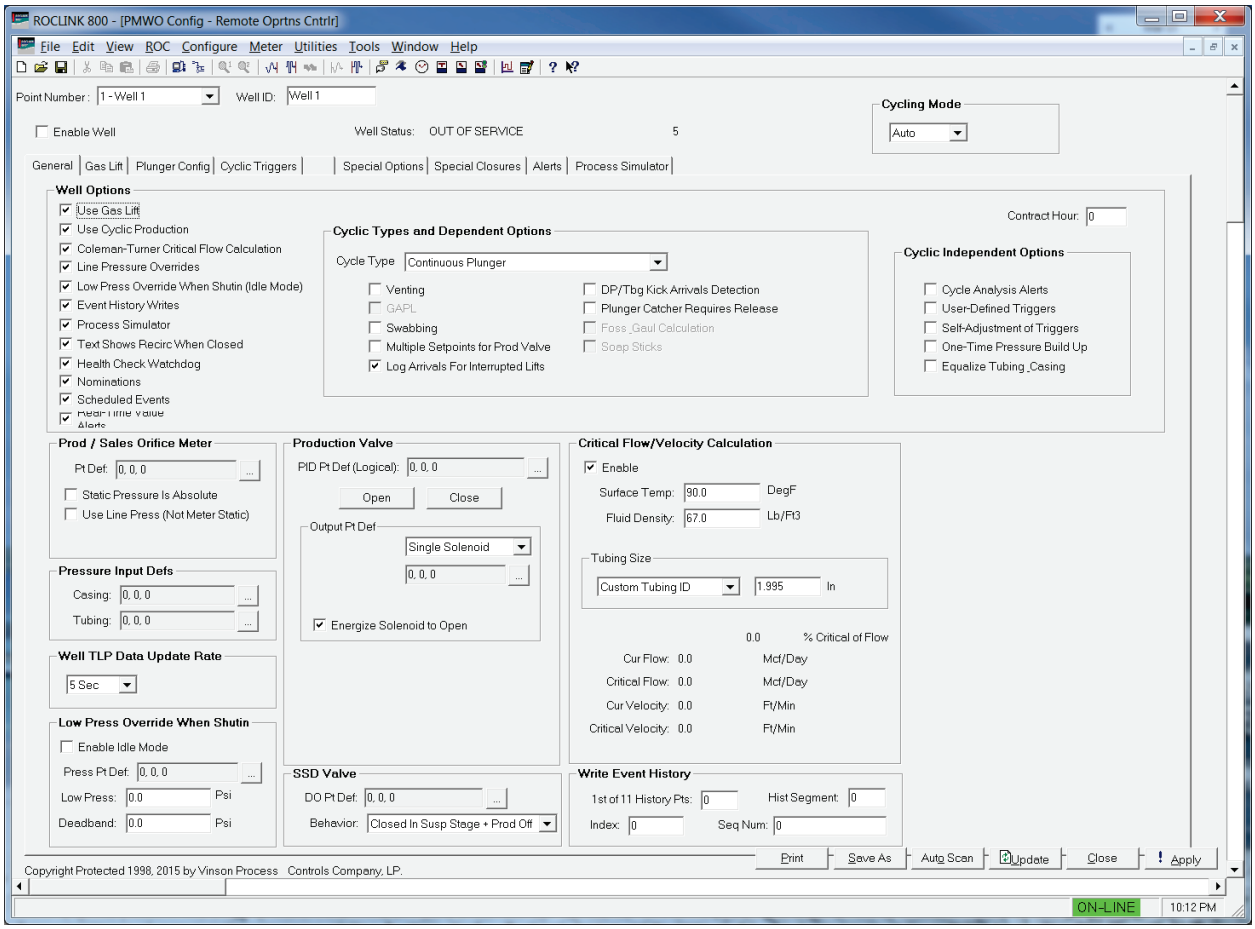
Part D301758X012
May 2015

Well Optimization Manager User Manual (for ROC800-Series and FloBoss™ 107 Controllers)



Remote Automation Solutions

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Process Management

Revision Tracking Sheet

May 2015

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
Initial release	May-15

Contents

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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 presents an overview and installation instructions of the Well Optimization Manager program for the FloBoss™ 107 Flow Manager (FB107) and the ROC800-Series Remote Operations Controller (ROC800).

1.1 Scope and Organization

This document is the user manual for the Well Optimization Manager program for use in the FB107 or the ROC800.

This manual describes how to download and configure this program (referred to as the "Well Optimization 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 FB107 or 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 – Setting up a Well Optimization Function*
- *Chapter 5 – Reference*

This manual assumes that you are familiar with the FB107 or the ROC800 and its configuration. For more information, refer to the following manuals:

- *FloBoss™ 107 Flow Manager Instruction Manual* (Part D301232X012)
- *ROC800 Remote Operations Controller Instruction Manual* (Part D301217X012)
- *ROCLINK 800 Configuration Software User Manual (for FloBoss™ 107)* (Part D301249X012)
- *ROCLINK 800™ Configuration Software User Manual (for ROC800-Series)* (Part D301250X012)

1.2 Product Overview

Well Optimization Manager (a stand-alone component of the Production Manager application suite) is an advanced user program designed to maximize production from oil and gas wells. Intended for either the ROC800-Series Remote Operations Controller or the FloBoss™ 107 Flow Manager, the program supports multiple industry-standard artificial lift techniques, including intermitter control, plunger lift (conventional and continuous), gas lift (for liquid or gas production), plunger-assisted gas lift (PAGL), gas-assisted plunger lift (GAPL), and basic rod pump (pump jack) control. The program also includes a suite of features for enhanced optimization and operation, including the Coleman Turner critical flow calculation, the Foss and Gaul plunger lift load factor calculation, self-adjustment of plunger triggers, real time value alerts, and nomination period accumulation control.

Following drilling and completion, most oil and gas wells begin their service as freely flowing wells, producing hydrocarbons due simply to the massive down-hole pressure. As time goes on and production continues, the reservior pressure and flowrates begin to decline, requiring the application of some form of deliquification technique to continue production at a financially viable level. The initial solution is typically an intermitter controller. This technique shuts-in the well, allows pressure to build up, and opens the well again when the well is ready to flow. This simple technique, however, is not an effective long-term solution. Eventually, additional techniques such as plunger lift or gas-assisted lift must be employed. As reservior pressure continues to decline, wells can be retrofitted with a down-hole rod pump and surface pumpjack. Throughout the life of the well, Well Optimization program can manage and enhance production by supporting these various forms of “artificial lift” and other operational requirements.

For the ROC800-Series environment, Well Optimization Manager has several programmatic configurations, supporting 4, 8, or 12 wells. Each configuration is functionally identical, except for the number of supported wells. These configurations support expansion of additional wells on a multi-well pad. The FB107 version of the program supports just 4 wells. However, all versions of Well Optimization are compatible with other common production user programs in the ROC800 and FloBoss 107 (such as Surface Control Manager or Cause & Effect). This compatibility enables you to implement a suite of programs designed to meet your unique wellpad requirements.

Well Optimization has four major functional "clusters":

- **Configuration**

  Provides a single location for the configuration of all the program features. Once you select the features you situation requires, the program streamlines itself by concealing features which you have not selected. Of course, you can re-select features to configure as your wellpad situation evolves.

- **Well Core Operate**

  Provides a summary overview of vital well statistics, including flowrates, pressures, averages, and a wealth of other information to help you proactively monitor your wellpad.

- **Gas Lift Operate**

  Displays both current and historical gas lift operation and enables you to adjust the routines in use. If your well does not require gas lift enhancements, you can conceal this function until that time occurs.

- **Cyclic Operate**

  Monitors and manages all forms of "cyclic" (on-off style behavior) control, such as plunger lift and intermitters.

Refer to the individual sections in this manual for further information.

⚠ Caution **The Well Optimization Manager program provides a watchdog timer parameter that validates the execution of the application. This parameter is a counter that increments by 1 at the beginning of each program cycle. If the program stops, this read-only parameter stays at a fixed value and does not update. Optionally, you can configure an external system (such as an FST or SCADA) to monitor this watchdog timer parameter. If the parameter stops updating, an external system triggers an alarm, which allows you to take appropriate corrective action. On the ROC800, the watchdog time parameter is TLP 65,0,224; on the FB107, it is TLP 178,0,224.**

1.2.1 Definition of Terms

The following are the terms you may encounter when you configure and use the Well Optimization Manager program.

Term	Application	Definition
Afterflow	Cyclic Control	A plunger lift stage where the well flows after arrival. The well is open at this state.
Annulus	General	Refers to the area or space between the well casing and tubing.

Term	Application	Definition
Armed Shut-In	Cyclic Control	A plunger lift stage where the program waits or looks for a trigger to open the well.
Averaging Cycle (or Test Cycle)	Gas Lift	The period of time where the steady injection occurs. The program allows the well to increase or decrease production and injection rates until it reaches the most efficient ratio.
Buyback Gas	Gas Lift	The gas purchased from an external provider. This is typically used to start up the gas lift.
Coleman-Turner Calculation	General	Calculates or predicts the critical flow rate of the well. If the production flow rate drops below the critical flow, then the liquid droplets of the production gas accumulates at the bottom of the well and therefore exhibits loading.
Continuous Plunger	Cyclic Control	A two-piece plunger that allows flow while the plunger is falling. A continuous requires little or no shutin time.
Conventional Plunger	Cyclic Control	A standard type of plunger with higher shutin time compared to Continuous plunger. The amount of shut in time is dependent with well depth and plunger fall velocity.
Cyclic	Cyclic Control	Refers to any optimization technique that operates in a cycle such as opening or closing the well.
Deliquification	General	A process of removing the loading liquid from the bottom of the well. This can be done by intermitting or incorporating a gas lift or plunger lift into the well.
DP/Tubing Kick	Cyclic Control	Refers to the sudden spike of pressure that indicates the plunger arrival at the well head.
Efficiency	Gas Lift	The ratio of the gas you inject into the well to the total well production

Term	Application	Definition
Foss and Gaul Calculation	Cyclic Control	A calculation method that determines the ideal time to open the well when using plunger lift.
Gas-Assisted Plunger Lift (GAPL)	Cyclic Control	This is primarily a plunger lift functionality with the aid of a high-pressure injection gas.
Injection Setpoint	Gas Lift	The target injection flow rate into the well.
Lifting	Cyclic Control	A plunger lift stage where the plunger rises to the surface. The well is open at this state.
Loading	General	A state of the well where a significant amount of liquid builds up at the bottom of the well and eventually restricts gas flow.
Mandrel Valve	Gas Lift	Refers to the section of the well where the injection gas valve fits. This section allows the transfer of the injection gas between the annulus and the inner tubing.
Non-Arrival	Cyclic Control	A situation where the plunger does not arrive at the surface within the time the system expects the plunger to arrive.
Oscillation	Gas Lift	A situation where the injection flow rate jumps back and forth around the ideal injection setpoint.
Plunger-Assisted Gas Lift (PAGL)	Gas Lift	An integration of a continuous plunger to a gas lift system.
Soap Sticks	General	A device used to foam the liquid or water from the gas well. Foaming the liquid lowers the hydrostatic head of formation thus increases the flow rate of the well.
Slug	General	A portion of the loading liquid from the bottom of the well that is brought to the surface with the aid of a high pressure injection gas or a plunger.
Swabbing	Cyclic Control	Allows the plunger to run up and down the well to clean the tubing.

Term	Application	Definition
Travel	Cyclic Control	A time for the plunger to travel from the bottom of the well to the surface.
Trigger	Cyclic Control	Refers to the criteria that must be true in order for the cycle to move to the next state.
Unarmed Shut-In	Cyclic Control	A plunger lift stage where plunger falls down the well. The well is closed at this state.
Valve Sequencing	Gas Lift	Refers to the process of opening the gas lift valves in sequence when injecting a gas into the well casing. Upon gas lift startup, the highest valve opens displacing the column of liquid. The second valve follows until the lowest valve opens and displaces the downhole liquid.
Venting	Cyclic Control	Opens the well tubing to the atmosphere. The pressure difference between the well downhole and the atmosphere raises the plunger from the bottom of the well to the surface.

1.3 Program Requirements

The Well Optimization program is compatible with version 3.61 (or greater) of the ROC800 firmware, or version 1.70 (or greater) of the FB107 firmware and with version 2.41 (or greater) of the ROCLINK 800 software.

Program specifics include:

Note: Load only **one** version of the program, depending on your number of well requirements:

- The **PMWO_v402_04_4w.tar** program file supports 4 wells and installs in a ROC800 which requires only 1 license.
- The **PMWO_v402_04_8w.tar** program file supports 8 wells and installs in a ROC800 which requires 2 licenses.
- The **PMWO_v402_04_12w.tar** program file supports 12 wells and installs in a ROC800 which requires 3 licenses.
- The **PMWO_v402_04_7.bin** program file supports 4wells and installs in an FB107 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
PMWO_v402_04_ 7.bin	FB107 v1.70	178, 179 180, 181, 182, 183	413,089	32,768	2.41	79, 80, 81, 82, 83
PMWO_v402_04_ 4w.tar	ROC800 v3.61	65, 66, 67, 69, 70, 72	444,335	344,064	2.41	65, 66, 67, 69, 70
PMWO_v402_04_ 8w.tar	ROC800 v3.61	65, 66, 67, 69, 70, 72	444,719	368,640	2.41	65, 66, 67, 69, 70
PMWO_v402_04_ 12w.tar	ROC800 v3.61	65, 66, 67, 69, 70, 72	444,836	389,120	2.41	65, 66, 67, 69, 70

For information on viewing the memory allocation of user programs, refer to the *ROCLINK 800 Configuration Software User Manual (for FloBoss™ 107)* (Part D301249X012) or the *ROCLINK 800 Configuration Software User Manual (for ROC800)* (Part D301250X012).

1.3.1 License Key

License keys, when matched with valid license codes, grant access to applications such as the Well Optimization 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*). 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.

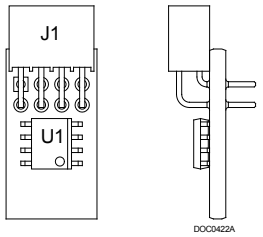

Figure 1. License Key

Note: The Well Optimization program for **ROC800** requires up to 3 **PMWO** license keys depending on your program requirement. Refer to the **Note** on *Section 1.3* for more information regarding the program and its corresponding license key requirements.

For **FB107**, the software licenses are distributed via a security-enhanced universal serial bus (USB) drives. You must install one license key, **PMWO**, to use the Well Optimization Manager program.

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Chapter 2 – Installation

This section provides instructions for installing the Well Optimization Manager program into the FB107 or the ROC800. Read *Section 1.3* 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 Optimization program.

2.1 Installing the License Key

If you order the Well Optimization Manager program for a new FB107 or ROC800, your FB107 or ROC800 is delivered with the license key installed.

If you order the program for an existing FB107 or ROC800, you must install the license key yourself. *Section 2.1.1* provides license key installation instructions for ROC800 and *Section 2.1.2* provides license key installation instructions for FB107.

2.1.1 Installing the License Key for the ROC800

⚠ 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. 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.

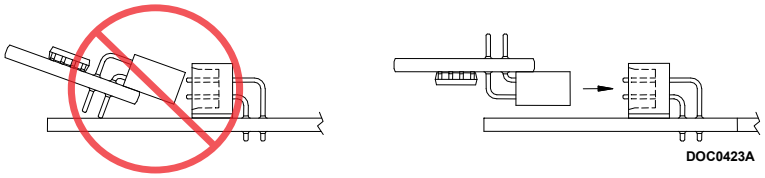

Figure 2. License Key Installation

6. Press the license key into the terminal unit it is firmly seated (refer to *Figure 2*.
7. Replace the CPU faceplate.
8. Replace the screws on the CPU faceplate.
9. Replace the wire channel cover.
10. Restore power to the ROC800.
11. Proceed to *Section 2.1.3* to verify your license keys.

2.1.2 Installing the license key for the FB107

A USB key-based license is required to use the Well Optimization program.

To install a USB key-based license on the FB107:

1. Insert the USB license key in a USB port on your PC.
2. Select **Utilities** > **License Key Administrator** > **Transfer Between DEVICE and KEY** from the ROCLINK 800 menu bar. The Transfer Licenses Between a Device and a Key screen displays:

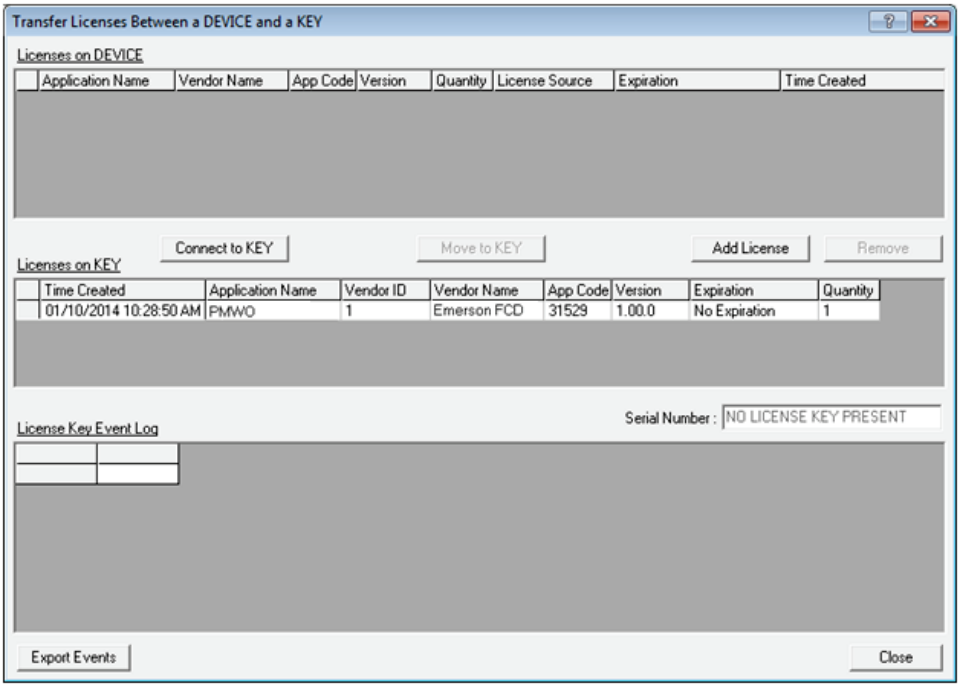

Figure 3. Transfer Licenses Between a Device and a Key

Note: This screen has three sections. The upper portion (Licenses on Device) shows any software licenses installed on the FB107. The middle portion (Licenses on Key) shows software licenses on the license key. The lower portion of the screen (License Key Event Log) provides a rolling log of the last eight events related to this license key.

3. Select the key-based license you want to transfer to the FB107 (**PMWO**, as shown in *Figure 3*).
4. Click **Move to Device**. ROCLINK moves the license from the key to the FB107 and updates the screen.

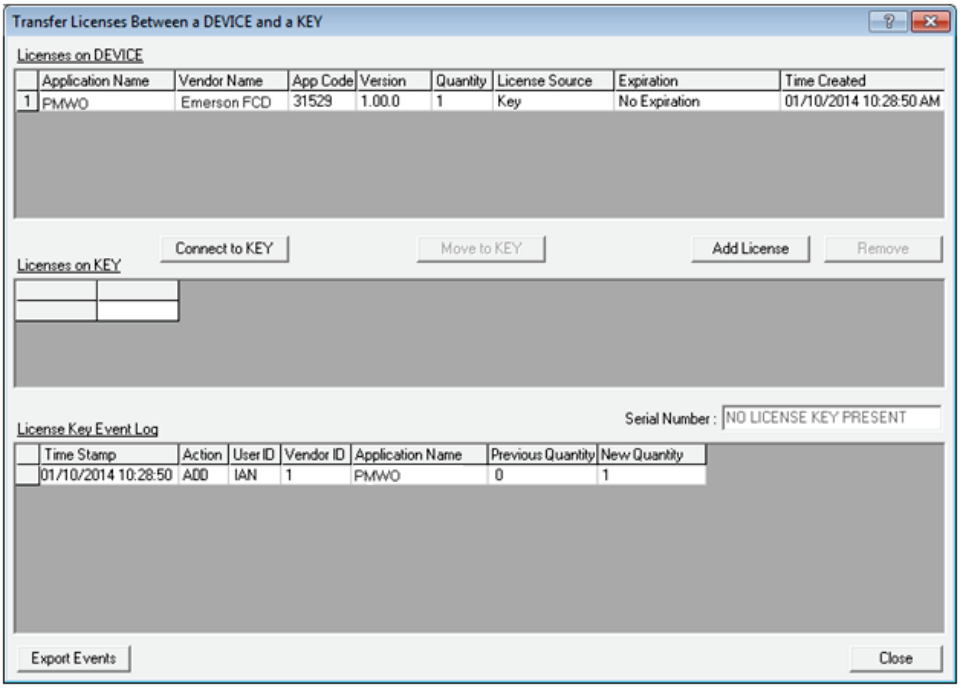

Figure 4. License Installed

Note: An FB107 can hold up to six different licenses, although you can install only one instance of each license on the FB107. When you click Move to Device, ROCLINK 800 moves only one instance of the license onto the FB107 and automatically decreases the license quantity on the USB key by one.

5. Verify the license name displays in the Licenses on Device section of the screen. Proceed to *Section 2.2* to download the user program.

2.1.3 Verifying the License Key Installation (for ROC800)

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:

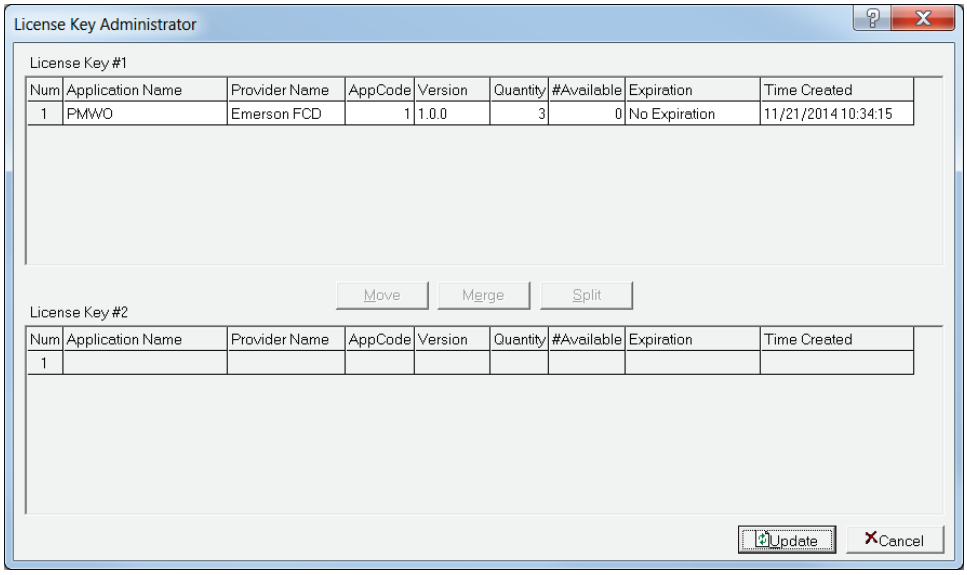

Figure 5. Transfer Licenses Between a Device and a Key

2.2 Downloading the Program

This section provides instructions for installing the program into the Flash memory on the ROC800 or FB107.

To download the user program using ROCLINK 800 software:

1. Connect the ROC800 or the FB107 to your computer.
2. Start and logon to the ROCLINK 800.
3. Select **ROC** > **Direct Connect** to connect to the ROC800 or FB107 unit.
4. Select **Utilities** > **User Program Administrator** from the ROCLINK menu bar. The User Program Administrator screen displays (see *Figure 6*):

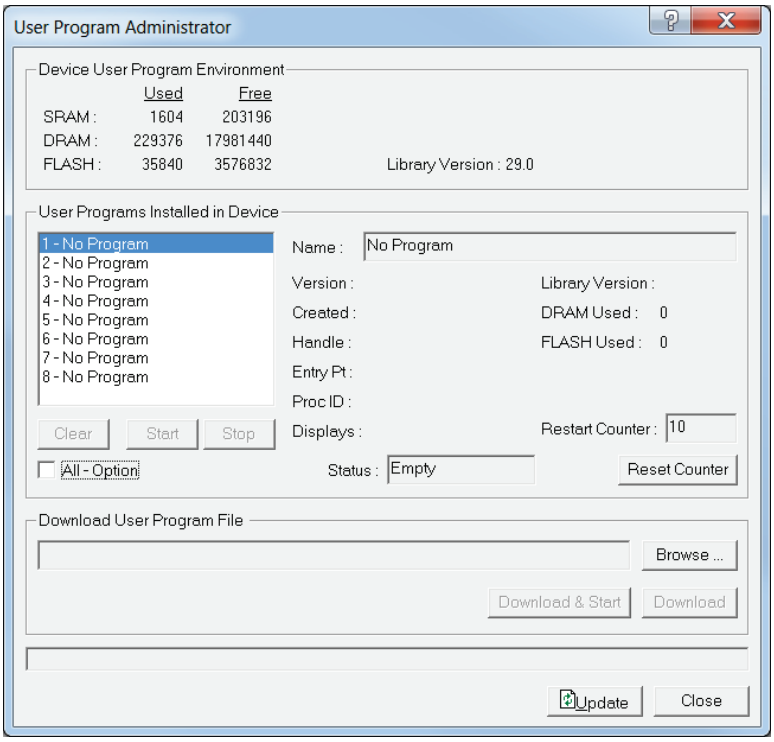

Figure 6. User Program Administrator

5. Click **Browse** in the Download User Program File frame. The Select User Program File screen displays (see *Figure 7*).

Note: If you install the program in the ROC800, choose any available user program slot. If you use FB107, the program installs automatically in user program slot 7.

6. 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* 7 shows, the screen lists all valid user program files with the **.bin** (for FB107) or **.tar** (for ROC800) extension:

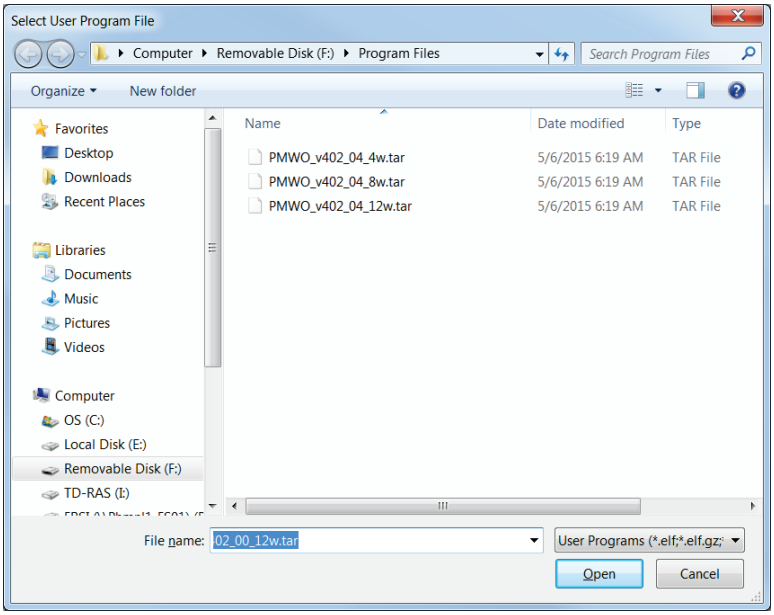

Figure 7. Select User Program File

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

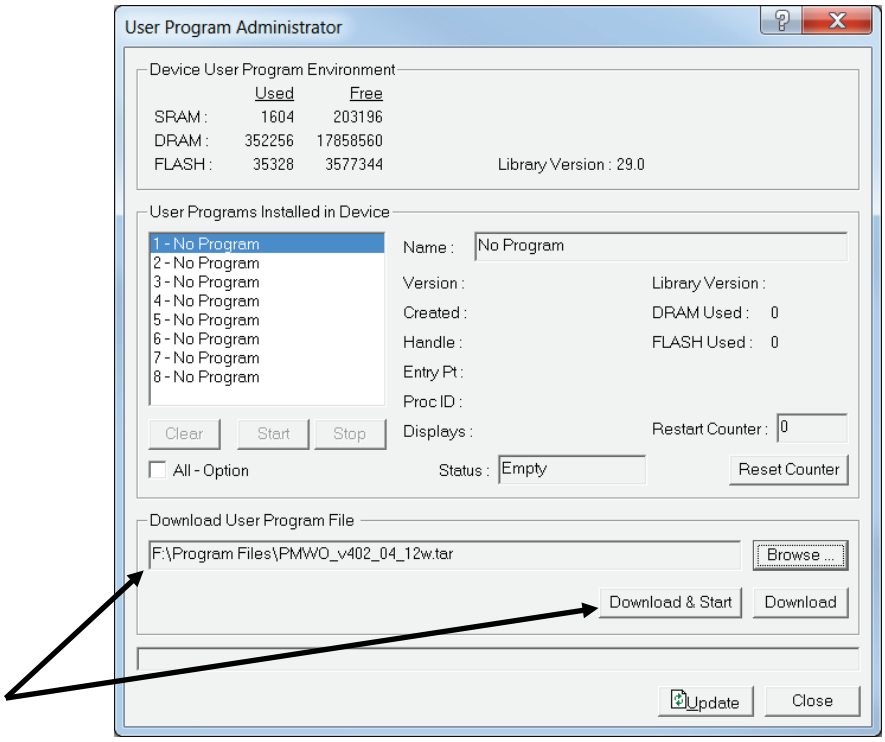

Figure 8. User Program Administrator

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

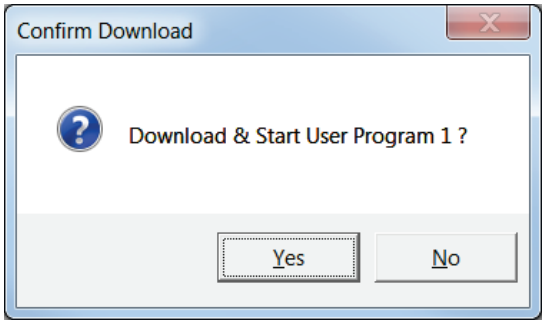

Figure 9. Confirm Download

9. Click **Yes** to begin the download. During the download, the program performs a warm start, creates an event in the event log, and—when the download completes—displays the following message:

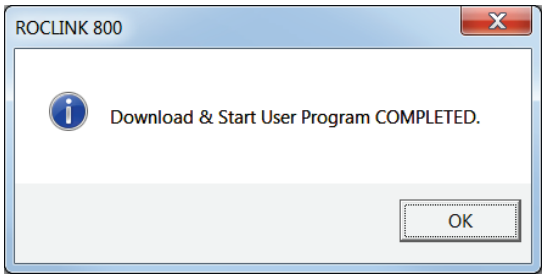

Figure 10. ROCLINK 800 Download Confirmation

10. Click **OK**. The User Program Administrator screen displays (see *Figure 11*). Note that:
    - The User Programs Installed in Device frame identifies the loaded program.
    - The Status field indicates that the program is running.

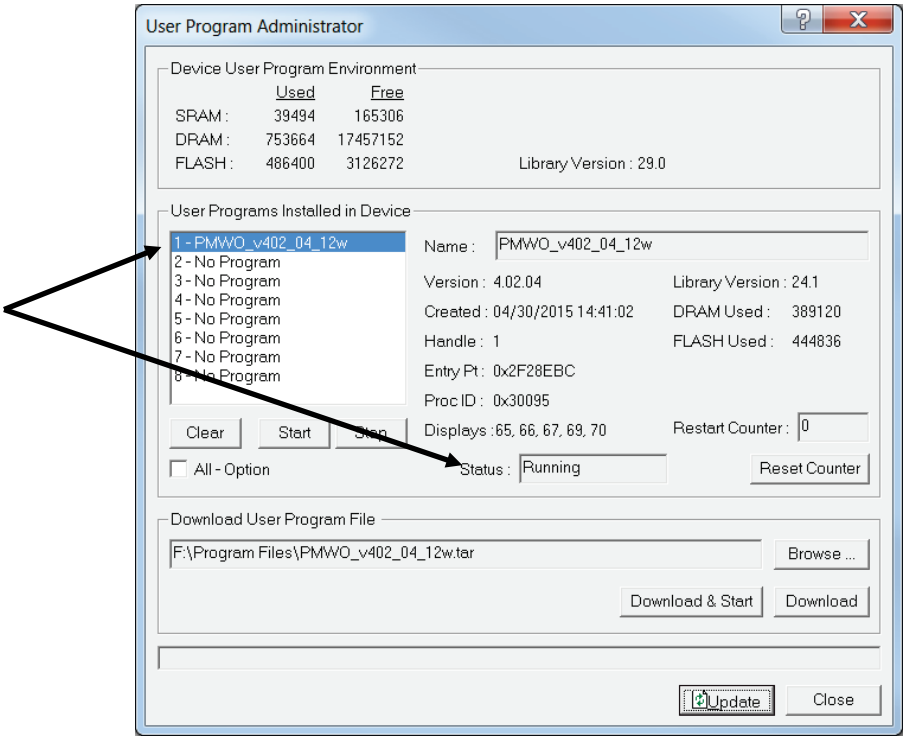

Figure 11. User Program Administrator

11. Click **Close** and proceed to *Chapter 3, Configuration* to configure the program

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Note: Installing a user program without a license key allows you only to view the program screens (that is, the program outputs no data). Installing the license key enables the program to read from the meter and output data.

Chapter 3 – Configuration

After you download and start the Well Optimization program, configure the program using ROCLINK 800 software using the following program-specific screens:

- PMWO Units
- PMWO Config
- PMWO Core Operate
- PMWO Gas Lift Operate
- PMWO Cyclic Operate

You can access all the program-specific screens from the main ROCLINK 800 screen:

Note: The configurations screens of the Well Optimization Manager program for both the ROC800 and the FB107 platforms are identical.

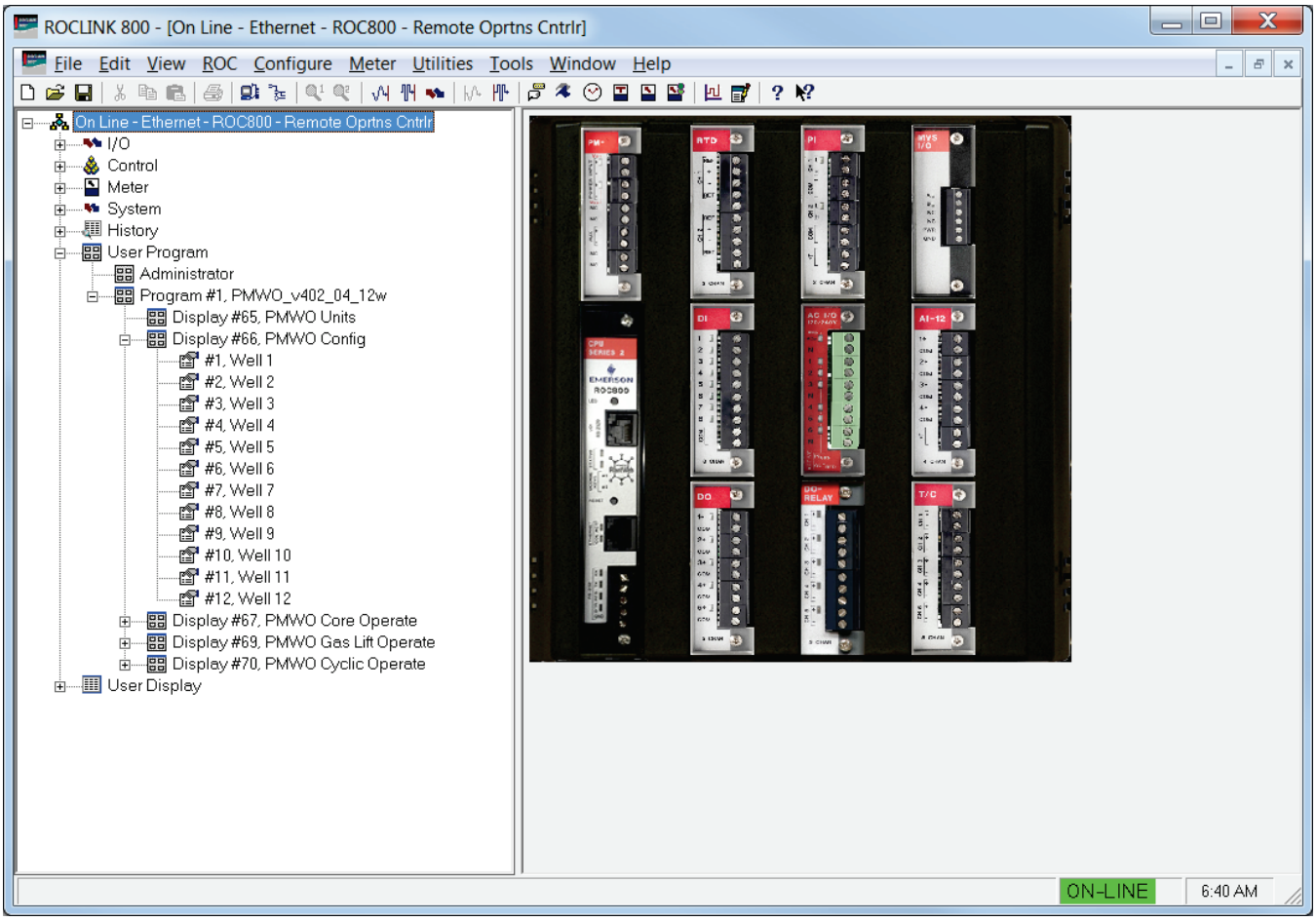


Figure 12. ROCLINK 800 for ROC800

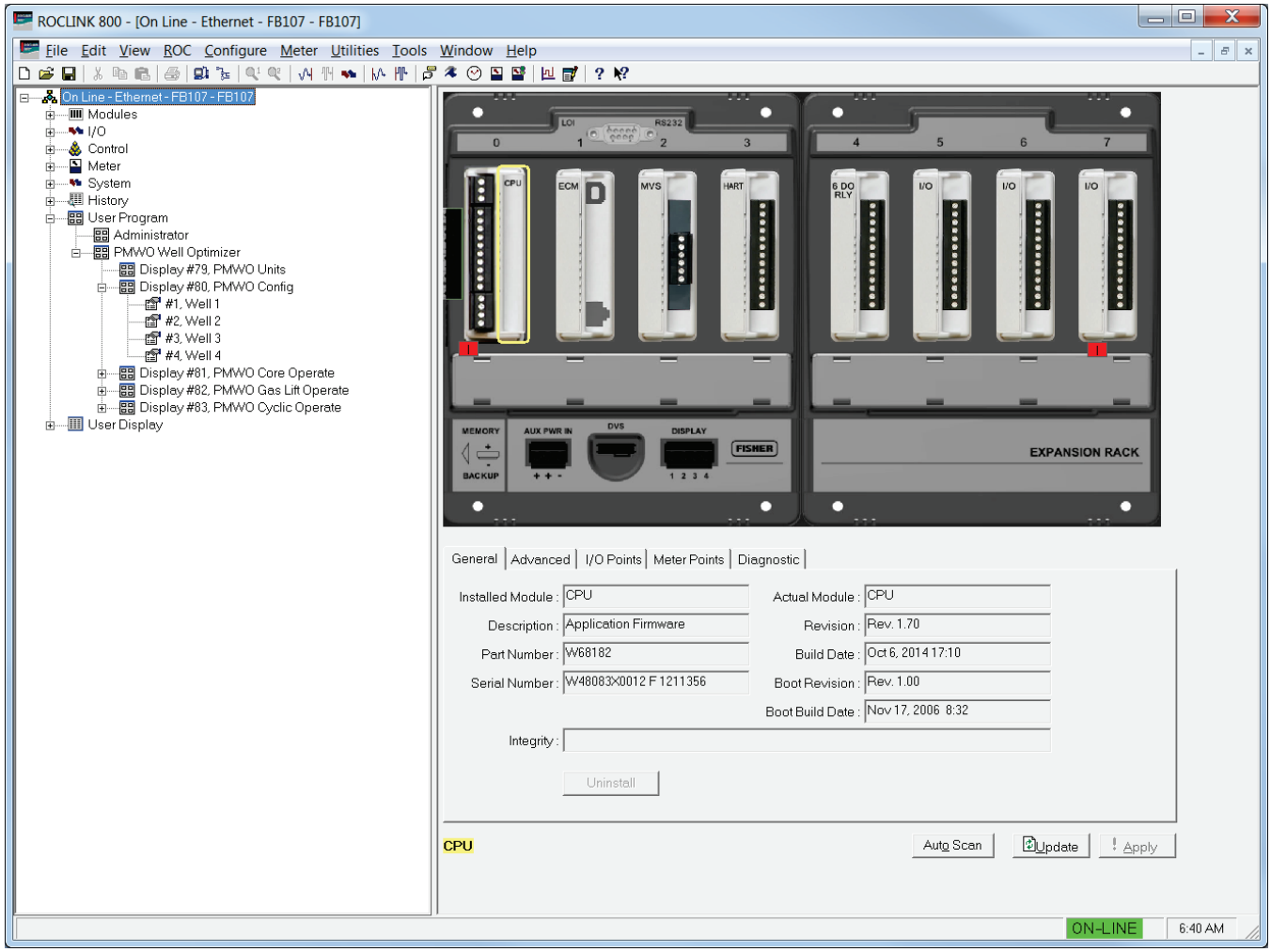


Figure 13. ROCLINK 800 for FB107

3.1 PMWO Units Screen

Once you have successfully loaded the Well Optimization program into the FB107 or the ROC800, you can access the PMWO Units Configuration screen of the Well Optimization program:

1. From the Directory Tree, select **User Program** > **PM Well Optimization** (for FB107) or **Program #1, PMWO_v402_04_12w** (for ROC800) in the ROCLINK configuration tree.

   Note: For the ROC800, the last 2 or 3 characters of the program name represent the number of supported wells. The program name that appears in the directory tree depends on the version of your Well Optimization program. See *Section 1.3*, for more information.

2. Double-click **Display #79, PMWO Units** (for FB107) or **Display #65, PMWO Units** (for ROC800).

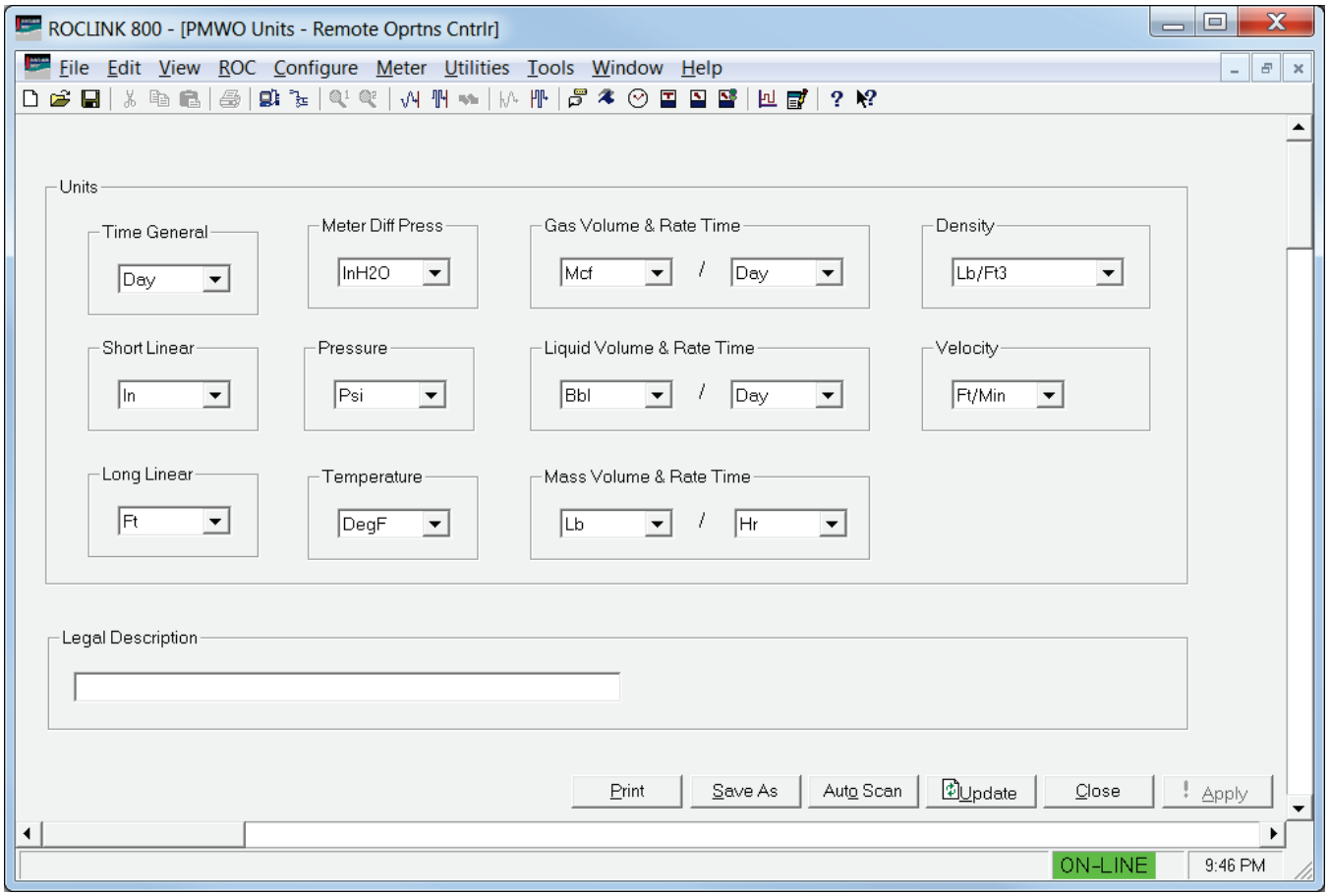


Figure 14. PMWO Units Screen

3. Review the values in the following fields:

Field	Description
Time General	Sets the general time unit. Click to select the unit you prefer. The available options are: **Day**, **Hour**, **Min** (minutes), and **Sec** (seconds).
Short Liner	Sets the short linear measurement unit such as tubing diameter. Click to select the unit you prefer. The available options are: **In** (inches), **Mm** (millimeters) and **Cm** (centimeters).
Long Linear	Sets the long linear measurement unit such as well depth. Click to select the unit you prefer. The available options are: **Ft** (feet) and **M** (meter).
Meter Diff Press	Sets the unit for the meter differential pressure. Click to select the unit you prefer. The available options are: **InH2O**, **KPa**, and **mbar**.
Pressure	Sets the unit of pressure. Click to select the unit you prefer. The available options are: **Psi**, **KPa**, and **Bar**, and **Kg/Cm2**.
Temperature	Sets the unit for temperature. Click to select the unit you prefer. The available options are: **DegF** (°F) and **DegC** (°C).

Field	Description
Gas Volume & Rate Time	Sets the unit for volumetric flow rate for gas production. Click to select the unit of volume and time you prefer.
Liquid Volume & Rate Time	Sets the unit for volumetric flow rate for liquid production. Click to select the unit of volume and time you prefer.
Mass Volume &Rate Time	Sets the unit for mass flow rate. Click to select the unit of mass and time you prefer.
Density	Sets the unit for density. Click to select the unit you prefer.
Velocity	Sets the unit for velocity. Click to select the unit you prefer.
Legal Description	Describe the well site or lease location. This field is optional.

4. Proceed to *Section 3.2, PMWO Config screen.*

3.2 PMWO Config Screen

Once you have successfully loaded the Well Optimization program into the FB107 or the ROC800, you can access the PMWO Config screens:

1. From the Directory Tree, select **User Program** > **PM Well Optimization** (for FB107) or **Program #1, PMWO_v402_04_12w** (for ROC800) in the ROCLINK configuration tree.

   Note: For the ROC800, the last 2 or 3 characters of the program filename represent the number of supported wells. The program name that appears in the directory tree depends on the version of your Well Optimization program. See *Section 1.3*, for more information.

2. Double-click **Display #80, PMWO Config** (for FB107) or **Display #66, PMWO Config** (for ROC800).

3. Double-click **#1, Well 1**. The PMWO Config screen displays:

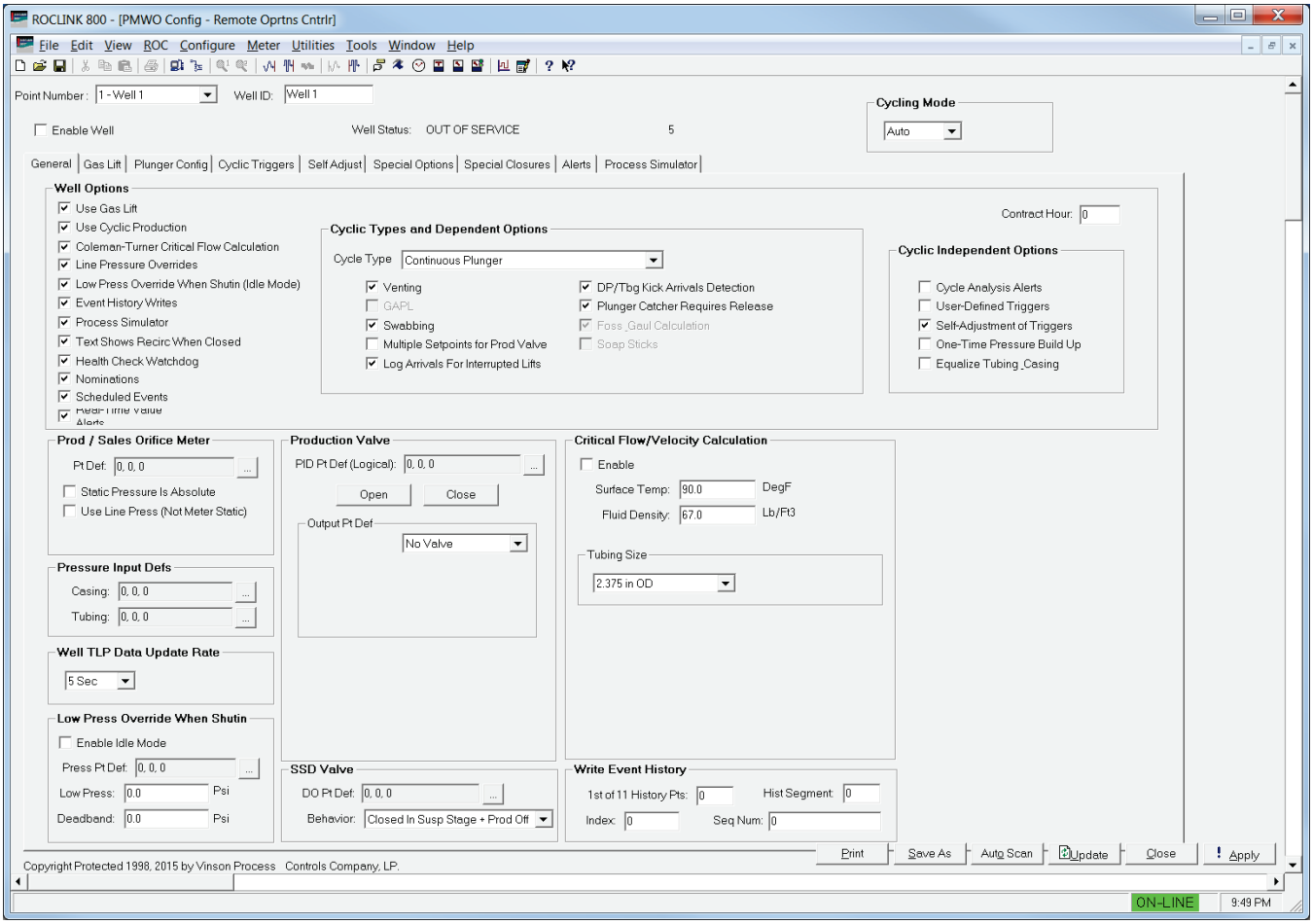


Figure 15. PMWO Config screen (All Well Options Enabled)

3.2.1 PMWO Config – General Tab Screen

Use this tab (which first displays when you open the PMWO Config screen) to configure the well and select a cyclic control mode. The screen has several tabs, all of which have several fields (Point Number, Well ID, Enable Well, Well Status, and Cycling Mode) in common to help you quickly identify major characteristics of each well.

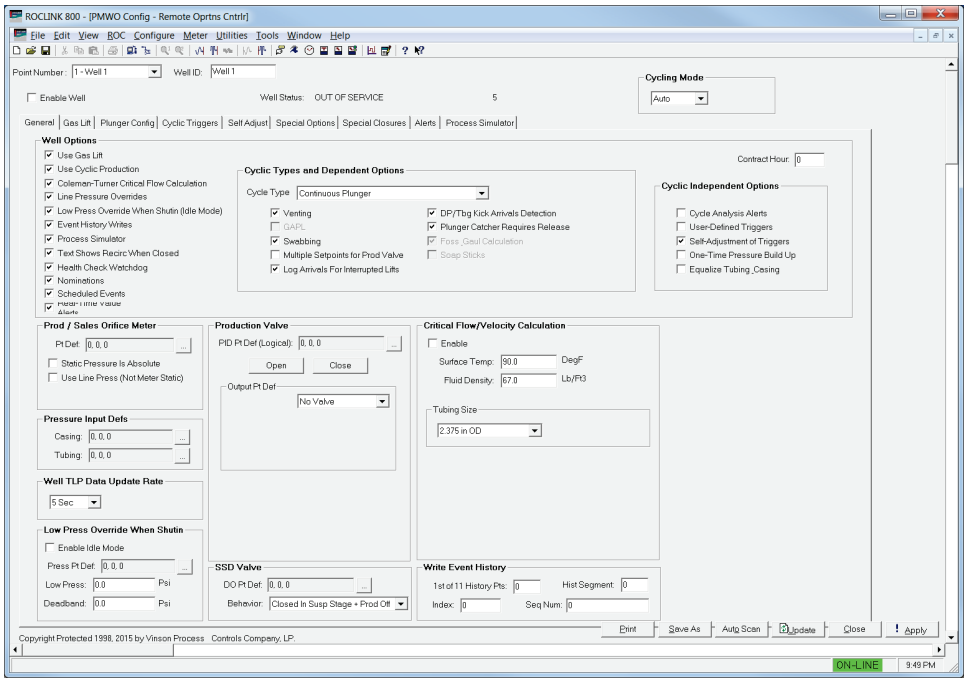


Figure 16. PMWO Config screen

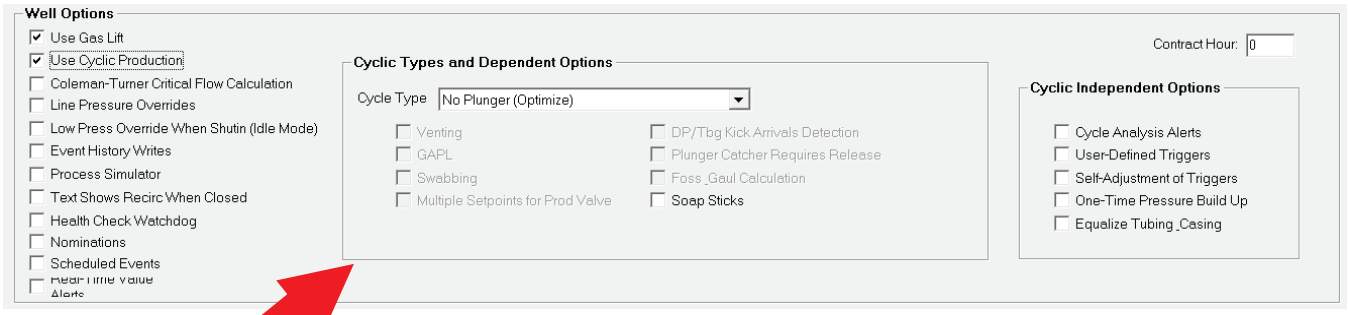
1. Review the values in the following fields:

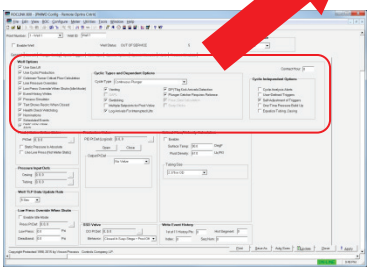
Field	Description
Point Number	Click ▼ to select the well you want to configure.
Well ID	Sets a 10-character well name or identification.
Enable Well	Enables the well that you currently select or configure.

Field	Description
Well Status Message	Displays the status of the well that you currently select or configure. PMWO INSUF LICENSING OUT OF SERVICE PRODUCTION OFF WELL OPEN MANUAL OPEN MANUAL CLOSE LIFTING ASSISTED LIFT AFTERFLOW OFF FOR PLUNGER DROP MINIMUM SHUTIN TIME NON-ARVL SHUTIN TIME ARMED SHUTIN PERM SSD RT USERTLP1 PERM SSD SCOM FAIL A PERM SSD LO LINE PSI PERM SSD HI LINE PSI LOW LINE PRES DELAY HIGH LINE PRES DELAY CASING PRES COMM ERR WAIT FOR ROD PUMP OFF DAILY NOM REACHED MONTHLY NOM REACHED
Cycling Mode	Sets the mode for cyclic control. When you set to **Manual** mode, an option appears on the right of **Cycling Mode** for you to **Open** or **Close** the production valve. Click to select either **Auto** or **Manual** cyclic control.

2. Proceed to *Section 3.2.1.1, PMWO Config – General Tab (Well Options).*

3.2.1.1 PMWO Config – General Tab (Well Options)





1. Review the values in the following fields:

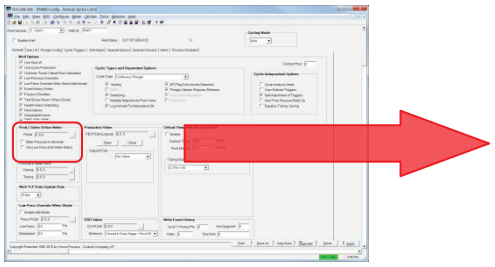
Field	Description
Use Gas Lift	Enables gas lift production and activates the **Gas Lift** tab.
Use Cyclic Production	Enables cyclic control process of well production and activates the **Plunger Config** tab.
Coleman-Turner Critical Flow Calculation	Enables the Coleman-Turner Critical Flow Calculation and displays the **Critical Flow/Velocity Calculation** frame.
Line Pressure Overrides	Displays Line Pressure Overrides on the **Special Closures** tab.
Low Press Override When Shutin (Idle Mode)	Displays **Low Press Override When Shutin** frame.
Event History Writes	Displays **Write Event History** frame.
Process Simulator	Activates the **Process Simulator** tab. **Note:** Emerson Process Management and Vinson Process Controls reserve the Process Simulator tab for future use. The Process Simulator Tab displays nothing.
Text Shows Recirc When Closed	Changes the **Well Status** text to read as “RECIRCULATING” instead of “SHUTIN”.
Health Check Watchdog	Displays Health Check Watch Dog on the Special Closures tab.
Nominations	Displays N**omination Control** on the **Special Closures** tab.
Scheduled Events	Displays **Scheduled Events** on the S**pecial Options** tab.
Real-Time Value Alerts	Displays **Real Time Value Alerts** on the **Alerts** tab.

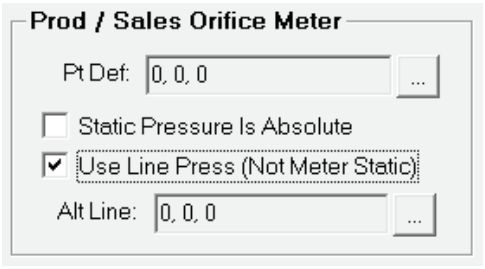
Cyclic Types and Dependent Options	
Cycle Type	Selects the cyclic control type. Click to select the cyclic control option you prefer. The available options are: **No Plunger (Optimize)**, **Continuous Plunger, Conventional Plunger**, and **Rod Pump**. This field shows only when you enable **Use Cyclic Production** under **Well Options**.
Venting	Displays venting configuration on the **Plunger Config** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and is active **only** when you select **Continuous Plunger** or **Conventional Plunger** as the **Cycle Type**. **Note:** You cannot enable the Venting option in concurrent with GAPL.
GAPL	Displays gas assisted plunger lift configuration on the **Plunger Config** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and this selection is active **only** when you select **Continuous Plunger** or **Conventional Plunger** as the **Cycle Type**. **Note:** You cannot enable the GAPL option in concurrent with Venting.
Swabbing	Displays swabbing configuration on the **Special Closures** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and the selection is active **only** when you select **Continuous Plunger** or **Conventional Plunger** as **Cycle Type**.
Multiple Setpoints for Prod Valve	Displays the setpoints for production valve configuration on the **Special Options** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and this selection is active **only** when you select **Continuous Plunger** or **Conventional Plunger** as **Cycle Type**.
Log Arrivals For Interrupted Lifts	Logs the plunger arrivals at the surface whenever there are lift interruptions. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and select **Continuous Plunger** or **Conventional Plunger** as **Cycle Type**.
DP/Tbg Kick Arrivals Detection	Displays differential pressure or tubing kick plunger arrival detection configuration on the **Plunger Config** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** or this selection is active **only** when you select **Continuous Plunger** or **Conventional Plunger** as **Cycle Type**.
Plunger Catcher Requires Release	Displays plunger catcher release configuration on the Plunger Config tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and the selection is active **only** when you select **Continuous Plunger** or **Conventional Plunger** as **Cycle Type**.

Foss _Gaul Calculation	Displays the **Foss and Gaul – Load Factor Guidance** field on the **Special Options** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and the selection is active **only** when you select **Conventional Plunger** as **Cycle Type**.
Soap Sticks	Displays the **Soap Sticks** field on the **Special Options** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options** and the selection is active **only** when you select **No Plunger (Optimized)** as **Cycle Type**.
Cyclic Independent Options	
Cycle Analysis Alerts	Displays **Cycle Analysis Alerts** field on the **Alerts** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options**.
User-Defined Triggers	Displays the **User Defined Close/Open Triggers** field on the **Cyclic Triggers** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options**.
Self-Adjustment of Triggers	Displays the **Self Adjustment of Triggers** field on the **Self Adjust** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options**.
One-Time Pressure Build Up	Displays **Pressure Buildup** field on the **Special Options** tab. This field shows **only** when you enable **Use Cyclic Production** under **Well Options**.
Equalize Tubing Casing	Displays the **Equalize Tubing/Casing** field on the **Special Options tab**. This field shows **only** when you enable **Use Cyclic Production** under **Well Options**.

2. Proceed to *Section 3.2.1.2, PMWO Config – General Tab (Prod / Sales Orifice Meter).*

3.2.1.2 PMWO Config – General Tab (Prod / Sales Orifice Meter)



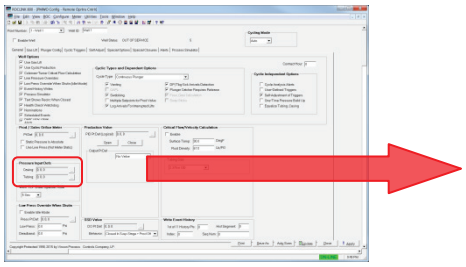


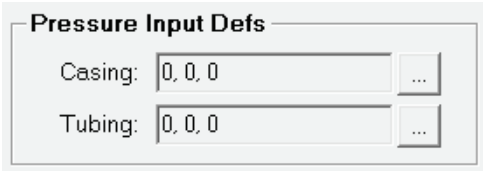
1. Review the values in the following fields:

Field	Description
Pt Def	Defines the production or sales orifice meter. **Note:** You only select the logical instance of the meter and the program populates the field with the correct parameter.
Static Pressure is Absolute	Subtracts atmospheric pressure from the static pressure of the meter run you select in **Pt Def** for gauge pressure applications.
Use Line Press (Not Meter Static)	Enables the use of TLP-defined line pressure source
Alt Line	Sets an alternate line pressure source. This field displays **only** when **Use Line Press (Not Meter Static)** is enabled.

2. Proceed to *Section 3.2.1.3, PMWO Config – General Tab (Pressure Inputs Defs)*.

3.2.1.3 PMWO Config – General Tab (Pressure Inputs Defs)



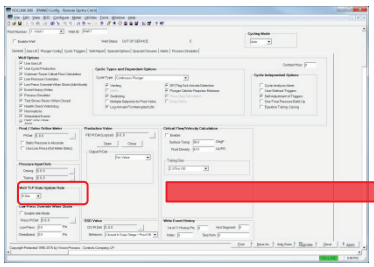


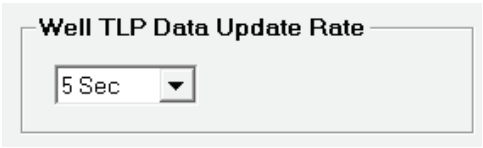
1. Review the values in the following fields:

Field	Description
Casing	Sets the TLP for the casing pressure input.
Tubing	Sets the TLP for the tubing pressure input

2. Proceed to *Section 3.2.1.4, PMWO Config – General Tab (Well TLP Data Update Rate).*

3.2.1.4 PMWO Config – General Tab (Well TLP Date Update Rate)





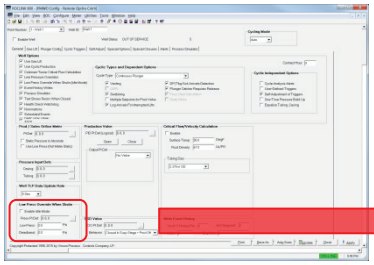
1. Review the values in the following fields:

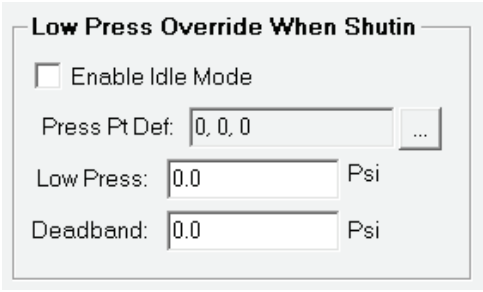
Field	Description
Well TLP Data Update Rate	Determines when the outputs are published. The calculations still run internally at once per second regardless of this selection. Click ▼ to select the Well TLP Data Update rate you prefer. **Note:** Select a longer update rate to help save the MPU loading of your RTU.

2. Proceed to *Section 3.2.1.5, PMWO Config – General Tab (Low Press Override When Shutin).*

3.2.1.5 PMWO Config – General Tab (Low Press Override When Shutin)

This section shows **only** when you enable **Low Press Override When Shutin (Idle Mode)** under **Well Options.**



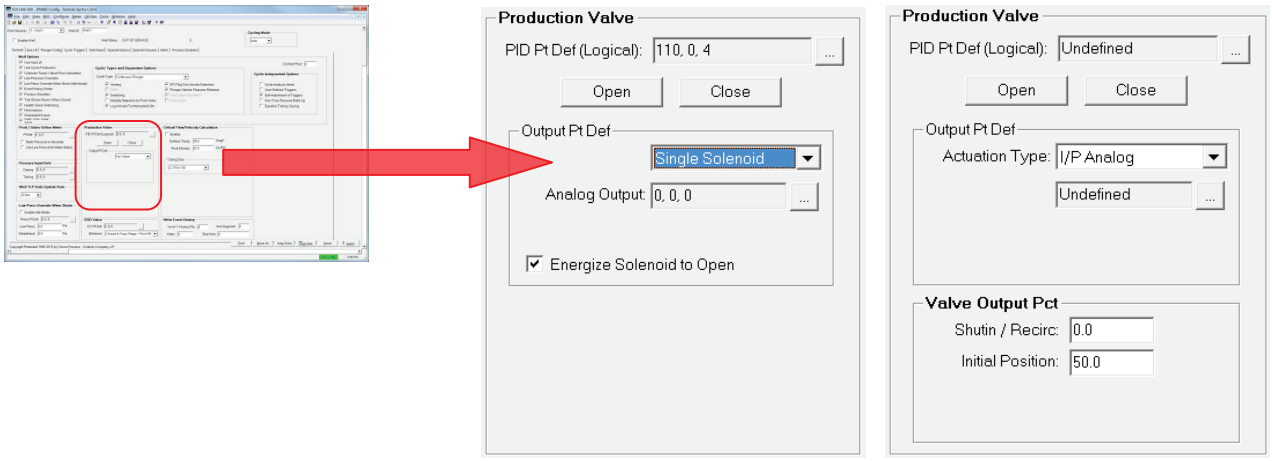


1. Review the values in the following fields:

Field	Description
Enable Idle Mode	Enables the Idle Mode option.
Press Pt Def	Sets the TLP of the pressure source.
Low Press	Sets the low pressure value that activates the idle mode.
Deadband	Sets the pressure deadband. This is the incremental value above the low pressure setpoint that the live pressure value must reach to exit the low pressure override state.

2. Proceed to *Section 3.2.1.6, PMWO Config – General Tab (Production Valve).*

3.2.1.6 PMWO Config – General Tab (Production Valve)



1. Review the values in the following fields:

Field	Description
PID Pt Def (Logical)	Defines the PID loop used to control the opening and closing of the production valve. **Note:** You must select only the logical instance of the PID loop and the program populates with the correct parameter.
Operating Set Point	Sets the initial flowrate value to drive the PID loop (and therefore the production valve). This field shows **only** when you define a PID loop to control the production valve.
OPEN / CLOSE	The **Open** button opens the production valve to begin producing once you configure the well. The **Close** button closes the production valve.
Output Pt Def	Selects the type of production valve you use for your well. This field shows **only** when you do not define a PID loop to control the production valve. Click to select the output you prefer. The available options are: **No Valve**, **Single Solenoid**, **Dual Solenoid** and **I/P Analog**.
Analog/Discrete Output	Sets the TLP of the discrete or analog output to open or close the production valve. This section displays **only** when you select **Single Solenoid**, **Dual Solenoid**, or **I/P Analog** from **OutPut Pt Def**.
Energize Solenoid to Open	Enables the program to energize the solenoid valve for it to open. The program outputs a 1 to open the production valve and a 0 to close the valve. When disable this option, the program outputs a 0 to open the production valve and a 1 to close the valve. This field shows **only** when you select **Single Solenoid** from the **Output Pt Def**.

Valve Output Pct	
Shutin / Recirc	Sets the sales valve shutin percent. This section displays **only** when you select **I/P Analog** from the **Output Pt Def** or when you do not define a PID loop to control the production valve.
Initial Position	Sets the initial position to drive the production valve before operation begins. This section displays **only** when you select **I/P Analog** from the **Output Pt Def** or when you do not define a PID loop to control the production valve.
Allow Throttling Control	Enables throttling control for the well. This field shows **only** when you define a PID loop to control the production valve.

2. Proceed to *Section 3.2.1.7, PMWO Config – General Tab (SSD Valve).*

3.2.1.7 PMWO Config – General Tab (SSD Valve)

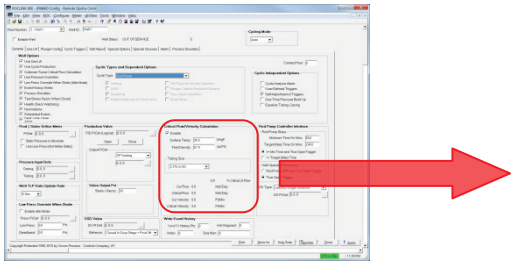
1. Review the values in the following fields:

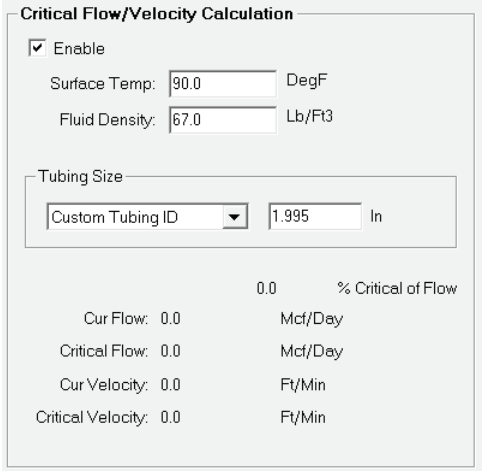
Field	Description
DO Pt Def	Defines the output for the system shut down valve.
Behavior	Sets the SSD (Safety Shut Down) valve behavior.

2. Proceed to *Section 3.2.1.8, PMWO Config – General Tab (Critical Flow / Velocity Calculation).*

3.2.1.8 PMWO Config – General Tab (Critical Flow/Velocity Calculation)

This field shows **only** when you enable **Coleman-Turner Critical Flow Calculation** from **Well Options**.





1. Review the values in the following fields:

Field	Description
Enable	Enables the critical flow velocity calculation.
Surface Temp	Sets the surface temperature.
Fluid Density	Sets the fluid density.
Tubing Size	Sets the tubing size. Click to select your tubing outer diameter (OD). When you select **Custom Tubing ID**, enter the internal diameter (ID) in the field that shows on the right of the tubing size selection field.
% Critical Flow	Shows the current flow as a percentage of the critical flow (Cur Flow / Critical Flow * 100). This field shows **only** when you set the **Critical Flow / Velocity Calculation** to **Enable**.
Cur Flow	Shows the current flow rate. This field shows **only** when you set the **Critical Flow / Velocity Calculation** to **Enable**.
Critical Flow	Shows the critical flow rate. This field shows **only** when you set the **Critical Flow / Velocity Calculation** to **Enable**.
Cur Velocity	Shows the current velocity. This field shows **only** when you set the **Critical Flow / Velocity Calculation** to **Enable**.
Critical Velocity	Shows the critical velocity. This field shows **only** when you set the **Critical Flow / Velocity Calculation** to **Enable**.

2. Proceed to *Section 3.2.1.9, PMWO Config – General Tab (Write Event History).*

3.2.1.9 PMWO Config – General Tab (Write Event History)

The Write Event History feature allows the program to record additional detailed data of the important events such as the well opening, closing, venting, plunger arrival, etc into the history record of the ROC800 or the FB107.

This field shows **only** when you enable **Event History Writes** from **Well Options**.

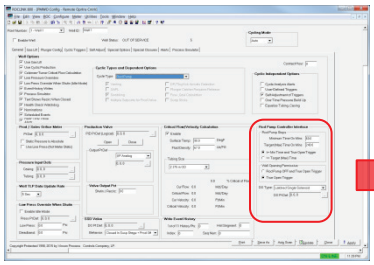
1. Review the values in the following fields:

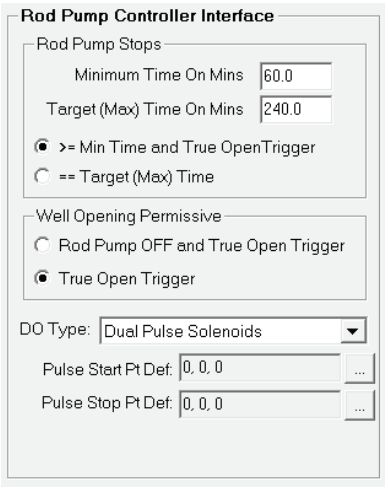
Field	Description
1st of 11 History Pts	You enter the first history point number here. The program has the capability to log events to history. In the ROC800 series this requires a block of 11 contiguous history points (per well). The block can be in any history segment. The points must use archive type “User Program Data”, except for the second point, which must be archive type “User Program Time”. For the FB107 a block of 12 contiguous history points are required (12 points because the FB107 requires two date/time points to create a single timestamp_. For the FB107, there is no need to specify the history segment; all the points must be in the standard history segment. Whichever segment you use, the segment size must be able to handle 840 periodic logs, and you must enable logging. For the ROC800, you configure the associated history points in the order as follows: Point 1 – Sequence Number Point 2 – Event Date / Time (User Program Time) Point 3 – Event Type Point 4 – Condition Point 5 – Current Casing Pressure Point 6 – Current Tubing Pressure Point 7 – Current Line Pressure Point 8 – Current Meter DP Point 9 – Volume Since Previous Open / Close Point 10 – Minutes in Current State (Open / Close) Point 11 – Current Flowrate For the FB107, you configure the associated history points in the order as follows: Point 1 – Sequence Number Point 2 – Event Date / Time 1 Point 3 – Event Date / Time 2 Point 4 – Event Type Point 5 – Condition Point 6 – Current Casing Pressure Point 7 – Current Tubing Pressure Point 8 – Current Line Pressure Point 9 – Current Meter DP Point 10 – Volume Since Previous Open / Close Point 11 – Minutes in Current State (Open / Close) Point 12 – Current Flowrate
Hist Segment	Sets the history segment number where the program writes the event history. This is not required for the FB107 since the device does not have the concept of history segments.
Index	Sets the first period of the event history.
Sequence Number	Sets the sequence number

2. Proceed to *Section 3.2.1.10, PMWO Config – General Tab (Rod Pump Controller Interface).*

3.2.1.10 PMWO Config – General Tab (Rod Pump Controller Interface)

This section shows **only** when you enable **Use Cyclic Production** from **Well Options** and is active **only** when you select **Rod Pump** as **Cycle Type**.





1. Review the values in the following fields:

Field	Description
Minimum Time On Mins	Sets the minimum time for the rod pump to turn ON. When the well is closed and moves to the Minimum Shut-In stage of the well cycle, the Rod Pump turns on and ignores the close triggers for the duration of this timer. This field shows **only** when you select **>= Min Time and True Open Trigger**.
Target (Max) Time On Mins	Sets the amount of time the for the rod pump to remain ON regardless of the open and close triggers. This field shows **only** when you select == **Target (Max) Time**.
>= Min Time and True Open Trigger	Select this option if you choose the rod pump to remain on until the system reaches the **Minimum Time On Mins** and an open trigger has become true, or the system reaches **Target (Max) Time On Mins**.
== Target (Max) Time	Select this option if you choose for the rod pump to remain ON until the **Target (Max) Time** has been reached.
Rod Pump OFF and True Open Trigger	The sales valve remains closed until the Rod Pump is off and an open trigger is true.
True Open Trigger	The sales valve remains closed until an open trigger is true, but does not wait for the Rod Pump to turn off if it is still on.

Field	Description
DO Type	Click to select the output you prefer. The available options are: **Latched Single Solenoid**, **Dual Pulse Solenoids** and **Pulse to Start; POC Stops**.
DO Pt Def	Defines the output to start and stop a single solenoid rod pump. This field shows only when you select **Latched Single Solenoid** as **DO Type**.
Pulse Start Pt Def	Defines the output to start the rod pump with dual solenoids. This field shows only when you select **Dual Pulse Solenoids** or **Pulse to Start; POC Stops** as **DO Type**.
Pulse Stop Pt Def	Defines the output to stop the rod pump with dual solenoids. This field shows only when you select **Dual Pulse Solenoids** as **DO Type**.
POC Run Status	This field shows only when you select **Pulse to Start; POC Stops** as **DO Type**.

2. Proceed to *Section 3.2.2, PMWO Config – Gas Lift Tab.*

3.2.2 PMWO Config – Gas Lift Tab Screen

Use this screen (which displays **only** when you enable **Use Gas Lift** from the **Well Options** in the **General** tab) to configure the gas lift function and set up the required parameters.

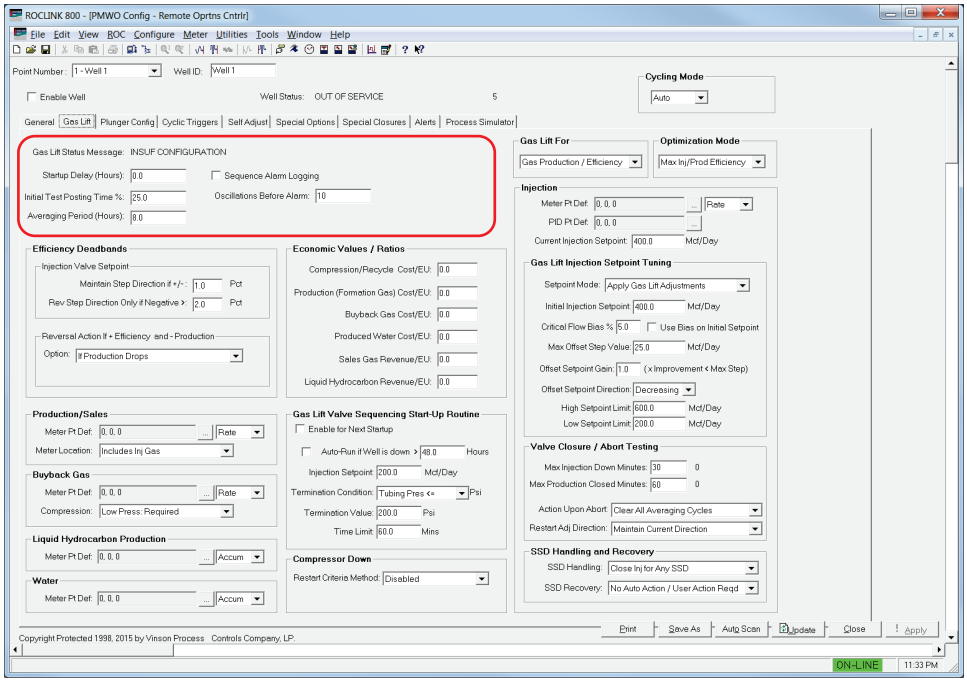


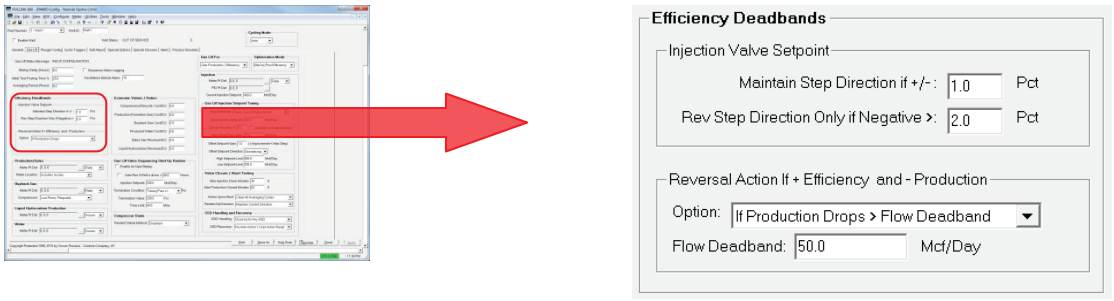
Figure 17. PMWO Config – Gas Lift tab

1. Review the values in the following fields:

Field	Description
Gas Lift Status Message	Displays the current status of the gas lift for the current well: INSUF CONFIGURATION GLIFT WAIT FOR START GAS LIFT RESTART G/L VALVE SEQ DELAY GAS LIFT FIRST AVG NO SETPT CHG: InDdBnd NO SETPT CHG: NegEfct FWD DIRECTION SP CHG REV DIRECTION SP CHG STOP COMMAND RCVD MANUAL OUTPUT FIXED SET POINT CRIT FLOW SET POINT INJ SETPT LO LIMIT INJ SETPT HI LIMIT INJECTION OFF TIME PRODUCTION OFF TIME
Startup Delay (Hours)	Sets the delay at the start up of the gas lift when run for the first time or upon restart. After the first averaging cycle, the program ignores the **Startup Delay (hours)** until the gas lift test averaging cycling has stopped.
Initial Test Posting Time %	Determines the percentage of the **Averaging Period (Hours)** to use for the first test averaging cycle. The program compares the current averaging cycle to the previous averaging cycle to determine the adjustment to the injection setpoint. The initial test posting gives the program some results to compare to for start up when there is no data to compare to from a previous cycle.
Averaging Period (hours)	Sets the duration, in hours, of the test averaging cycle.The program adjusts the injection setpoint at the end of each averaging period.
Sequence Alarm Logging	Select this option if you choose to write the result (gas lift status message) of the test averaging cycle to the alarm log at the end of each cycle.
Oscillations Before Alarm	Defines the number of oscillations around the setpoint where the program reverses direction before an alarm is produced.

2. Proceed to *Section 3.2.2.1, PMWO Config – Gas Lift tab (Efficiency Deadbands).*

3.2.2.1 PMWO Config – Gas Lift Tab (Efficiency Deadbands)



1. Review the values in the following fields:

Field	Description
Injection Valve Setpoint	
Maintain Step Direction if +/-	Sets the positive required deadband that must be reached by the **Improvement** to continue moving the injection setpoint in the forward direction.
Rev Step Direction Only if Negative	Sets the negative required deadband that must be reached by the **Improvement** to reverse the injection setpoint in the opposite direction.
Reversal Action if + Efficiency and - Production	
Option	Selects an action to take when the efficiency continues to increase and remains positive but the production decreases, during the consecutive averaging periods. This can lead to a scenario where even though overall efficiency continues to raise, the well production drops, eventually to the point of the well ceasing to produce. You use this option to detect this undesirable situation, and avoid it by reversing the injection setpoint direction.
Flow Deadband	Sets the flowrate deadband for the program to compare against production drop. This field shows **only** when you select **If Production Drops > Flow Deadband** under **Option** in the **Reversal Action if + Efficiency and – Production**.

2. Proceed to *Section 3.2.2.2, PMWO Config – Gas Lift Tab (Production/Sales).*

3.2.2.2 PMWO Config – Gas Lift Tab (Production/Sales)

1. Review the values in the following fields:

Field	Description
Meter Pt Def	Defines the production or sales orifice meter. On the right portion of **Meter Pt Def,** click to select whether the meter use the accumulator or rate parameter. **Note:** You must only select the logical instance of the meter. The program populates the TLP with the correct parameter. The parameter automatically updates when you select either **Rate** or **Accum**.
Meter Location	Sets whether the meter you select is a production meter or a sales meter. When you select **Includes Inj Gas**, then the meter you select is a production meter. In this case, the program calculates the sales meter as Sales = Production – Injection. When you select **Excludes Inj Gas**, then the meter you select is a sales meter. In this case, the program calculates production meter as Production = Sales + Injection.

2. Proceed to *Section 3.2.2.3, PMWO Config – Gas Lift Tab (Buyback Gas).*

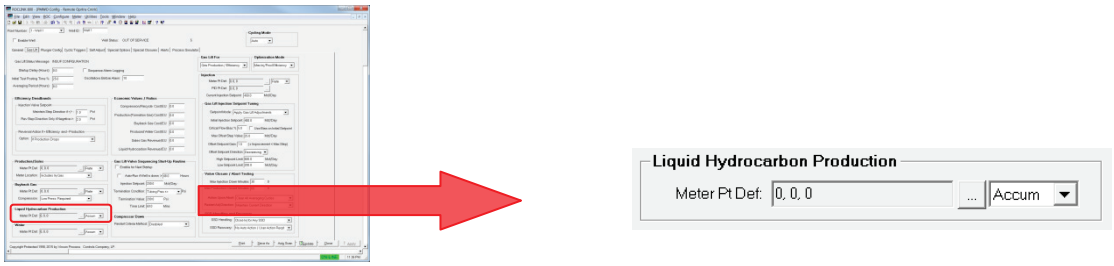
3.2.2.3 PMWO Config – Gas Lift Tab (Buyback Gas)

1. Review the values in the following fields:

Field	Description
Meter Pt Def	Defines the buyback gas meter. On the right portion of **Meter Pt Def,** click to select whether the meter use the accumulator or rate. **Note:** You only select the logical instance of the meter. The program populates the TLP with the correct parameter. The parameter automatically updates when you select either **Rate** or **Accum**.
Compression	Determines whether the buyback gas is low pressure and needs compression or is high pressure and requires no compression. This selection allows you to determine the economic cost. When you select **High Press: Not Required**, then the Economic Averaging Per Day Gas Compression/Recycle Cost is equal to the Injection Flowrate * Compression/Recycle Cost/EU. When you select **Low Press: Required**, then the Economic Averaging Per Day Gas Compression/Recycle Cost is equal to (Injection Flowrate + Buyback Gas) * Compression/Recycle Cost/EU.

2. Proceed to *Section 3.2.2.4, PMWO Config – Gas Lift Tab (Liquid Hydrocarbon Production).*

3.2.2.4 PMWO Config – Gas Lift Tab (Liquid Hydrocarbon Production)

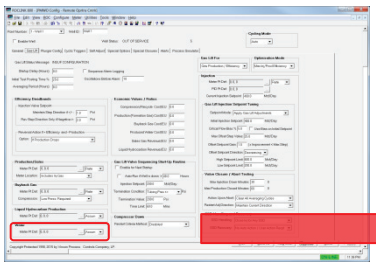


1. Review the values in the following fields:

Field	Description
Meter Pt Def	Defines the liquid hydrocarbon production meter. On the right portion of **Meter Pt Def,** click to select whether the meter use the accumulator or rate. **Note:** You only select the logical instance of the meter. The program populates the TLP with the correct parameter. The parameter automatically updates when you select either **Rate** or **Accum**.

2. Proceed to *Section 3.2.2.5, PMWO Config – Gas Lift Tab (Water).*

3.2.2.5 PMWO Config – Gas Lift Tab (Water)

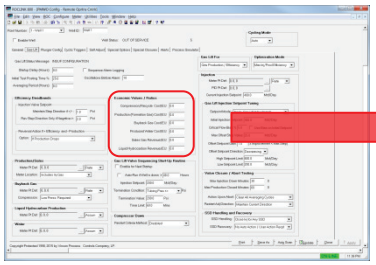


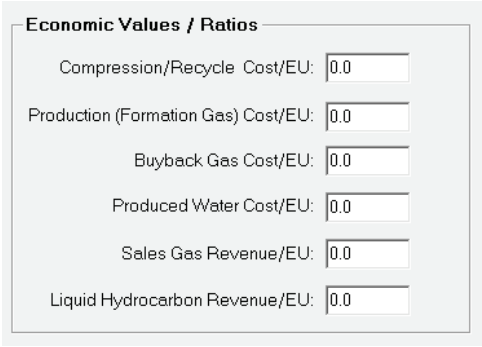
1. Review the values in the following fields:

Field	Description
Meter Pt Def	Defines the water meter. On the right portion of **Meter Pt Def,** click to select whether the meter use the accumulator or rate. **Note:** You only select the logical instance of the meter. The program populates the TLP with the correct parameter. The parameter automatically updates when you select either **Rate** or **Accum**.

2. Proceed to *Section 3.2.2.6, PMWO Config – Gas Lift Tab (Economic Values / Ratios).*

3.2.2.6 PMWO Config – Gas Lift Tab (Economic Values / Ratios)



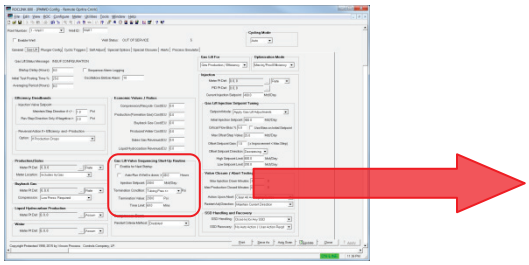


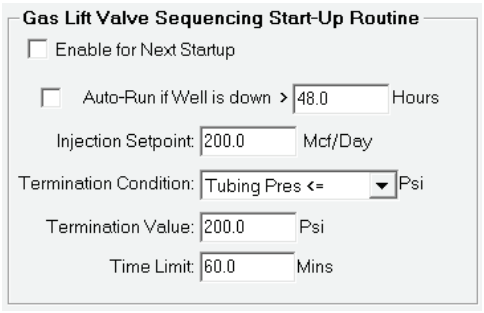
1. Review the values in the following fields:

Field	Description
Compression/ Recycle Cost/EU	Sets the cost to compress or recycle the production gas and optionally buyback gas you use to inject back into the well. When you do not utilize buyback gas or high pressure buyback gas, the Economic Averaging Per Day Gas Compression/Recycle Cost is equal to the Injection Flowrate * Compression/Recycle Cost/EU. When you use low pressure buyback gas, the Economic Averaging Per Day Gas Compression/Recycle Cost is equal to (Injection Flowrate + Buyback Gas Flowrate) * Compression/Recycle Cost/EU.
Production (Formation) Cost/EU	Sets the cost for the production (formation) gas of the gas you use to inject back into the well. The Economic Averaging Per Day Production (Formation Gas) Cost = (Production Flowrate – Injection Flowrate) * Production (Formation Gas) Cost/EU.
Buyback Gas Cost/EU	Sets the cost for the buyback gas you inject into the well. The Economic Averaging Per Day Buyback Gas Cost = Buyback Gas Flowrate * Buyback Gas Cost/EU.
Produced Water Cost/EU	Sets the cost to dispose the water from the well. The Economic Averaging Per Day Produced Water Cost = Produced Water Flowrate * Produced Water Cost/EU.
Sales Gas Revenue/EU	Sets the sales gas revenue for the gas from the well. The Economic Averaging Per Day Sales Gas Revenue = Sales Gas Flowrate * Sales Gas Revenue/EU.
Liquid Hydrocarbon Revenue/EU	Sets the liquid hydrocarbon revenue from well production. The Economic Averaging Per Day Prod Liquid Hydrocarbon Revenue = Prod Liquid Hydrocarbon Flowrate * Prod Liquid Hydrocarbon Revenue/EU.

2. Proceed to *Section 3.2.2.7, PMWO Config – Gas Lift Tab (Gas Lift Valve Sequencing Start-Up Routine).*

3.2.2.7 PMWO Config – Gas Lift Tab (Gas Lift Valve Sequencing Start-Up Routine)





1. Review the values in the following fields:

Field	Description
Enable for Next Startup	When you enable this option, the gas lift valve sequencing start-up routine runs on the next start up. The box unchecks itself after each startup. It automatically checks itself if you select the **Auto-Run if Well is down >** and the system exceeds the Auto-Run time you set.
Auto-Run if Well is down >	When you enable this option, the valve sequencing routine runs when the well is down for the user specified number of hours. This is a permanent selection and runs every time the well is down for the specified amount of time.
Injection Setpoint	Overrides the current setpoint of the injection on startup until the program reaches the termination condition.
Termination Condition	Defines the termination condition that must occur before the valve sequencing routine ends and the control returns to the Injection PID loop. When you select **Tubing Pres <=**, the valve sequencing routine ends when the Tubing Pressure is less than or equal to the **Termination Value**. When you select **Casing** – **Tubing >=**, the valve sequencing routine ends when the casing pressure minus (–) tubing pressure is greater than or equal to the **Termination Value**. **Note:** The **Termination Condition** and **Time Limit** share an "OR" relationship and the sequence ends when the system meets either condition.
Termination Value	When the **Termination Condition** becomes true in comparison with the value you enter here, the valve sequencing ends.

Field	Description
Time Limit	Sets the maximum amount of time for the valve sequencing routine to run. When the system reaches this time limit, the routine ends. **Note:** The **Termination Condition** and **Time Limit** share an **OR** relationship. The sequence ends when the system meets either condition.

2. Proceed to *Section 3.2.2.8, PMWO Config – Gas Lift Tab (Compressor Down Indication Method).*

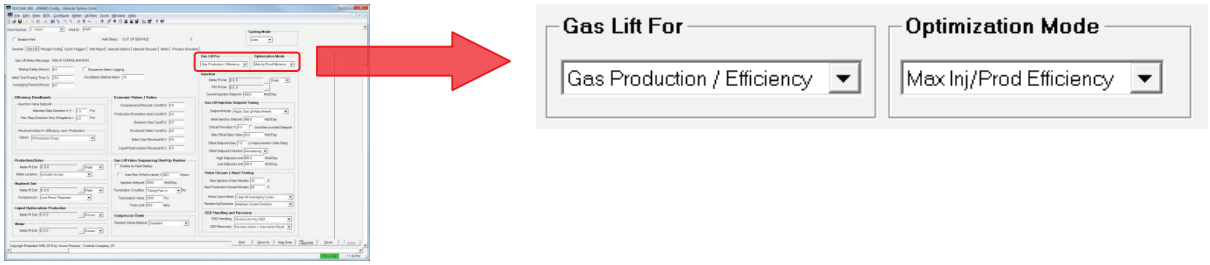
3.2.2.8 PMWO Config – Gas Lift Tab (Compressor Down Indication Method)

1. Review the values in the following fields:

Field	Description
Restart Criteria Method	Defines the compressor status indication method. Click ▼ to select the input method you prefer. The available options are: **Disabled** (No indication), **Run/Discrete Status** (DI Status) and **Zero Inj Flowrate** (Injection Flowrate reaches 0).
Run Status Pt Def	Defines the discrete input status of the compressor. This field shows **only** when you select **Run/Discrete Status** as the **Restart Criteria Method**.

2. Proceed to *Section 3.2.2.9, PMWO Config – Gas Lift Tab (Gas Lift For & Optimization Mode).*

3.2.2.9 PMWO Config – Gas Lift Tab (Gas Lift For & Optimization Mode)

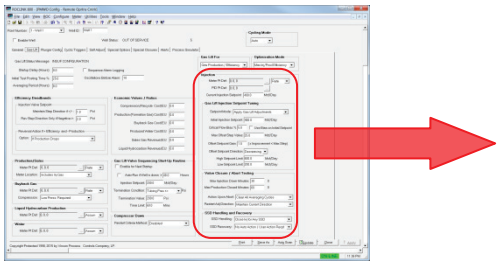


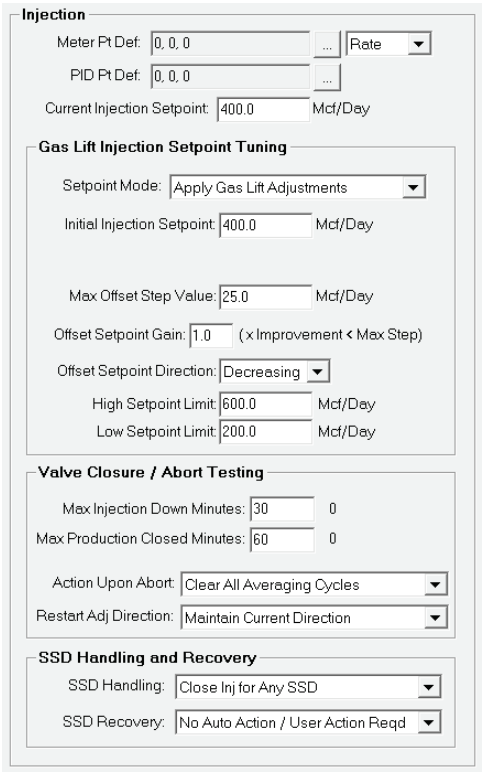
1. Review the values in the following fields:

Field	Description
Gas Lift For	Defines the production method of Gas Lift optimization. Click to select the production method you prefer. The available options are: **Gas Production/Efficiency** and **Liquid Production**.
Optimization Modes	Defines the optimization mode for the Gas Lift. Click to select the production method you prefer. The available options are: **Max Gas Production**: Improvement = (Production Total – Previous Production Total) / Previous Production Total **Max Inj/Prod Efficiency**: Improvement = New Efficiency – Previous Efficiency **Max Gas Sales** Improvement = (Sales Total – Previous Sales Total) / Previous Sales Total **Max Revenue (Gas)** Improvement = (Net Revenue – Previous Net Revenue) / Previous Net Revenue Gas Lift For: Liquid Production **Max Liquid Hydrocarbon** Improvement = (Liquid Hydrocarbon Produced – Previous Liquid Hydrocarbon Production) / Previous Liquid Hydrocarbon Produced **Max Water** Improvement = (Water Produced – Previous Water Produced) / Previous Water Produced **Max Revenue (Liquid)** Improvement = (Net Revenue – Previous Net Revenue) / Previous Net Revenue Efficiency = 1.0 - (Injection Flowrate / Production Flowrate) Net Revenue = (Sales Gas Revenue + Prod Liquid Hydrocarbon Revenue) – (Gas Compression/Recycle Cost + Production (Formation Gas) Cost + Buyback Gas Cost + Produced Water Cost) **Note:** For Net Revenue, you may not use all of these options at a particular site. For any undefined production meters, the economic value is 0 in the calculation.

2. Proceed to *Section 3.2.2.10, PMWO Config – Gas Lift Tab (Injection).*

3.2.2.10 PMWO Config – Gas Lift Tab (Injection)





1. Review the values in the following fields:

Field	Description
Meter Pt Def	Defines the injection meter. On the right portion of **Meter Pt Def,** click ▼ to select whether the meter use the accumulator or rate. **Note:** You only select the logical instance of the meter. The program populates the TLP with the correct parameter. The parameter automatically updates when you select either **Rate** or **Accum**.
PID Pt Def	Defines the PID loop you use to control the opening and closing of the injection valve. **Note:** You only select the logical instance of the PID loop. The program populates the TLP with the correct parameter.
Current Injection Setpoint	Shows the current setpoint for the injection meter. The program modifies this setpoint based on the optimization mode you select and the results of the previous averaging cycle. You can enter a manual value to change the injection setpoint. The change in the Current Injection Setpoint = Current Injection Setpoint + (Improvement * Offset Setpoint Gain).

Gas Lift Setpoint Tuning	
Setpoint Mode	Defines how the program modifies the setpoint. Click to select the modification method you prefer. The available options are: **Apply Gas Lift Adjustments**¸ **SetPt is Critical Rate + Pct**, **Fixed SetPt** and **Manual Output Pct**.
Initial Injection Setpoint	Defines the injection setpoint for the first gas lift averaging cycle. You can only use this value the first time you start the gas lift. When the **Action Upon Abort** in **Valve Closure/Abort Testing** is set to **Clear All – Use Initial SetPt**, the program uses the **Initial Injection Setpoint** any time the valve is closed or a test is aborted.
Max Offset Step Value	Defines the maximum setpoint change the program allows based on the results of the averaging cycle.
Offset Setpoint Gain	Defines the gain factor.
Offset Setpoint Direction	Defines the movement direction of the setpoint based on the results of the averaging cycle. The program modifies this direction based on the averaging cycle results.
High Setpoint Limit	Defines the maximum volume for the injection setpoint.
Low Setpoint Limit	Defines the minimum volume for the injection setpoint.
Valve Closure / Abort Testing	
Max Injection Down Minutes	Sets the maximum time the compressor stays down or the injection flowrate stays zero before aborting the current test. The timer begins counting when the **Compressor Down Indication Method** occurs and is reset when the program clears the issue.
Max Production Closed Minutes	Sets the maximum time the production valve closes before the system aborts the current test. The timer begins counting when the valve is closed and resets when the well opens.

Action Upon Abort	Defines how the program handles the current test in progress when you or the system aborts. Click to select the abort action you prefer. When you select **Clear Avg Cycle in Progress Only**, only the current averaging cycle clears. The Last and Previous Averaging Cycles still holds the test results. When a new test begins, the program uses the current setpoint for the injection. When you select **Clear All Averaging Cycles**, the current, last, and previous averaging cycles clear. When a new test begins, the program uses the current setpoint for the injection. When you select **Clear All – Use Initial SetPt** the current, last, and previous averaging cycles clear. When a new test begins, the program uses the initial setpoint for the injection.
Restart Adj Direction	Defines the movement direction of the setpoint upon restart. Click to select the direction you prefer. When you select **Maintain Current Direction**, the direction continues the previous setpoint direction before the valve closes or the test aborts. When you select **Set To Default (Decreasing SetPts)**, the direction decreases regardless of the setpoint direction before the valve closes or the test aborts.
SSD Handling and Recovery	
SSD Handling	Defines the handling method when a system shut down occurs. Click to select the handling method you prefer. When you select **Close Inj for Any SSD**, the injection PID loop closes the injection valve for any SSD. When you select **Close Inj for PSDs Only**, the injection PID loop closes the injection valve only for PSD's and not for TSD's. When you select **Inj Stays Open During SSDs**, the injection PID loop ignores the SSD condition and the injection valve remains in normal operation.

SSD Recovery	Defines the recovery method when a system shut down occurs. Click ▼ to select the recovery method you prefer. When you select **No Auto Action/User Action Reqd**, the program does not recover on its own. You must clear the SSD and open up the injection valve manually. When you select **Auto Open Inj Valve**, the program automatically opens the injection valve when the SSD clears. When you select **To Auto/Resume Within Time Limit**, the program automatically opens the injection valve when the SSD clears and neither the Max Injection Down or Max Production Closed timers have elapsed. If either timer has expired, the program requires user action.

2. Proceed to *Section 3.2.3, PMWO Config – Plunger Config Tab* if you want to configure your plunger lift.

3.2.3 PMWO Config – Plunger Config Tab

The Plunger Config tab (which displays when you enable **Use Cycle Production** from the **Well Options** and select either **Continuous Plunger** or **Conventional Plunger** as **Cycle Type** in **General** tab) allows you to configure plunger lift function of the Well Optimization program.

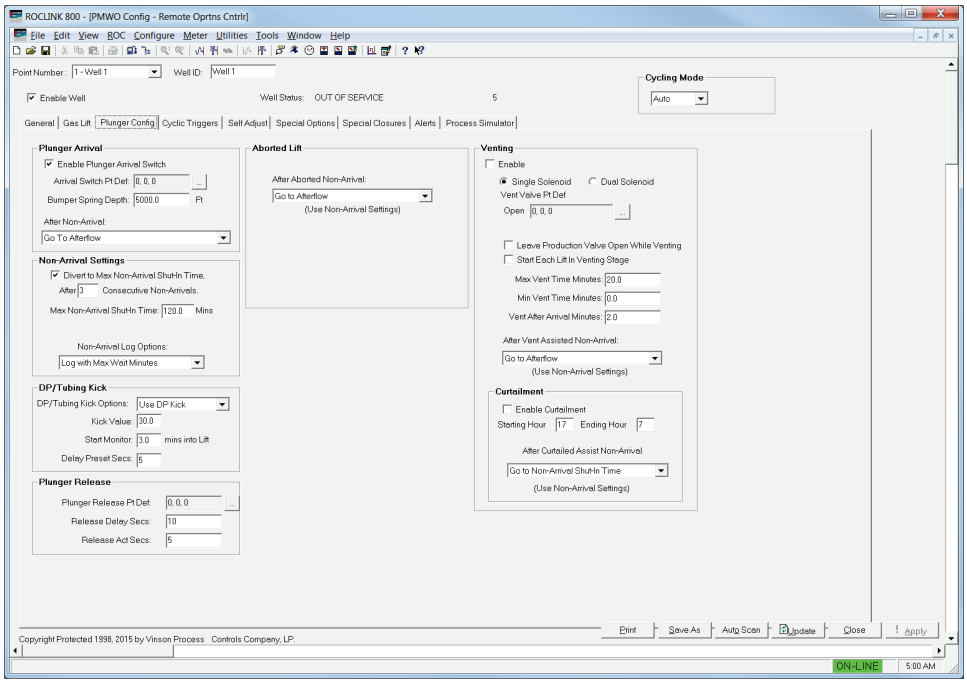


Figure 18. PMWO Continuous Config – Plunger Config tab

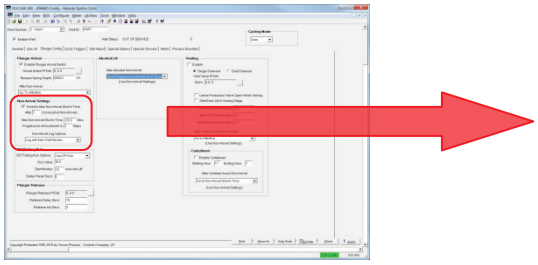
3.2.3.1 PMWO Config – Plunger Config Tab (Plunger Arrival)

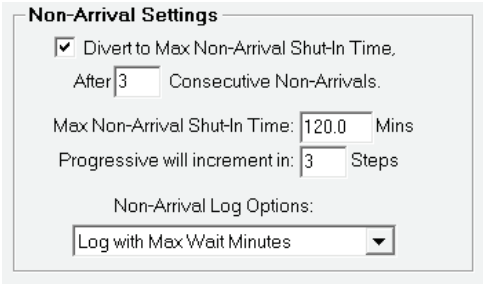
1. Review the values in the following fields:

Field	Description
Enable Plunger Arrival Switch	Enables the plunger arrival switch. When you enable this option, the input in the **Arrival Switch Pt Def** detects the plunger arrival during the lifting stage, and the program advances to the afterflow stage. When you disable this option, the program uses the **DP/Tubing Kick** as the arrival detection.
Arrival Switch Pt Def	Defines the input for the plunger arrival detection.
Bumper Spring Depth	Defines the depth of the bumper spring.
After Non-Arrival	Defines the action to take when the plunger does not arrive for the duration of the **Plunger Wait Time.** Click ▼ to select the non-arrival action you prefer. When you select **Open Vent & Continue (Must Enable Venting)**, the vent valve opens. When you select **Go To Afterflow**, the well cycle leaves the lifting stage and moves to the afterflow stage. When you select **Go To Plunger Drop Time**, the well cycle skips the afterflow stage and advances to the unarmed shut-in stage. The **Preset in Effect** is equal to the **Plunger Drop Time**. When you select **Go To Non-Arrival SI Time** the well cycle skips the afterflow stage and advances to the unarmed shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time**. When you select **Go To Progressive Non-Arrival SI Time**, the well cycle skips the afterflow stage and advances to the unarmed shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time** divided by the **Progressive will increment in** value. This value continues to increment by the same amount until the system reaches the number of steps.

2. Proceed to *Section 3.2.3.2, PMWO Config – Plunger Config Tab (Non-Arrival Settings).*

3.2.3.2 PMWO Config – Plunger Config Tab (Non-Arrival Settings)





1. Review the values in the following fields:

Field	Description
Divert to Max Non-Arrival Shut-In Time After __ Consecutive Non-Arrivals	Enables the diversion to the **Max Non-Arrival Shut-In Time** after you specify the number of consecutive non-arrivals. When you disable this option, the program continues to use the **After Non-Arrival** selection in the **PMWO Config – Plunger Config Tab (Plunger Arrival)** (*Section 3.2.3.1*).
Max Non-Arrival Shut-in Time	Sets the time to remain in Unarmed Shut-in stage when the well does not arrive for the number of cycles you specify in **Consecutive Non-Arrivals.**
Progressive will increment in	Sets the number of incremental steps for the **Max Non-Arrival Shut-In Time / Progressive will increment in** value. For instance, when you set the **Max Non-Arrival Shut-in Time** to 10 minutes and the **Progressive will increment in** to 4, the **Preset in Effect** is set to 2.5 minutes for the first non-arrival. For the second non-arrival, the **Preset in Effect** is 5 minutes, the third is 7.5 minutes, and the fourth is ten minutes. The progressive increment resets after an arrival and starts back at 2.5 minutesfor the next non-arrival. This field shows **only** when you set **After Non-Arrival** to **Go To Progressive Non-Arrival SI Time** from **PMWO Config – Plunger Config Tab (Plunger Arrival)** (*Section 3.2.3.1*).
Non-Arrival Log Options	Selects the items to display in the alarm log for non-arrivals. Click ▼ to select the non-arrival login type you prefer. When you select **Log with Code Numbers**, the program logs the associated code number for the type of non-arrival. When you select **Log with Max Wait Minutes**, the program logs the minutes of the timer in use based on the **After Non-Arrival** option you select from **PMWO Config – Plunger Config Tab (Plunger Arrival)** (*Section 3.2.3.1*).

2. Proceed to *Section 3.2.3.3, PMWO Config – Plunger Config Tab (DP/Tubing Kick).*

3.2.3.3 PMWO Config – Plunger Config Tab (DP/Tubing Kick)

This section shows **only** when you enable the **DP/Tbg Kick Arrivals Detection** from the **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.

1. Review the values in the following fields:

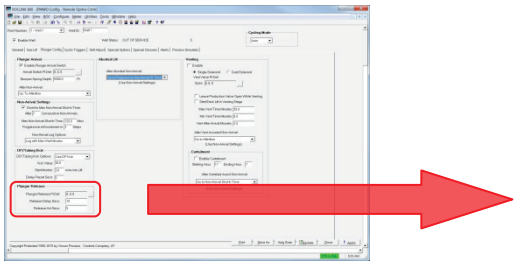
Field	Description
DP/Tubing Kick Options	Selects the DP/Tubing arrival detection setting. Click to select the detection type you prefer. When you select **Do Not Use**, the **Arrival Switch** input detection is the only method of plunger arrival detection. When you select **Use DP Kick**, the program monitors the DP value after the elapse of the **Start Monitor** time. When the DP value increases with the **Kick Value** for the duration of the **Delay Preset Secs**, the program detects an arrival and moves to the afterflow stage. When you select **Use Tubing Kick**, the program monitors the tubing value after the elapse of the **Start Monitor** time. When the tubing value increases with the **Kick Value** for the duration of the **Delay Preset Secs**, the program will detect an arrival and move to the afterflow stage. When you select **Use Both DP & Tbg**, the program monitors the differential pressure (DP) and the tubing value after the elapse of the **Start Monitor** time. When the DP **OR** the tubing value increases with the **Kick Value** for the duration of the **Delay Preset Secs**, the program detects an arrival and moves to the afterflow stage. **Note:** The program uses the DP/Tubing kick as a secondary method of plunger arrival detection and shares an **OR** relationship with the **Arrival Switch**. In the case of no arrival switch or malfunctioning arrival switch, it is the only method of plunger arrival detection.
Kick Value	Defines the increase in DP or tubing pressure the programs requires to determine the plunger arrival.
Start Monitor	Sets the amount of time into the lifting stage before the program begins to monitor the DP or tubing pressure for the arrival detection.

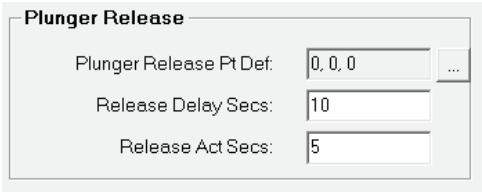
Field	Description
Delay Presets Secs	Sets the delay time the program detects the arrival after the pressure reaches the DP or tubing pressure plus the **Kick Value**.

2. Proceed to *Section 3.2.3.4, PMWO Config – Plunger Config Tab (Plunger Release).*

3.2.3.4 PMWO Config – Plunger Config Tab (Plunger Release)

This section shows **only** when you enable the **Plunger Catcher Requires Release** from the **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.





1. Review the values in the following fields:

Field	Description
Plunger Release Pt Def	Defines the output for the plunger catcher release.
Release Delay Secs	Sets the delay timer after the well has shut-in before the program sends the signal to release the plunger.
Release Act Secs	Sets the duration of the on signal for the plunger release output before turning off.

2. Proceed to *Section 3.2.3.5, PMWO Config – Plunger Config Tab (Aborted Lift).*

3.2.3.5 PMWO Config – Plunger Config Tab (Aborted Lift)

This section shows **only** when you disable the **Venting** and **GAPL** options from the **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.

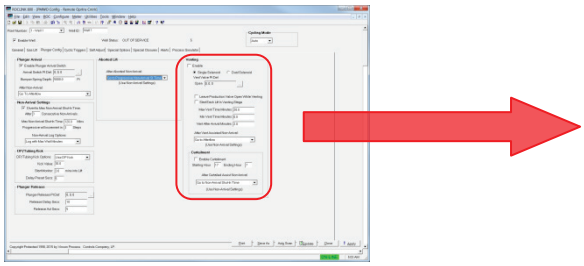
1. Review the values in the following fields:

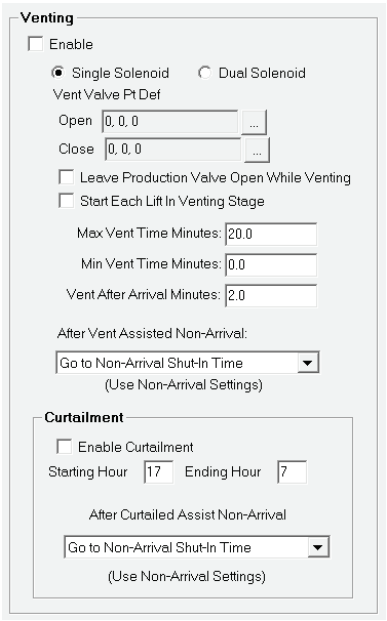
Field	Description
After Aborted Non-Arrival	Defines the action to take when the systems aborts the plunger lift. Click ▼ to select the non-arrival action you prefer. When you select **Go To Afterflow**, the well cycle leaves the lifting stage and moves to the afterflow stage. When you select **Go To Plunger Drop Time**, the well cycle skips the afterflow stage and advances to the unarmed shut-in stage. The **Preset in Effect** is equal to the **Plunger Drop Time**. When you select **Go To Non-Arrival SI Time**, the well cycle skips the afterflow stage and advances to the unarmed shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time**. When you select **Go To Progressive Non-Arrival SI Time** is selected, the well cycle skips the afterflow stage and advances to the unarmed shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time** divided by the **Progressive will increment in** value. This value continues to increment by the same amount until the system reaches the number of steps you define.

2. Proceed to *Section 3.2.3.6, PMWO Config – Plunger Config Tab (Venting)*

3.2.3.6 PMWO Config – Plunger Config Tab (Venting)

This section shows **only** when you select either **Conventional Plunger** or **Continuous Plunger** and you enable the **Venting** option from the **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.





1. Review the values in the following fields:

Field	Description
Enable	Enables venting of the well. When you disable this option, the program uses the aborted lift settings.
Single Solenoid	Sets the vent valve to use a single solenoid output.
Dual Solenoid	Sets the vent valve to use dual solenoids with separate open and close outputs.
Vent Valve Pt Def Open	Defines the vent valve open output.
Vent Valve Pt Def Close	Defines the vent valve close output. This field shows **only** when you select **Dual Solenoid**.
Leave Production Valve Open While Venting	Defines the behavior of the production valve while venting. When you enable this option, the production valve remains open during venting. When you disable this option, the production valve closes during venting.
Start Each Lift in Venting Stage	Enables venting at that start of each lift. When you enable this option, the vent valve opens when the well valve opens during the lifting stage. When you disable this option, the vent opens only when a venting trigger occurs during the Lifting stage.

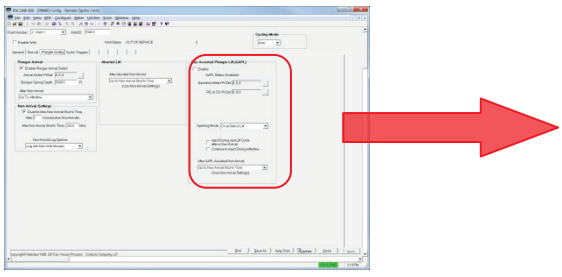
Field	Description
Max Vent Time Minutes	Sets the maximum time the well stays in venting while waiting for an arrival becomes non-arrival. **Note:** This timer only applies in the case of a non-arrival. If the plunger arrives shortly before the max vent time, the program continues to vent for the duration of the **Vent After Arrival Minutes**, even if this timer expires.
Min Vent Time Minutes	Sets the minimum time the well stays in venting. If the program detects a plunger arrival during this time, the well cycle remains in the venting stage until the system reaches this timer, before moving on to the Afterflow stage.
Vent After Arrival Minutes	Sets the amount of time for the well to remain in venting after the system detects a plunger arrival.
After Vent Assisted Non-Arrival	Defines the action to take when the plunger does not arrive during venting. Click to select the non-arrival action you prefer. When you select **Go To Afterflow**, the well cycle leaves the lifting stage and moves to the Afterflow stage. When you select **Go To Plunger Drop Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Plunger Drop Time**. When you select **Go To Non-Arrival SI Time**, the well cycle skips the Afterflow stage and advances to the Anarmed Shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time**. When you select **Go To Progressive Non-Arrival SI Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time** divided by the **Progressive will increment in** value. This value continues to increment by the same amount until the system reaches the number of steps you define.
Curtailment	
Enable Curtailment	Enables or disables a curtailment period for venting.
Starting Hour	Sets the starting hour where curtailment begins. As soon as the system reaches this time, the program does not enter the Venting stage until the system reaches the **Ending Hour** time.
Ending Hour	Sets the ending hour where curtailment ends. As soon as the system reaches this time, the program enters the Venting stage until the system reaches the **Starting Hour**.

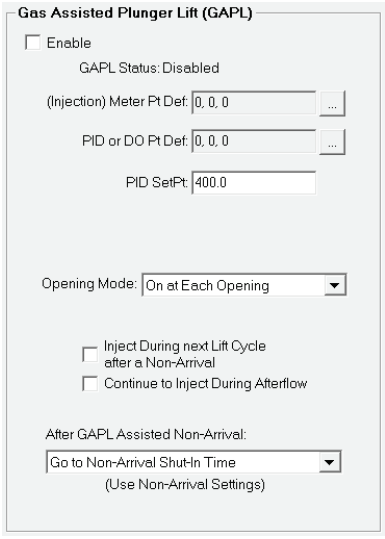
Field	Description
After Curtailed Assist Non-Arrival	Defines the action to take when the plunger does not arrive during curtailed venting. Click ▼ to select the non-arrival action you prefer. When you select **Go To Afterflow**, the well cycle leaves the lifting stage and moves to the Afterflow stage. When you select **Go To Plunger Drop Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Plunger Drop Time**. When you select **Go To Non-Arrival SI Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time**. When you select **Go To Progressive Non-Arrival SI Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time** divided by the **Progressive will increment in** value. This value continues to increment by the same amount until the systems reaches the number of steps you define.

2. Proceed to *Section 3.2.3.7, PMWO Config – Plunger Config Tab (Gas Plunger Lift).*

3.2.3.7 PMWO Config – Plunger Config Tab (Gas Assisted Plunger Lift (GAPL))

This section shows **only** when you select either **Conventional Plunger** or **Continuous Plunger** and you enable the **GAPL** option from the **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.





1. Review the values in the following fields:

Field	Description
Enable	Enables the Gas Assisted Plunger Lift (GAPL). When you disable this option, the program uses the aborted lift settings.
GAPL Status	Shows the current status of the GAPL: Disabled Well is Closed Now Open Opening Delayed Wait for V/G/A Waiting for Non-Arrival Off for Afterflow
(Injection) Meter Pt Def	Defines the injection meter.
PID or DO Pt Def	Defines the PID loop or output you use to control the opening and closing of the injection valve.
PID SetPt	Defines the current injection setpoint. This field shows **only** when you set the **PID or DO Pt Def** to a PID loop.
Opening Mode	Defines the opening mode for the injection valve. Click to select the mode you prefer. When you select **On at Start of Lift**, the injection valve also opens, when the production valve is open. When you select **Observe Delay Timer** the injection valve opens after the **Delay Timer Preset** expires. When you select **Observe V/G/A Triggers**, the injection valve opens only when a GAPL trigger occurs during the lifting stage.
Injection During next Lift Cycle after a Non-Arrival	Enables the injection of the next well cycle following a non-arrival. When you enable this option, the injection valve opens during the next lifting stage following a plunger non-arrival. When you disable this option, the injection valve does not open during the next lifting stage. This field shows **only** when you select **On at Start of Lift** or **Observer Delay Timer** as the **Opening Mode**.
Continue to Inject During Afterflow	Enables the injection during the Afterflow stage. When you enable this option, the program continues to inject with the vent valve open during the Afterflow stage following a non-arrival. When you disable this option, the program stops the injection and closes the vent valve during the Afterflow stage following a non-arrival.

Field	Description
After GAPL Assisted Non-Arrival	Defines the action to take when the plunger does not arrive during a GAPL lift. Click to select the non-arrival action you prefer. When you select **Go To Afterflow**, the well cycle leaves the lifting stage and moves to the Afterflow stage. When you select **Go To Plunger Drop Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Plunger Drop Time**. When you select **Go To Non-Arrival SI Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time**. When you select **Go To Progressive Non-Arrival SI Time**, the well cycle skips the Afterflow stage and advances to the Unarmed Shut-in stage. The **Preset in Effect** is equal to the **Max Non-Arrival Shut-In Time** divided by the **Progressive will increment in** value. This value continues to increment by the same amount until the system reaches the number of steps you define.

2. Proceed to *Section 3.2.4, PMWO Config – Cyclic Triggers Tab.*

3.2.4 PMWO Config – Cyclic TriggersTab

The Cyclic Triggers tab (which displays when you enable **Use Cycle Production** from the **Well Options** and select either **Continuous Plunger** or **Conventional Plunger** as **Cycle Type** in **General** tab) allows you to configure the trigger options of the plunger lift.

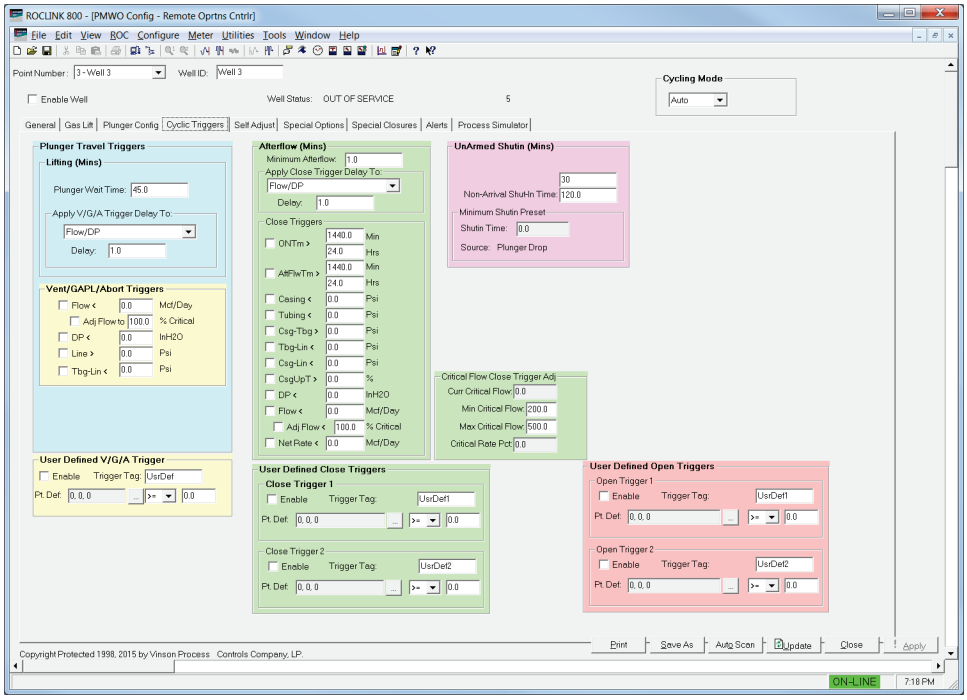
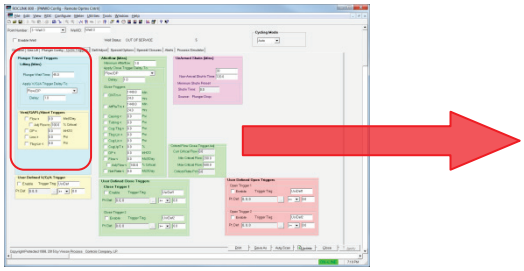
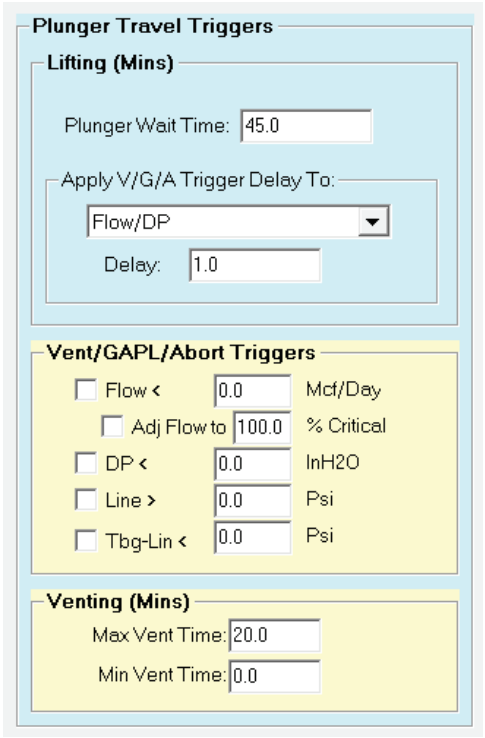


Figure 19. PMWO Continuous Config – Cyclic Triggers tab

3.2.4.1 PMWO Config – Cyclic Triggers Tab (Plunger Travel Triggers)





1. Review the values in the following fields:

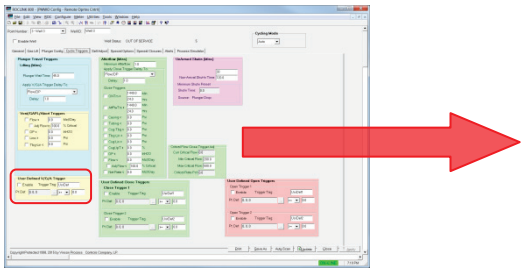
Field	Description
Lifting (Mins)	
Plunger Wait Time	Sets the maximum amount of time to wait for the plunger to arrive.
Apply V/G/A Trigger Delay To	Allows you to select the type of triggers to apply to the V/G/A Trigger Delay. If you select **Flow/DP**, the Flow trigger and the DP trigger apply to the V/G/A Trigger Delay. If you select **Flow/DP and Pressures**, the Flow trigger, the DP trigger, the Line trigger, and the Tbg-Lin trigger apply to the V/G/A Trigger Delay. If you select **Flow/DP and User-Def**, the Flow trigger, the DP trigger, and the UsrDef trigger apply to the V/G/A Trigger Delay. If you select **All Triggers**, the Flow trigger, the DP trigger, the Line trigger, the Tbg-Lin trigger, and the UsrDef trigger apply to the V/G/A Trigger Delay.
Delay	Sets the maximum amount of time to wait before the well changes the stage once this delay has been triggered. This value must be less than the **Plunger Wait Time**.

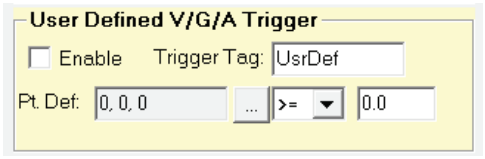
Vent/GAPL/Abort Triggers	
Flow <	The **Flow** trigger becomes true when the current flow value is less than or equal to the flow trigger value you set here. The **Flow** trigger becomes false when the current flow value is greater than flow trigger value you set here.
Adj Flow to [ ] % Critical	Updates the value of the flow trigger (above) to match a percentage of the critical flowrate. This shows **only** visible when you enable **Coleman-Turner Critical Flow Calculation** from **PMWO Config – General Tab (Well Options)**.
DP <	The **DP** trigger becomes true when the current differential pressure is less than or equal to the DP trigger value you set here. The **DP** trigger becomes false when the current differential pressure is greater than DP trigger value you set here.
Line >	The **Line** trigger becomes true when the current line pressure is greater than or equal to the line trigger value you set here. The **Line** trigger becomes false when the current line pressure is less than the line trigger value you set here.
Tbg-Lin <	The **Tbg-Lin** trigger becomes true when the current tubing pressure minus (-) the current line pressure is less than or equal to the **Tbg-Lin** value you define here. The **Tbg-Lin** trigger becomes false when the current tubing pressure minus (-) the current line pressure is greater than **Tbg-Lin** value you define here.
Venting (mins)	
Max Vent Time	Sets the maximum venting time
Min Vent Time	Sets the minimum venting time

2. Proceed to *Section 3.2.4.2, PMWO Config – Cycic Triggers Tab (User Defined V/G/A Trigger).*

3.2.4.2 PMWO Config – Cyclic Triggers Tab (User Defined V/G/A Trigger)

This field shows **only** when you enable **User-Defined Triggers** from **Cyclic Independent Options** in the **General Tab (Well Options)**.



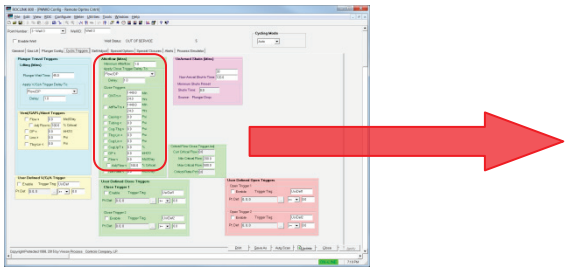


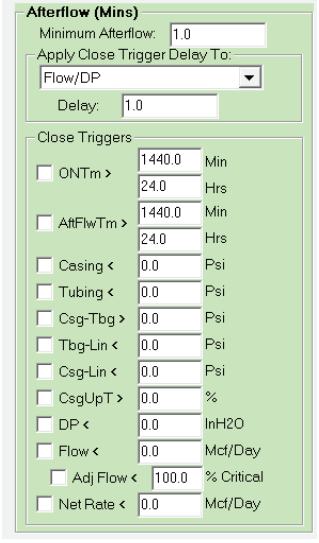
1. Review the values in the following fields:

Field	Description
Enable	Enables the Venting, GAPL, or Abort triggers you define in this field.
Trigger Tag	Sets a 7-character trigger name.
Pt. Def	Selects the TLP of the parameter you determine to cause the trigger. The trigger becomes true when the operator you select between the value you enter and the trigger you define make the comparison true.

2. Proceed to *Section 3.2.4.3, PMWO Config – Cycic Triggers Tab (Afterflow (Mins)).*

3.2.4.3 PMWO Config – Cyclic Triggers Tab (Afterflow (Mins))





1. Review the values in the following fields:

Field	Description
Minimum After Flow	Sets the minimum amount of time for the well to stay in the Afterflow stage before the **Close Trigger Delay** and any of the triggers in the **Close Triggers** field are able to execute. When the elapsed time for the **Minimum Afterflow** reaches the **Minimum Afterflow Preset Time**, the elapsed time stops counting and the program looks at the close triggers you enable in the **Close Triggers** field.
Apply Close Trigger Delay To	Selects the trigger type to delay close trigger evalulation when the program attempts to determine the best time to shut-in the well.
Delay	Sets the amount of time (in minutes) to delay before the program evaluates the associated close triggers.
Close Triggers **Note:** You use these triggers to enable the **Close Trigger Delay** and to move to the **Unarmed Shut-In** field. The selected triggers operate using the OR function.	
ONTm >	The **ON Time Min** updates to show the current ON Time of the well in minutes. This value starts incrementing right when the well starts the Lifting stage. The **ON Time Hrs** updates to show the current ON Time of the well in hours. This value starts incrementing right when the well starts the Lifting stage. The **ON Time** trigger becomes true when the ON Time in hours and minutes is greater than or equal to the ON Time Trigger values you set here. The **ON Time** trigger stays false when the ON Time in hours and minutes is less than the ON Time Trigger values you set here.
AftFlwTm >	The **Aftr Flw Min** updates to show the current Aftr Flw time of the well in minutes. This value starts incrementing right when the well starts the Afterflow stage. The **Aft Flw Hrs** updates to show the current Aft Flw time of the well in hours. This value starts incrementing right when the well starts the Afterflow stage. The **Aftr Flw** trigger becomes true when the **Aftr Flw** time in hours and minutes is greater than or equal to the Aftr Flow trigger values you define here. The **Aftr Flw** trigger stays false when the **Aftr Flw** time in hours and minutes is less than the Aftr Flw trigger values you set here.

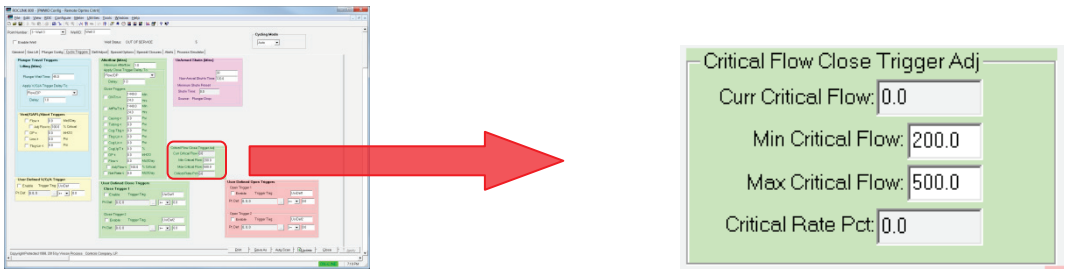
Field	Description
Casing <	The **Casing** trigger becomes true when the current casing pressure is less than or equal to the casing trigger value you set here. The **Casing** trigger becomes false when the current casing pressure is greater than the casing trigger value you set here.
Tubing <	The **Tubing** trigger becomes true when the current tubing pressure is less than or equal to the tubing trigger value you define here. The **Tubing** trigger becomes false when the current tubing pressure is greater than the tubing trigger value you set here.
Csg-Tbg >	The **Csg-Tbg** trigger becomes true when the current casing pressure minus (-) the current tubing pressure is greater than or equal to the **Csg-Tbg** trigger value you set here. The **Csg-Tbg** trigger becomes false when the current casing pressure minus (-) the current tubing pressure is less than the defined Csb-Tbg Trigger value.
Tbg-Lin <	The **Tbg-Lin** trigger becomes true when the current tubing pressure minus (-) the current line pressure is less than or equal to **Tbg-Lin** trigger value you set here. The **Tbg-Lin** trigger becomes false when the current tubing pressure minus (-) the current line pressure is greater than the **Tbg-Lin** trigger value you set here.
Csg-Lin <	The **Csg-Lin** trigger becomes true when the current casing pressure minus (-) the current line pressure is less than or equal to the **Csg-Lin** trigger value you set here. The **Csg-Lin** trigger becomes false when current the casing pressure minus (-) the current line pressure is greater than the **Csg-Lin** trigger value you set here.
CsgUpT >	This value only updates when the well is in the Afterflow stage. The **CsgUpT** trigger becomes true when the percent increase of the casing pressure in the Afterflow stage is greater than or equal to the **CsgUpT** trigger value you set here. The **CsgUpT** trigger becomes false when the percent increase of the casing pressure in the Afterflow stage is less than the **CsgUP%** trigger value you set here.

Field	Description
DP <	The **MeterDP** trigger becomes true when the meter differential pressure is less than or equal to the **MeterDP** trigger value you set here. The **MeterDP** trigger becomes false when the meter differential pressure is greater than the **MeterDP** trigger value you set here.
Flow <	The **Flow** trigger becomes true when the flow is less than or equal to the **Flow** trigger value you set here. The **Flow** trigger becomes false when the flow is greater than the **Flow** trigger value you set here.
Adj Flow <	Updates the value of the flow trigger (above) to match a percentage of the critical flowrate. This option shows **only** visible when you enable **Coleman-Turner Critical Flow Calculation** from **PMWO Config – General Tab (Well Options)**.
Net Rate <	The **Net Flow** trigger becomes true when the Net Flow is less than or equal to the **Net Flow** trigger value you set here. The **Net Flow** trigger becomes false when the Net Flow is greater than the **Net Flow** trigger value you set here.

2. Proceed to *Section 3.2.4.4, PMWO Config – Cycic Triggers Tab (Critical Flow Close Trigger Adj).*

3.2.4.4 PMWO Config – Cyclic Triggers Tab (Critical Flow Close Trigger Adj)

This option shows **only** visible when you enable **Coleman-Turner Critical Flow Calculation** from **PMWO Config – General Tab (Well Options)**.



1. Review the values in the following fields:

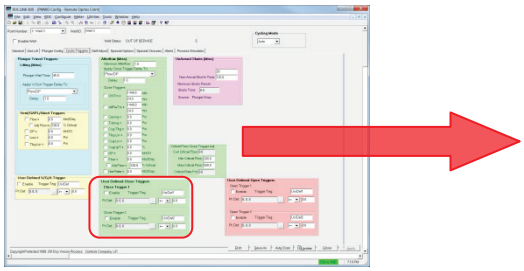
Field	Description
Curr Critical Flow	Displays the current critical flowrate.
Min Critical Flow	Sets the minimum critical flow for the close trigger to get active.
Max Critical Flow	Sets the maximum critical flow for the close trigger to get active.

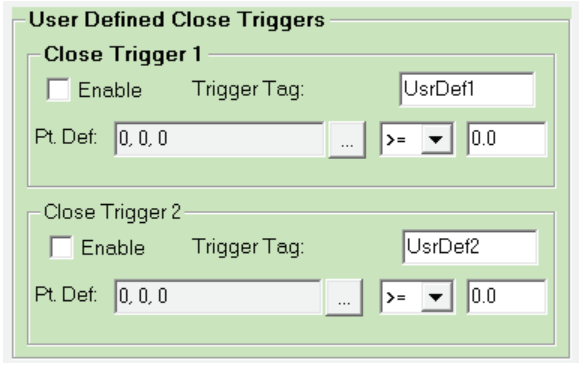
Field	Description
Critical Rate Pct	Displays the percent of comparison between the currnt flow rate and the critical flow rate. This field shows 100% if they are equal

2. Proceed to *Section 3.2.4.5, PMWO Config – Cycic Triggers Tab (User Defined Close Triggers).*

3.2.4.5 PMWO Config – Cyclic Triggers Tab (User Defined Close Triggers)

This field shows **only** when you enable **User-Defined Triggers** from **Cyclic Independent Options** in the **General Tab (Well Options)**.



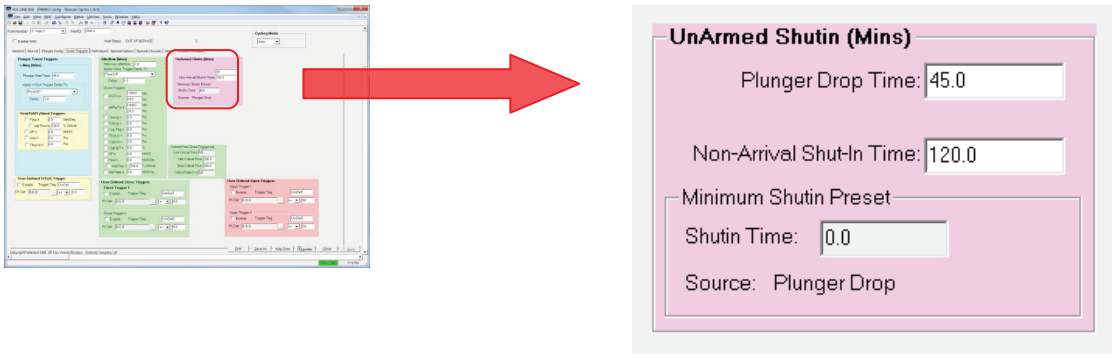


1. Review the values in the following fields:

Field	Description
Close Trigger 1	
Enable	Enables the **Close Trigger 1**.
Trigger Tag	Sets a 7-character name for **Close Trigger 1**.
Pt. Def	Selects the TLP of the parameter you use for the close trigger.
Close Trigger 2	
Enable	Enables the **Close Trigger 2**.
Trigger Tag	Sets a 7-character name for **Close Trigger 2**.
Pt. Def	Selects the TLP of the parameter you use for the close trigger.

2. Proceed to *Section 3.2.4.6, PMWO Config – Cycic Triggers Tab (UnArmed Shutin (Mins)).*

3.2.4.6 PMWO Config – Cyclic Triggers Tab (UnArmed Shutin (Mins))



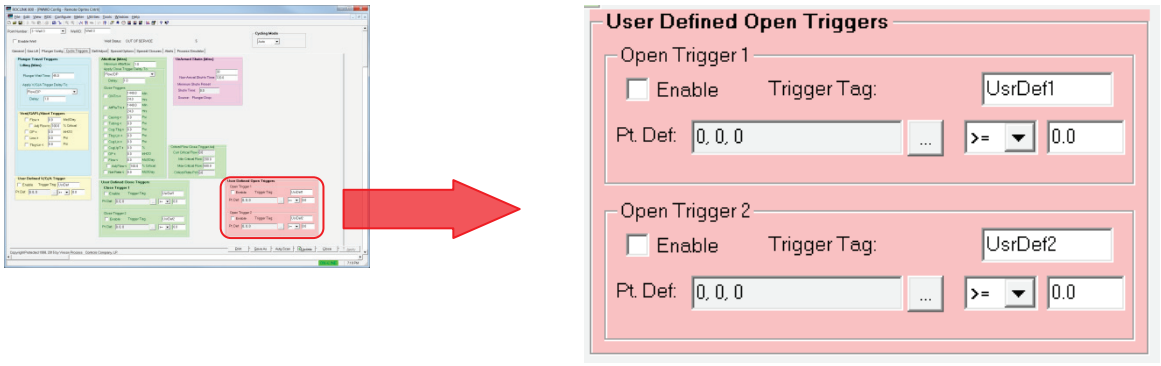
1. Review the values in the following fields:

Field	Description
Plunger Drop Time	Sets the amount of time in minutes for the plunger to drop to the bottom of the well.
Non-Arrival Shutin Time	Sets the amount of time in minutes for the well to stay in Shut-in after a non-arrival of the plunger occurs.
Minimum Shutin Preset	
Shutin Time	Shows the shut-in duration
Source	Displays the cause of the shutin.

2. Proceed to *Section 3.2.4.7, PMWO Config – Cyclic Triggers Tab (User Defined Close Triggers).*

3.2.4.7 PMWO Config – Cyclic Triggers Tab (User Defined Close Triggers)

This field shows **only** when you enable **User-Defined Triggers** from **Cyclic Independent Options** in the **General Tab (Well Options)**.



3. Review the values in the following fields:

Field	Description
Open Trigger 1	
Enable	Enables the **Open Trigger 1**.
Trigger Tag	Sets a 7-character name for **Open Trigger 1**.

Field	Description
Pt. Def	Selects the TLP of the parameter you use for the open trigger.
Open Trigger 2	
Enable	Enables the **Open Trigger 2**.
Trigger Tag	Sets a 7-character name for **Open Trigger 2**.
Pt. Def	Selects the TLP of the parameter you use for the open trigger.

4. Proceed to *Section 3.2.5, PMWO Config – Self Adjust Tab.*

3.2.5 PMWO Config – Self Adjust Tab

The Self Adjust tab (which displays when only you enable **Self-Adjustment of Trigger** from the **Cyclic Independent Options** in the **General tab (Well Options)**) allows you configure the self adjustment of the close and open triggers of the cyclic control.

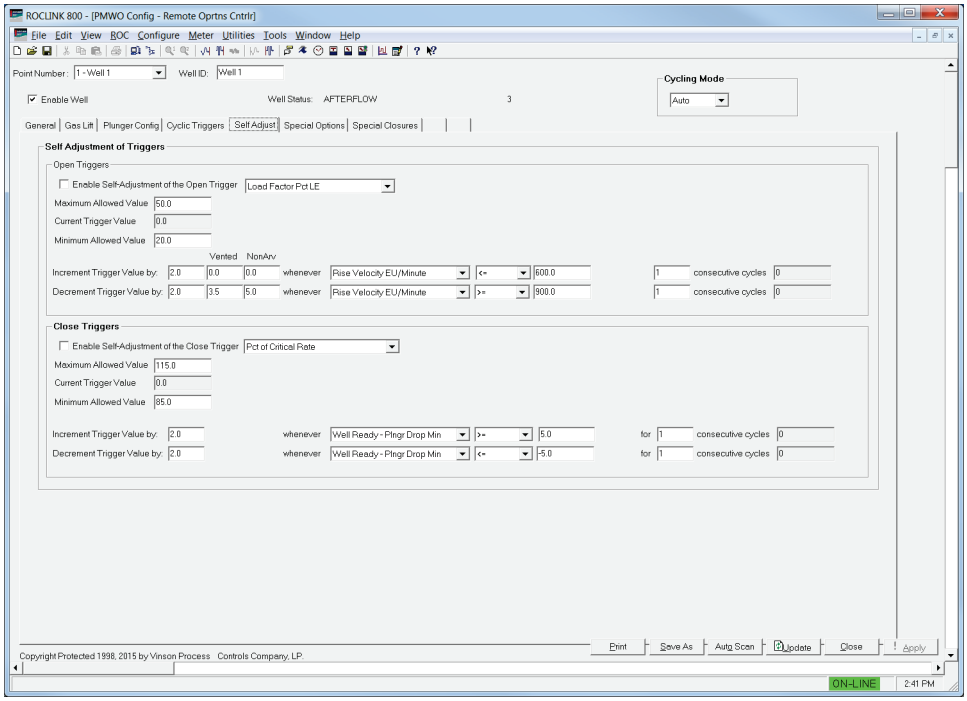
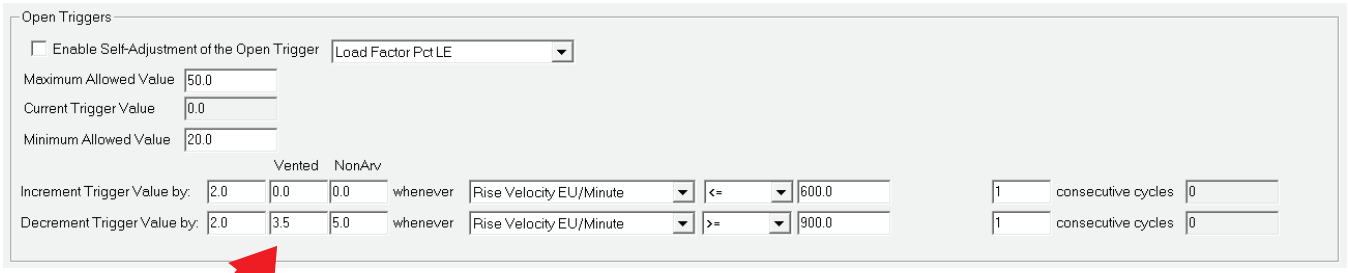
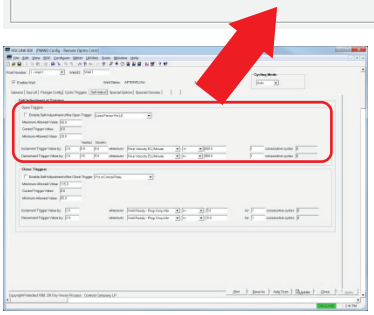


Figure 20. PMWO Config – Self Adjust tab

3.2.5.1 PMWO Config – Self Adjust Tab (Open Triggers)



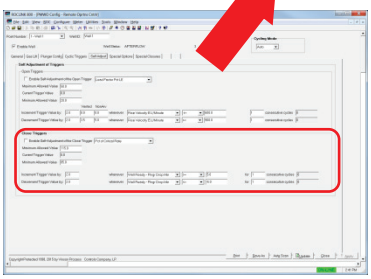


1. Review the values in the following fields:

Field	Description
Enable Sel-Adjustment of the Open Trigger	Enables the well to allow an adjustment of the open trigger you select. Click ▼ to select the open trigger you like to adjust.
Maximum Allowed Value	Sets the maximum value that the open trigger you select can reach.
Current Trigger Value	This **read-only** field updates to show the current value of the open trigger you select.
Minimum Allowed Value	Sets the maximum value that the open trigger you select can reach.
Increment Trigger Value by	Set the incremental value for the open trigger you select. The open trigger increases by this value when the condition to increment becomes true.
Decrement Trigger Value by	Set the decremental value for the open trigger you select. The open trigger decreases by this value when the condition to decrement becomes true.

2. Proceed to *Section 3.2.5.2, PMWO Config – Self Adjust Tab (Close Triggers).*

3.2.5.2 PMWO Config – Self Adjust Tab (Close Triggers)



1. Review the values in the following fields:

Field	Description
Enable Sel-Adjustment of the Open Trigger	Enables the well to allow an adjustment of the close trigger you select. Click ▼ to select the close trigger you like to adjust.
Maximum Allowed Value	Sets the maximum value that the close trigger you select can reach.
Current Trigger Value	This **read-only** field updates to show the current value of the close trigger you select.
Minimum Allowed Value	Sets the maximum value that the close trigger you select can reach.
Increment Trigger Value by	Set the incremental value for the close trigger you select. The close trigger increases by this value when the condition to increment becomes true.
Decrement Trigger Value by	Set the decremental value for the close trigger you select. The close trigger decreases by this value when the condition to decrement becomes true.

2. Proceed to *Section 3.2.6, PMWO Config – Special Options tab.*

3.2.6 PMWO Config – Special Options Tab

The Special Options tab (which displays only when you enable either **Equalize Tubing/Casing**, **Setpoints for Prod Value**, **Foss and Gaul**, **Pressure Build Up**, **Scheduled Events**, or **Soap Sticks** from the **General tab (Well Options)**) allows you enable and configure the Tubing or Casing Equalizer, Setpoints for Production Valves, Foss and Gaul – Load Factor Guidance, Pressure Buildup, Soap Sticks, and Scheduled Events.

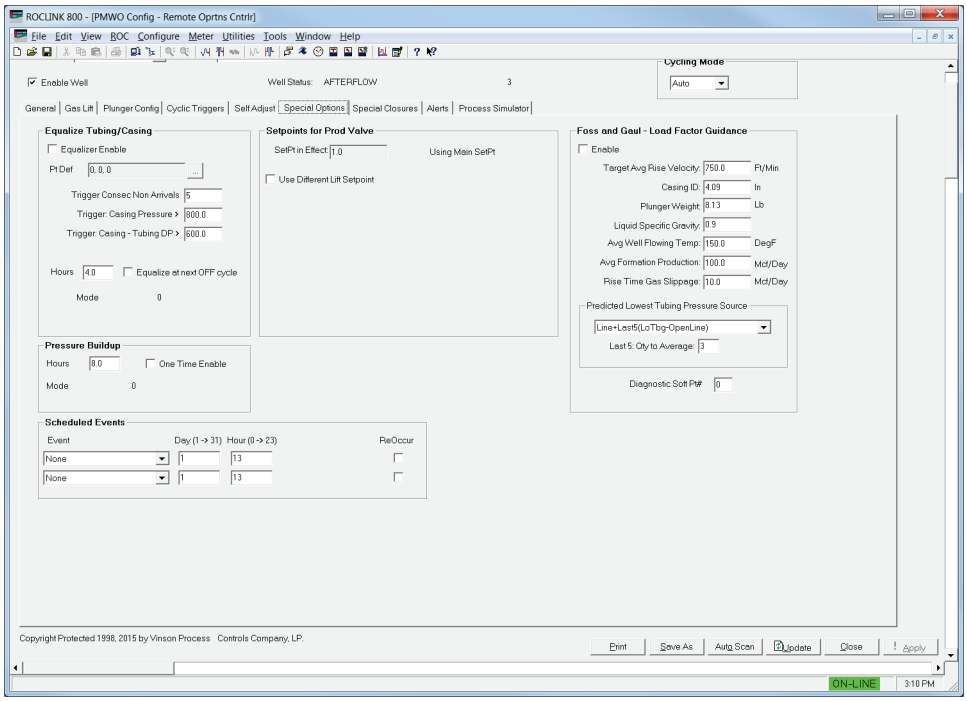
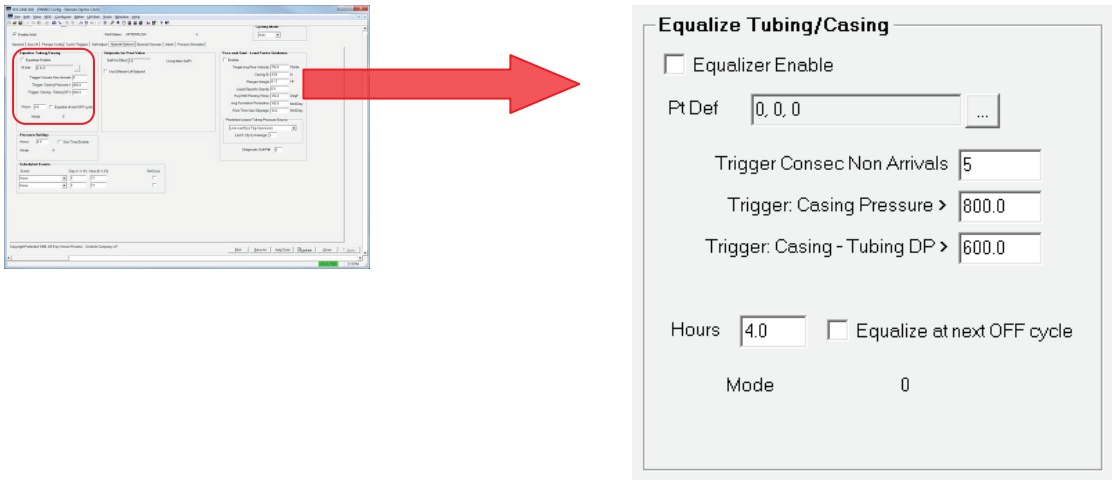


Figure 21. PMWO Config – Special Options tab

3.2.6.1 PMWO Config – Special Options Tab (Equalize Tubing/Casing)

This field displays only when you enable **Equalize Tubing_Casing** from the **Cyclic Independent Options** in the **General Tab (Well Options)**.



1. Review the values in the following fields:

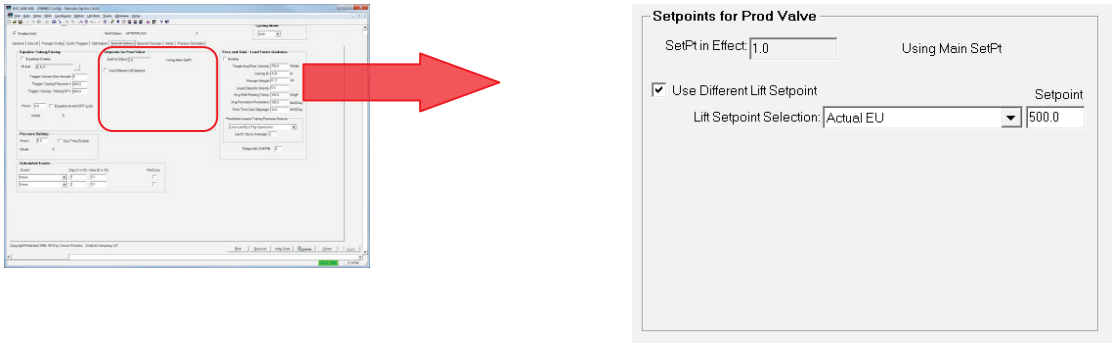
Field	Description
Equalizer Enable	Enables the three equalize triggers.
Pt Def	Defines the output that opens and closes the equalize valve.
Trigger Consec Non Arrivals	Sets the number of consecutive non-arrivals to trigger an equalization sequence.

Field	Description
Trigger: Casing Pressure >	Sets the value for the casing pressure to exceed in order to trigger an equalization sequence.
Trigger: Casing – Tubing DP	Sets the value for the difference between casing pressure and the tubing pressure to exceed in order to trigger an equalization sequence.
Hours	Sets the number of hours for the equalization valve to stay open when one of the triggers starts the equalization sequence.
Equalize at next OFF Cycle	Enable the equalization sequence for the next OFF cycle. Provides a method to initiate pressure equalization on demand.
Mode	Displays the current mode when an equalization routine is in progress. The modes are **Not In Equalize Mode** and **Currently Off for Equalize**.

2. Proceed to *Section 3.2.6.2, PMWO Config – Special Options Tab (Setpoints for Prod Valve).*

3.2.6.2 PMWO Config – Special Options Tab (Setpoints for Prod Valve)

This field displays only when you enable **Multiple Setpoints for Prod Valve** from the **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.



1. Review the values in the following fields:

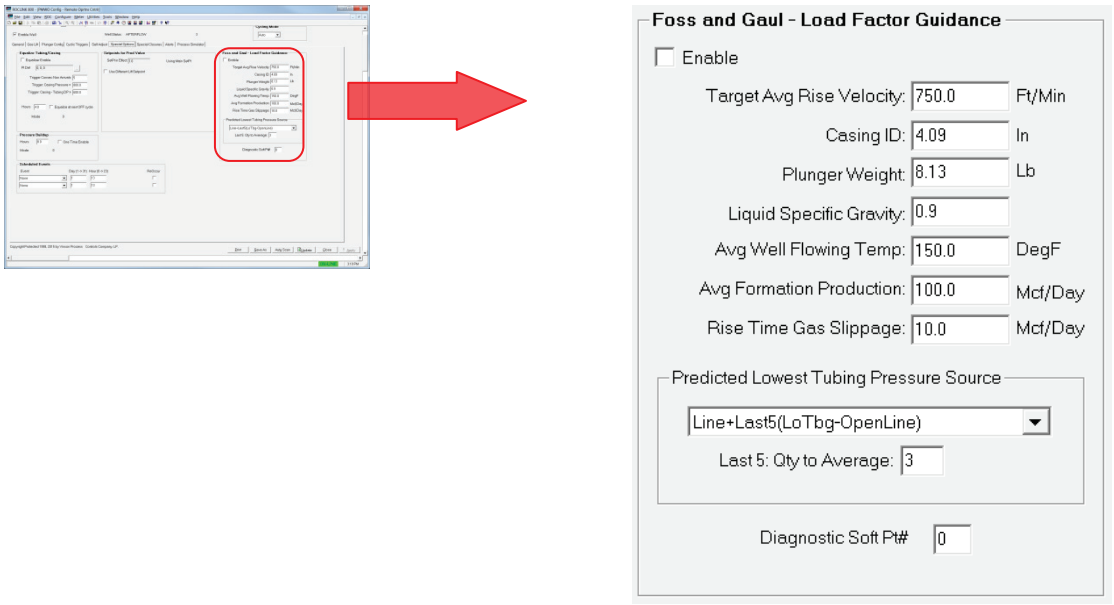
Field	Description
SetPt in Effect	Shows the current value of the setpoint in use.
Use Different Lift Setpoint	Enables a different prodiction valve setpoint when the plunger is lifting.
Lift Setpoint Selection	Provides options for the setpoint to use when the plunger is lifting. This section shows **only** when you enable **Use Different Lift Setpoint**.
Use Different Drop Setpoint	Enables a different production valve setpoint when the plunger is dropping.
Drop Setpoint Selection	Provides options for the setpoint to use when the plunger is dropping. This section shows **only** when you enable **Use Different Drop Setpoint**.

Field	Description
Drop Setpoint Duration Mode	Selects the drop setpoint duration mode. This section shows **only** when you enable **Use Different Drop Setpoint**.
UnAsst Arrivals to Avg (X)	Determines the number of unassisted arrivals the program use in the calculation of the duration. This section shows **only** when you enable **Use Different Drop Setpoint**.

2. Proceed to *Section 3.2.6.3, PMWO Config – Special Options Tab (Foss and Gaul – Load Factor Guidance).*

3.2.6.3 PMWO Config – Special Options Tab (Foss and Gaul – Load Factor Guidance)

This field displays only when you enable **Foss_Gaul Calculation** from the **Cyclic Types and Dependent Options** in the **General Tab (Well Options)**.



1. Review the values in the following fields:

Field	Description
Enable	Enables the **Foss and Gaul – Load Factor** calculation.
Target Avg Rise Velocity	Sets the average rise velocity. This is the main control point for the algorithm. The program generates the tubing, casing, and load factor values based on this target.
Casing ID	Sets the inner diameter of the casing.
Plunger Weight	Sets the weight of the plunger.
Liquid Specific Gravity	Sets the specific gravity (density) of the liquid coming from the well (water or liquid hydrocarbons or mix)

Field	Description
Avg Well Flowing Temp	Sets the average temperature of the flowing fluid.
Avg Formation Production	Sets the average production from the well.
Rise Time Gas Slippage	Sets the rise time gas slippage flowrate.
Predicted Lowest Tubing Pressure Source	Selects the source to determine the **Predicted Lowest Tubing Pressure**. **Note:** The accuracy of the algorithm depends on closely estimating the effective line pressure when the liquid slug arrives at the surface. This effective line pressure at liquid slug arrival is typically the lowest tubing pressure during the lifting stage, so it is very useful to capture this value.
Last 5: Qty to Average	Sets the quantity of values from the Last 5 for the program to average. The program writes the average to the **Predicted Lowest Tubing Pressure** register. **Note:** At the end of each lifting stage, the program records the lowest tubing pressure during lifting as the newest (top) values in the **Last 5**.

Field	Description
Diagnostic Soft Pt#	Sets the softpoint location for the Foos and Gaul diagnostic data listing. You enter a value between 0 and 32. If you enter a zero (0) value, then the program outputs no data is to the soft point. If you enter a value between 1 and 32, the program writes values from Data1 through Data14 in the designated soft point, as shown in the table below.

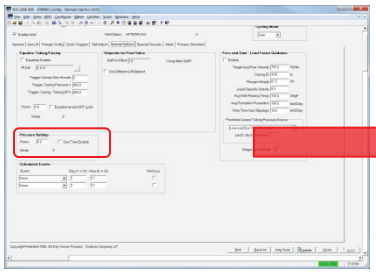
Foss & Gaul – Diagnostic Soft Point Data Listing

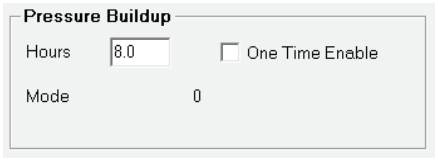
LOCATION	ITEM	DESCRIPTION
Data1	CPR	Casing Pressure Reduction Factor
Data2	Gas Friction	Gas Friction Factor
Data3	Liquid Friction	Liquid Friction Factor
Data4	K	Accounts for Flowing Gas Friction
Data5	Feet per BBL	Liquid, Feet per Barrel
Data6	PcW	Pressure for Fluid Column Weight
Data7	PcF	Pressure for Fluid Friction
Data8	BBL in Tbg	Barrels of Liquid in the Tubing
Data9	Pp	Pressure for Plunger Weight
Data10	PcMin	Required Casing Pressure at Fluid Surface Arrival
Data11	PcMax	Required Casing Pressure at Well Opening
Data12	PcMaxMod	Modified Required Casing Pressure at Well Opening
Data13	PtOpen	Calculated Tubing Pressure at Well Opening
Data14	LFOpen	Calculated Load Factor at Well Opening

2. Proceed to *Section 3.2.6.4, PMWO Config – Special Options Tab (Pressure Buildup).*

3.2.6.4 PMWO Config – Special Options Tab (Pressure B uildup)

This field displays only when you enable **One Time Pressure Build Up** from the **Cyclic Independent Options** in the **General Tab (Well Options)**.





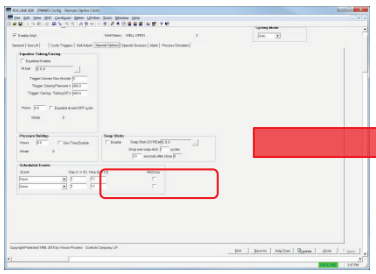
1. Review the values in the following fields:

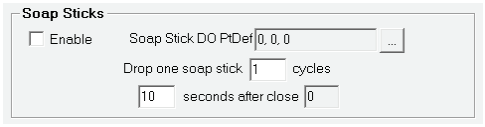
Field	Description
Hours	Sets the number of hours for the extended shutin to meet in order to allow the pressure buildup.
One Time Enable	Enables a one-time pressure buildup. This box un-checks after the shutin begins.
Mode	Displays the current mode of the routine. The mode messages are **Not in Buildup Mode** and **Currently Off for BuildUp**.

2. Proceed to *Section 3.2.6.5, PMWO Config – Special Options Tab (Soap Sticks).*

3.2.6.5 PMWO Config – Special Options Tab (Soap Sticks)

This field displays only when you enable **Soap Sticks** from the **Cyclic Types and Dependent Options** in the **General Tab (Well Options)**.





1. Review the values in the following fields:

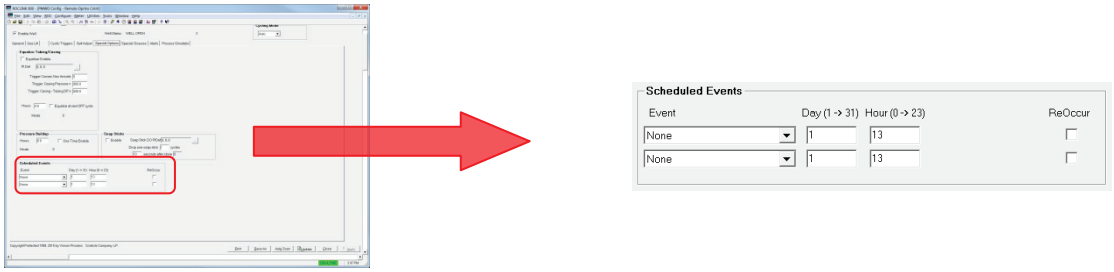
Field	Description
Enable	Enables the dropping of soap sticks when there is no plunger.
Soap Sticks DO PtDef	Defines the TLP of the discrete output you use to drop a soap stick.
Drop one soap stick	Sets the number of times the system drops the after a certain number of cycles. A value of **1** drops a stick every shutin; a value of **3** drops a stick every third shutin and so on.

Field	Description
Seconds after close	Sets the delay timer in seconds for the sales valve to completely close before the system drops the stick. The delay must include few extra seconds as a safety factor to allow the valve to close.

2. Proceed to *Section 3.2.6.6, PMWO Config – Special Options Tab (Schedules Events).*

3.2.6.6 PMWO Config – Special Options Tab (Scheduled Events)

This field displays only when you enable **Schedules Event** from **General tab (Well Options)**.



1. Review the values in the following fields:

Field	Description
Event	Select the event you wish to occur at the scheduled date.
Day (1 → 31)	Sets the day the event occurs ON.
Hour (0 → 23)	Sets the hour the event occurs.
ReOccur	Select if you want this event to reoccur every month on the specified day and hour. If you do not select this checkbox, the event clears once completed.

2. Proceed to *Section 3.2.7, PMWO Config – Special Special Closures tab.*

3.2.7 PMWO Config – Special Closures Tab

The Special Closures tab (which displays when you enable either the **Line Pressure Overrides**, the **Health Check Watchdog**, or the **Nominations** from **Well Options** in the **General** tab) allows you to configure Line Pressure Overrides, Health Check Watch Dog, Swabbing, and Nomination Control**.**

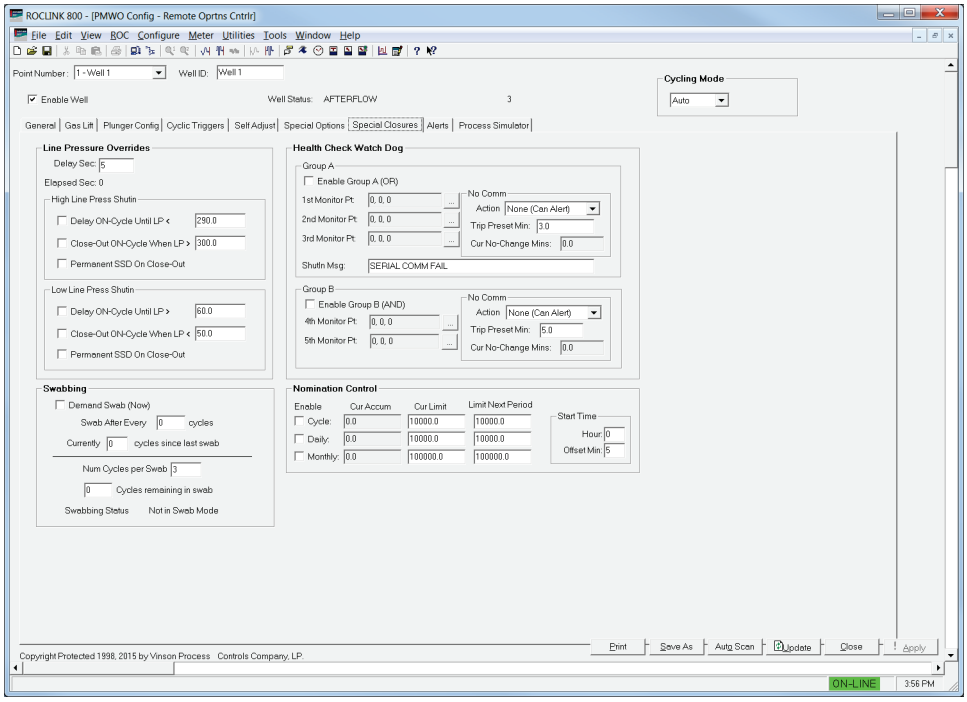
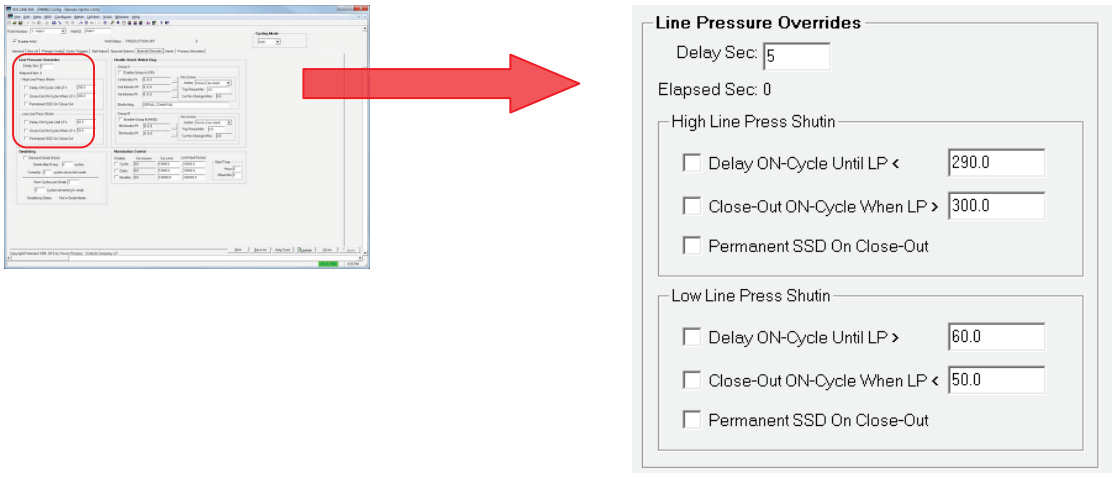


Figure 22. PMWO Config – Special Closures tab

3.2.7.1 PMWO Config – Special Closures Tab (Line Pressure Overrides)

This field displays only when you enable **Line Pressure Overrides** from **Well Options** in the **General** tab



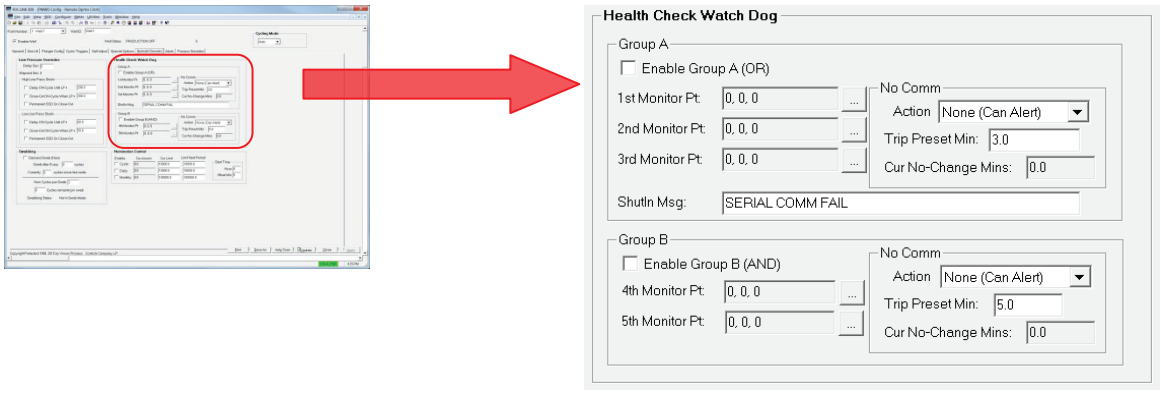
1. Review the values in the following fields:

Field	Description
Delay Sec	Sets the amount of time for the line pressure to exceed or fall below the Shutin values in order for one of the Shutins to occur. When the system reaches the delay, the Shutin occurs.
Elapsed Sec	Shows the number of seconds the line pressure exceeds or falls behind the trigger values.
High Line Press Shutin	
Delay ON-Cycle Until LP <	Sets the value the Line Pressure must fall below to re-open the well when the well is under High Line Pressure delay. This acts as a deadband.
Close-Out ON-Cycle When LP >	Sets the value that the Line Pressure must exceed in order to go into a High Line Pressure delay.
Permanent SSD On Close-Out	Allows the well to go into permanent shutdown when you enable this option and the Line Pressure goes above the **Close-Out ON-Cycle** value. To disable the shutdown you must manually open the well and the Line Pressure must be below the **Delay ON-Cycle Until LP** value.
Low Line Press Shutin	
Delay ON-Cycle Until LP <	Sets the value the Line Pressure must exceed to re-open the well when the well is under Low Line Pressure Delay. This acts as a deadband.
Close-Out ON-Cycle When LP >	Sets the value the Line Pressure must fall below in order to go into a Low Line Pressure delay.
Permanent SSD On Close-Out	Allows the well to go into permanent shutdown when you enable this option and the Line Pressure goes below the **Close-Out ON-Cycle** value. To disable the shutdown you must manually open the well and the Line Pressure must be above the **Delay ON-Cycle Until LP** value.

2. Proceed to *Section 3.2.7.2, PMWO Config – Special Closures Tab (Health Check Watch Dog).*

3.2.7.2 PMWO Config – Special Closures Tab (Health Check Watch Dog)

This field displays only when you enable **Health Check Watchdog** from **Well Options** in the **General** tab



1. Review the values in the following fields:

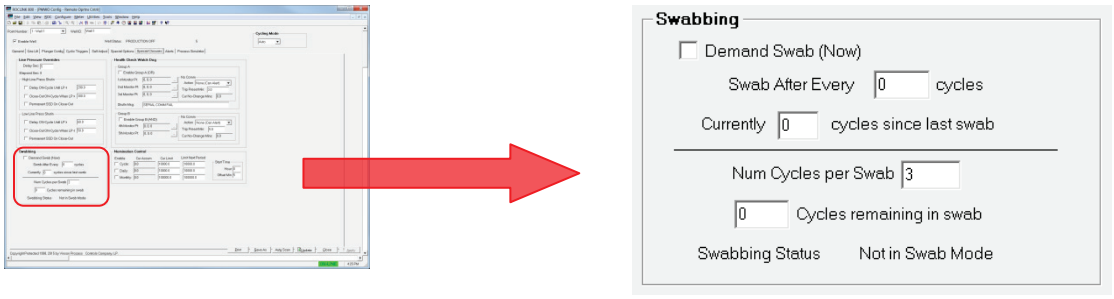
Field	Description
Group A	
Enable Group A (OR)	Enables the first, second, and third **Monitor Pts** that make up Group A (OR). These 3 monitors point operate using the OR function. This means that when any one of the **Monitor Pts** updates, the **Cur No-Change Mins** under the **No Comm** field resets to 0.0.
1st Monitor Pt	Selects the TLP of the first Monitor point.
2nd Monitor Pt	Selects the TLP of the second Monitor point.
3rd Monitor Pt	Selects the TLP of the third Monitor point.
No Comm – Action	Allows you to select which action should take place when the system reaches the **Trip Preset Min** time.
No Comm – Trip Preset Min	Sets the maximum amount of time to wait before an action takes place for a problem alert. When the **Cur No-Change Mins** reaches this value the alert action takes place.
No Comm – Cur No Change Mins	This value continues to update when none of the monitor points in Group A changes. When one of the monitor points changes, this value resets to 0.0.
Shutin Msg:	Writes the message to appear on the **Well Status** when you select the **Shutin Until Restored** option in **No Comm – Action**.

Group B	
Enable Group B (AND)	Enables the fourth and fifth **Monitor Pts** that make up Group B (AND). These 2 monitor points operate using AND function. This means that when both of the Monitor Pts update, the **Cur No-Change Mins** under the **No Comm** field resets to 0.0.
4th Monitor Pt	Selects the TLP of the fourth monitor point.
5th Monitor Pt	Selects the TLP of the fifth monitor point.
No Comm – Action	Allows you to select the action to take place when the system reaches the **Trip Preset Min** time under the **No Comm** field.
No Comm – Trip Preset Min	Sets the maximum amount of time to wait before an action takes place to alert the presence of a problem. When the **Cur No-Change Mins** reaches this value, the alert action takes place.
No Comm – Cur No Change Mins	This value continues to update when none or just one of the monitor points in Group B changes. When both of the monitor points in Group B change, this value resets to 0.0.

2. Proceed to *Section 3.2.7.3, PMWO Config – Special Closures Tab (Swabbing).*

3.2.7.3 PMWO Config – Special Closures Tab (Swabbing)

This field displays only when you enable **Swabbing** from **Cyclic Types and Dependent Options** in the **General tab (Well Options)**.



1. Review the values in the following fields:

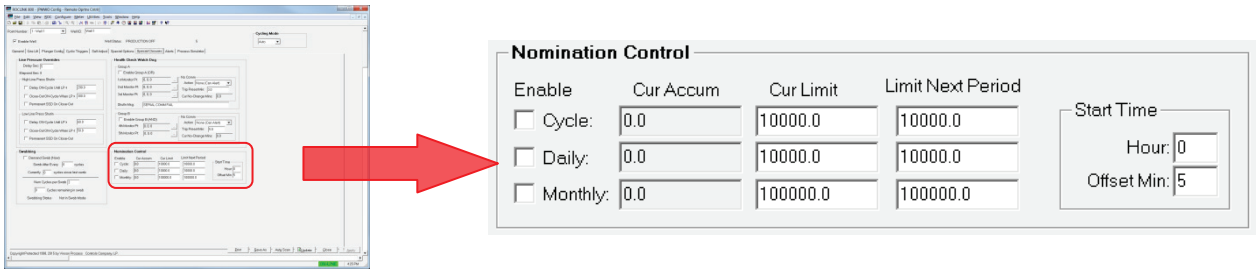
Field	Description
Demand Swab (Now)	Enables swabbing after the next plunger arrival.
Swab After Every [ ] cycles	Sets the number of cycles to schedule swabbing on a periodic basis. The well runs normally for the number of cycles you enter here then conducts the swab routine (no Afterflow) for a certain number of cycles, then continuously repeat the process.
Currently [ ] cycles since last swab	Displays the number of cycles since the occurrence of the last swab.

Field	Description
Number of Cycles per Swab	Sets the number of consecutive plunger arrivals to make a complete swab.
[ ] Cycles remaining in Swab	Displays the number of arrivals in the current swab.
Swabbing Status	Shows the swabbing status.

2. Proceed to *Section 3.2.7.5, PMWO Config – Special Closures Tab (Nomination Control).*

3.2.7.4 PMWO Config – Special Closures Tab (Nomination Control)

This field displays only when you enable **Nominations** from **Well Options** in the **General** tab.



1. Review the values in the following fields:

Field	Description
Enable	Enables the cycle, daily, and monthly accumulation limits.
Cur Accum	Shows the current cycle, daily, and monthly accumulations.
Cur Limit	Sets the limit for the current cycle, daily, and monthly accumulations. When the system reaches this limit, the well is shutin until a new cycle, day, or month begins.
Limit Next Period	Sets the limit for the next cycle, daily, or monthly accumulation. The **Cur Limit** copies this limit once the system reaches the **Cur Limit**.
Start Time	
Hour	Sets the hour of the new day to reopen the well. This only occurs when the system stops the production the previous day or month due to nomination.
Offset Min	Sets the minute value for the start time.

2. Proceed to *Section 3.2.8, PMWO Config – Alerts tab.*

3.2.8 PMWO Config – Alerts Tab

The Alerts tab (which displays when you enable **Real-Time Values Alert** from **Well Options** or **Cycle Analysis Alerts** from **Cyclic Independent Options** in the **General** tab) allows you to set up real Time Value Alerts and Cycle Analysis Alerts.

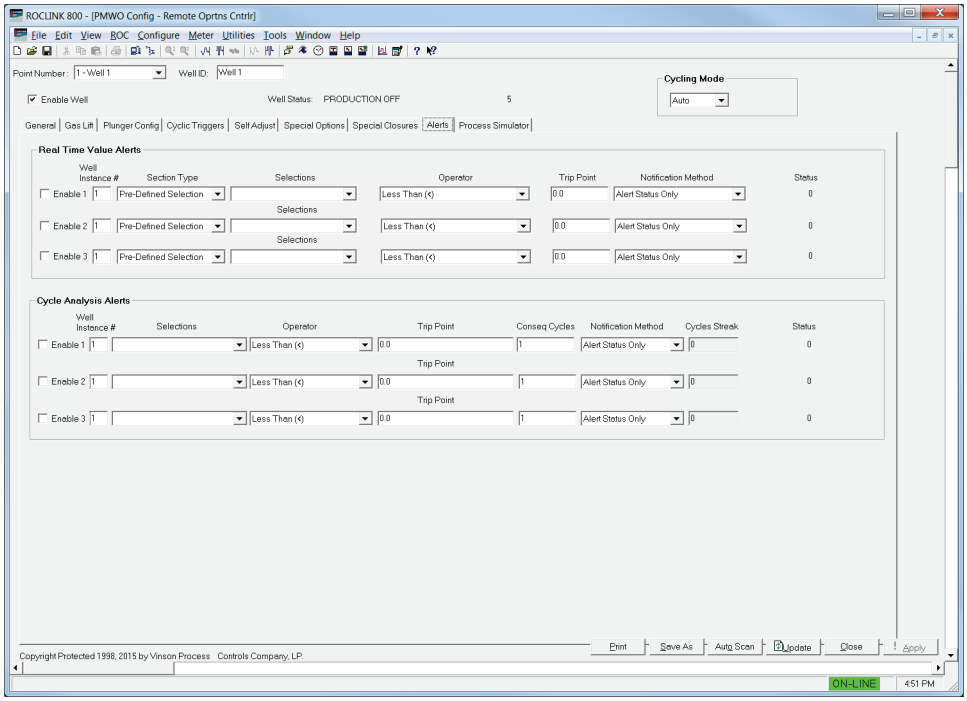
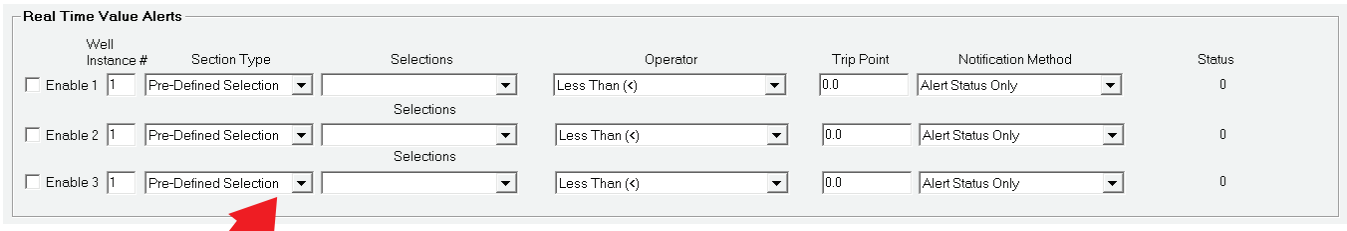
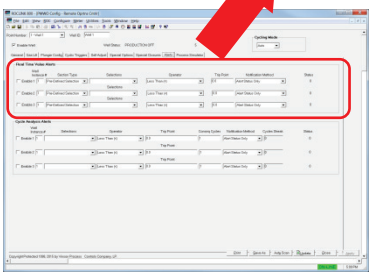


Figure 23. PMWO Config – Alerts tab

3.2.8.1 PMWO Config – Alerts Tab (Real Time Value Alerts)



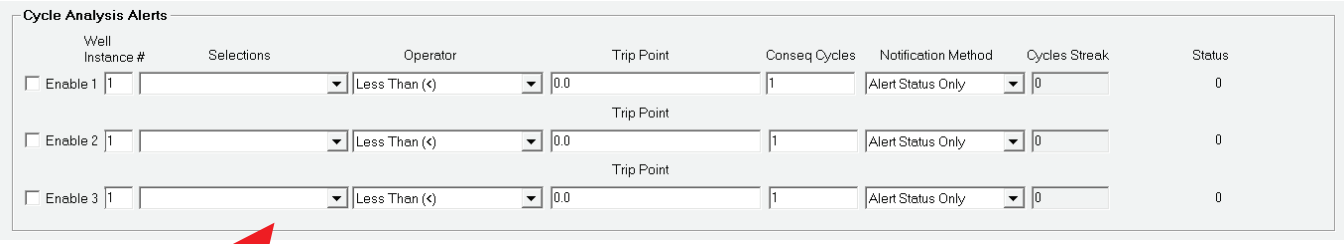


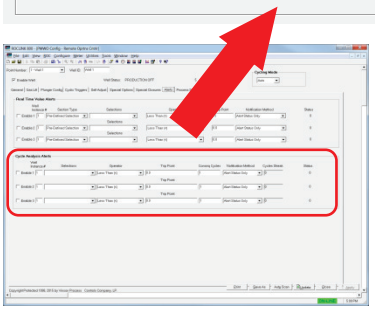
1. Review the values in the following fields:

Field	Description
Enable	Enables the alert.
Well Instance #	Sets the instance number of the well for the alert you configure.
Section Type	Sets the section type for the real time alert. Click to select the option you prefer.
Selections	Selects the option you prefer to monitor in comparison with the **Trip Point**. Click to select the option you prefer. This field shows **only** when you select **Pre-Defined Selection** as the **Section Type.**
TLP Input	Defines the input you prefer to monitor in comparison with the **Trip Point.** This field shows **only** when you select **Browseable TLP** as the **Section Type.**
Operator	Selects the operator you choose to compare the selection or TLP input to the trip point. Click to select the operator you prefer.
Trip Point	Defines the trip point for the alert.
Notification Method	Selects the notification you wish to receive when an alert occurs. Click to select the notification method you prefer.
Status	Shows the current status of the alert.

2. Proceed to *Section 3.2.8.2, PMWO Config – Alerts Tab (Cyclic Analysis Alerts).*

3.2.8.2 PMWO Config – Alerts Tab (Cycle Analysis Alerts)





1. Review the values in the following fields:

Field	Description
Enable	Enables the alert.
Well Instance #	Sets the instance number of the well for the alert you configure.
Selections	Selects the option you prefer to monitor in comparison with the **Trip Point**. Click ▼ to select the option you prefer.
Operator	Selects the operator you choose to compare the selection or TLP input to the trip point. Click ▼ to select the operator you prefer.
Trip Point	Defines the trip point for the alert.
Conseq Cycles	Sets the number of consecutive streaks that the condition must be true for before causing the alert.
Notification Method	Select the notification you wish to receive when an alert occurs. Click ▼ to select the notification method you prefer.
Cycle Streak	Shows the current number of consecutive cycles for which the condition has been true.
Status	Shows the current status of the alert.

2. Proceed to *Section 3.2.9, PMWO Config – Process Simulator Tab.*

3.2.9 PMWO Config – Process Simulator Tab

The Process Simulator tab (which displays when you enable **Process Simulator** from the **Well Options** and you have configured a well optimization function) allows you to simulate the process.

Note: Emerson Process Management – Remote Automation Solutions and Vinson Process Controls reserve the Process Simulator tab for future use.

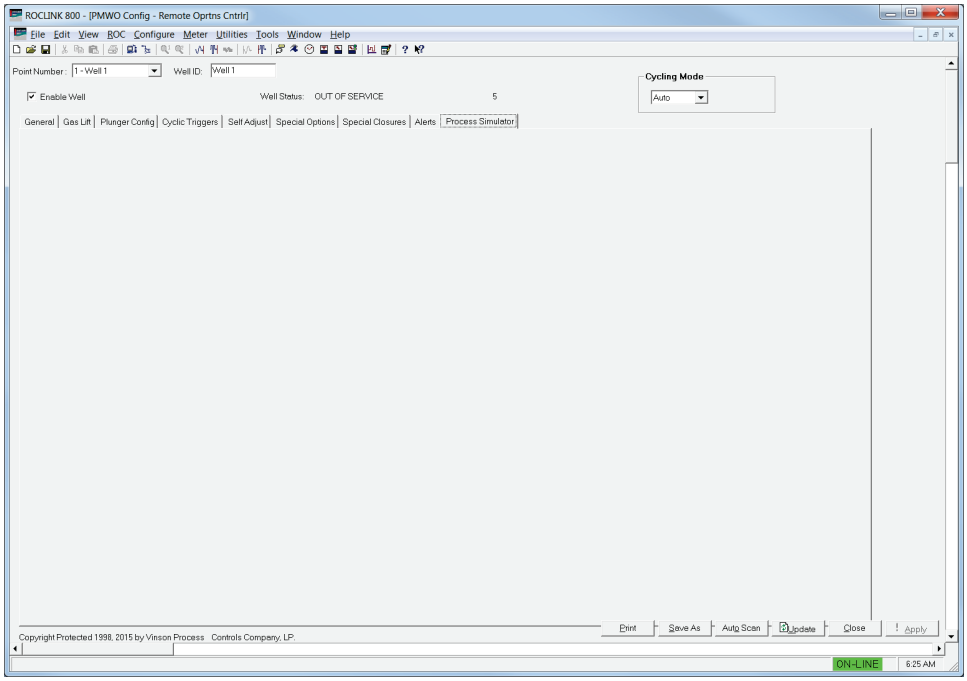


Figure 24. PMWO Config – Special Closures tab

3.3 PMWO Core Operate Screen

To access the PMWO Core Operate screens:

1. From the Directory Tree, select **User Program** > **PM Well Optimization** (for FB107) or **Program #1, PMWO_v402_04_12w** (for ROC800) in the ROCLINK configuration tree.

   Note: For the ROC800, the last 2 or 3 characters of the program filename represent the number of supported wells. The program name that appears in the directory tree depends on the version of your Well Optimization program. See *Section 1.3*, for more information.

2. Double-click **Display #81, PMWO Core Operate** (for FB107) or **Display #67, PMWO Core Operate** (for ROC800).

3. Double-click **#1, Well 1**.The Core Operate screen displays:

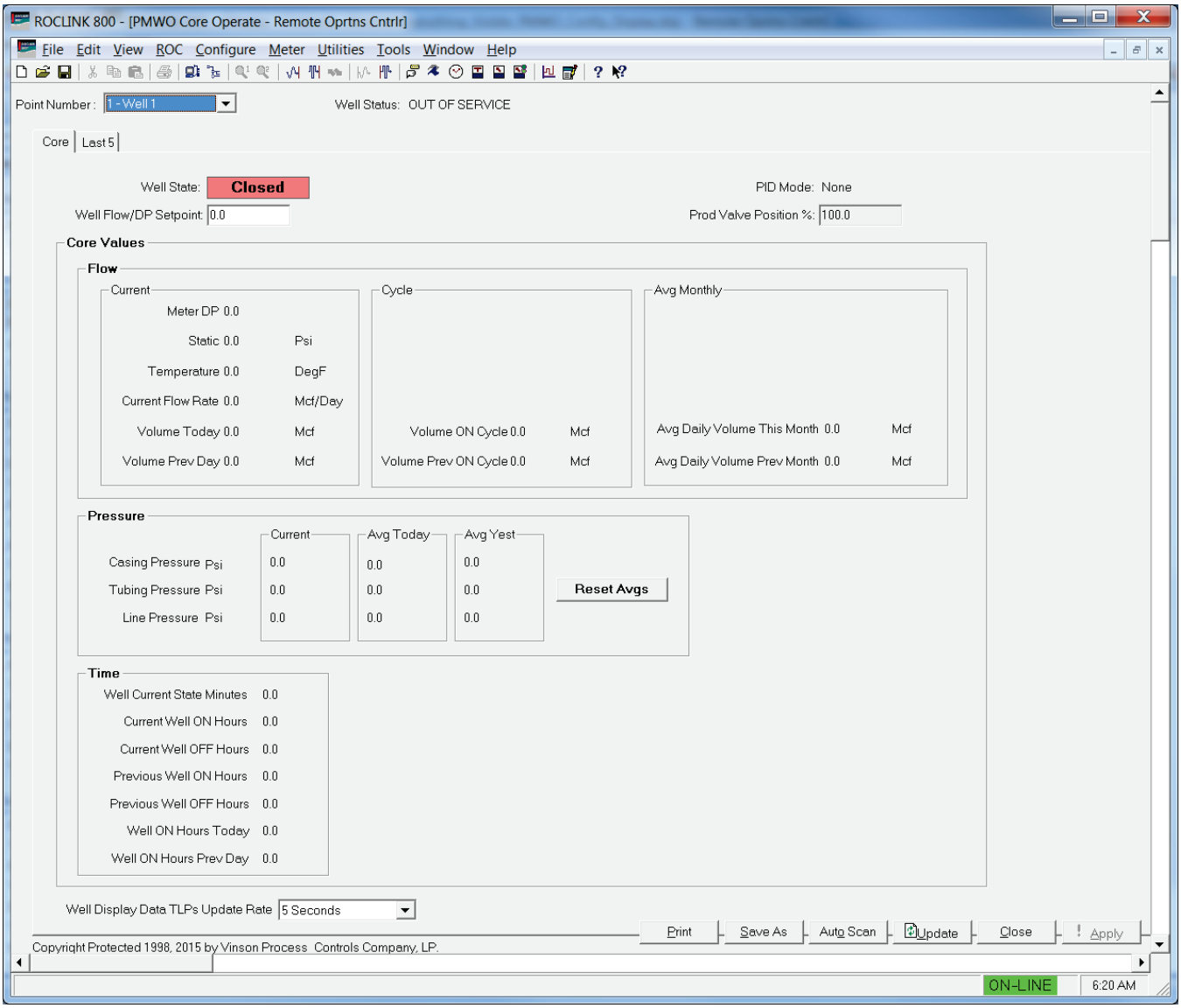


Figure 25. PMWO Core Operate screen

3.3.1 PMWO Core Operate– Core Tab Screen

Use this tab (which displays first when you open the PMWO Core Operate screen) to view the Well State and the Core Values of the Well Optimization program.

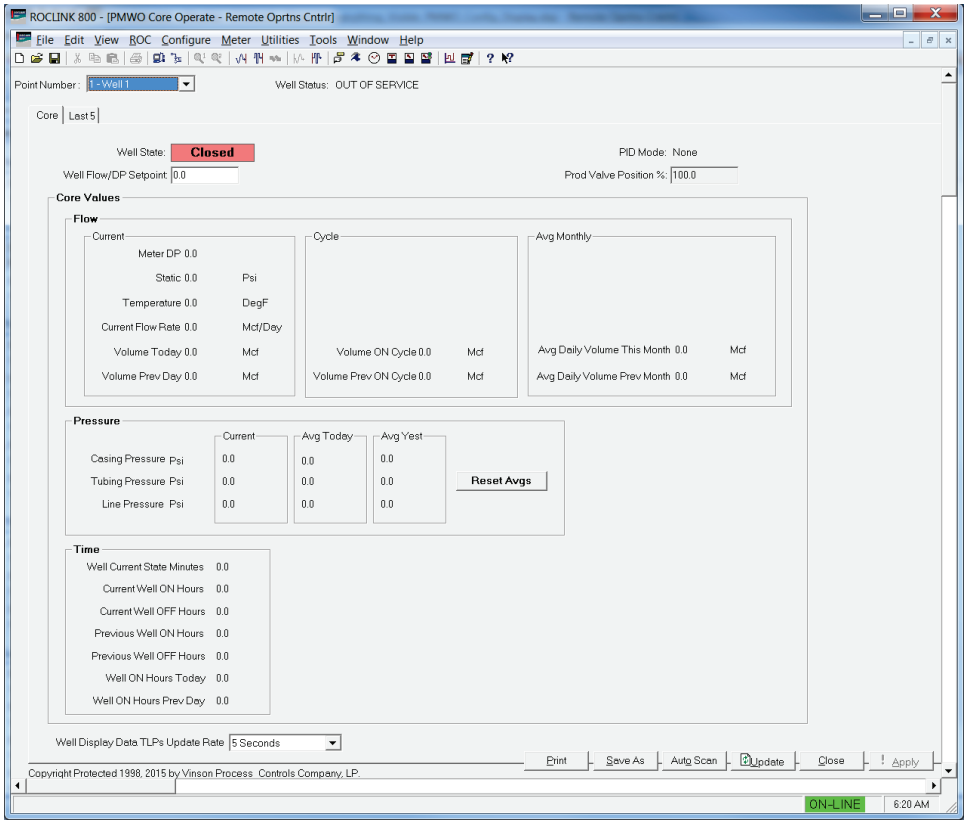


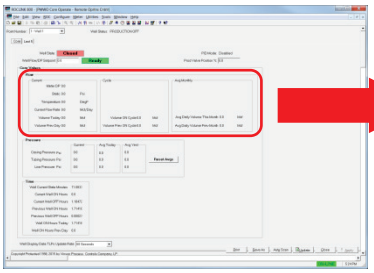
Figure 26. PMWO Core Operate – Core tab

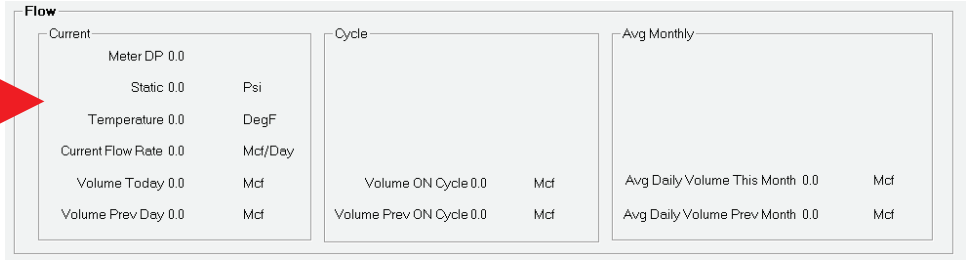
1. Review the values in the following fields:

Field	Description
Well State	Displays the current state of the well as **Open** or **Closed**.
Well Flow/DP Setpoint	Displays the current well flow setpoint.
PID Mode	Displays the current PID mode you define for the **Production Valve**.
Prod Value Position %	Displays the current percentage of the opening of the **Production Valve**.

2. Proceed to *Section 3.3.1.1, PMWO Core Operate – Core Tab (Core Values → Flow).*

3.3.1.1 PMWO Core Operate – Core Tab (Core Values → Flow)



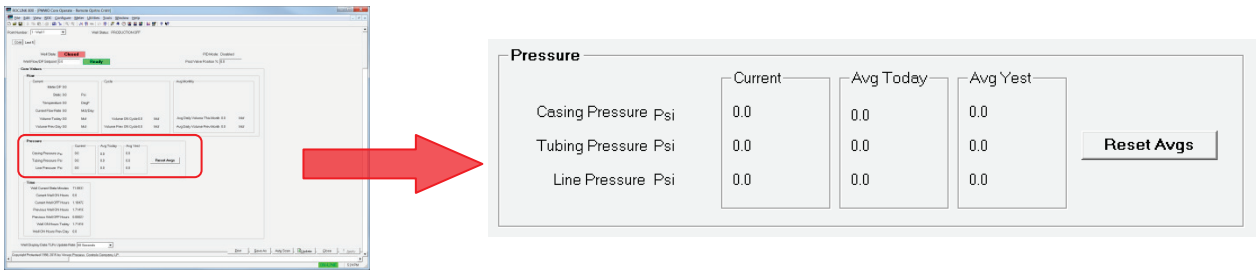


1. Review the values in the following fields:

Field	Description
Current	
Meter DP	Displays the current meter differential pressure.
Static	Displays the current meter static pressure.
Temperature	Displays the current meter temperature.
Current Flow Rate	Displays the current meter flow rate.
Volume Today	Displays the production volume of the current day.
Volume Prev Day	Displays the production volume of the previous day.
Cycle	
Volume ON Cycle	Displays the volume for the current cycle.
Volume Prev ON Cycle	Displays the volume for the previous cycle.
Avg Monthly	
Avg Daily Volume This Month	Displays the average daily volume for the current month.
Avg Daily Volume Prev Month	Displays the average daily volume for the previous month.

2. Proceed to *Section 3.2.1.2, PMWO Core Operate – Core Tab (Core Values → Pressure).*

3.3.1.2 PMWO Core Operate – Core Tab (Core Values → Pressure)

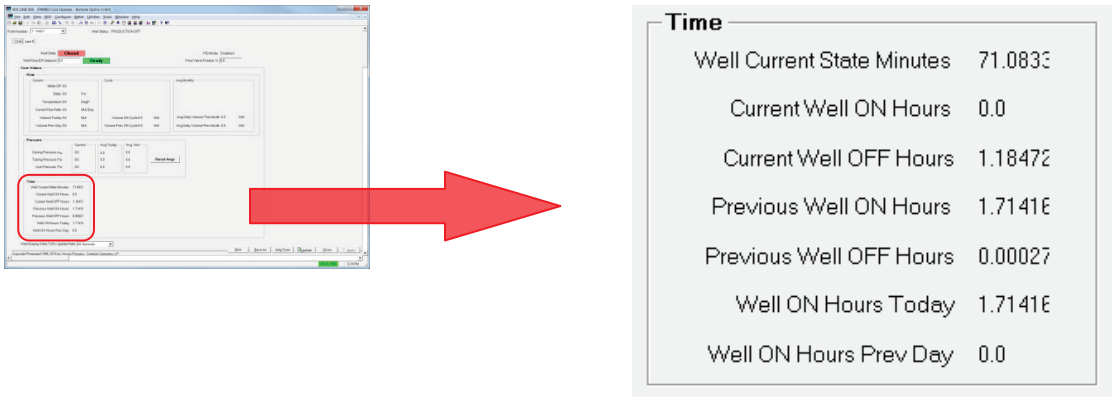


1. Review the values in the following fields:

Field	Description
Casing Pressure Psi	Displays the current casing pressure.
Tubing Pressure Psi	Displays the current tubing pressure.
Line Pressure Psi	Displays the current line pressure.
Reset Avgs	Clears out the average values.

2. Proceed to *Section 3.3.1.2, PMWO Core Operate – Core Tab (Core Values → Time).*

3.3.1.3 PMWO Core Operate – Core Tab (Core Values → Pressure)



1. Review the values in the following fields:

Field	Description
Well Current State Minutes	Displays the amount of time the well spends in either open or close.
Current Well ON Hours	Displays the amount of time the well stays open during the current cycle.
Current Well OFF Hour	Displays the amount of time the well then well stays close during the current cycle.
Previous Well ON Hours	Displays the amount of time the well stayed open during the previous cycle.
Previous Well OFF Hours	Displays the amount of time the well stayed close during the previous cycle.

Field	Description
Well ON Hours Today	Displays the amount of time the well stays open during the current day.
Well ON Hours Prev Day	Displays the amount of time the well stayed open the previous day.

2. Proceed to *Section 3.3.2, PMWO Core Operate – Last 5 Tab.*

3.3.2 PMWO Core Operate – Last 5 Tab Screen

The Lat 5 tab allows you to view the latest five events of your well.

To access the Last 5 screen:

1. Select the **Last 5** tab on the **PMWO Core Operate** screen. The Last 5 tab screen displays:

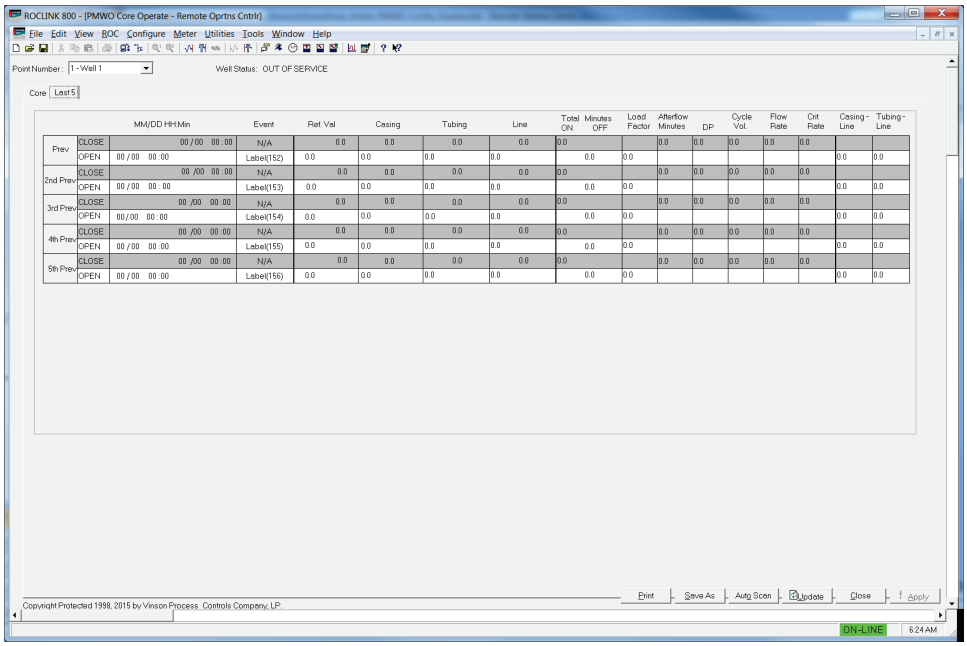


Figure 27. PMWO Core Operate – Core tab

1. Review the values in the following fields:

Field	Description
MM/DD HH:Min	Shows the month, day, hour, and minute of the last 5 logs.
Event	Displays the last 5 event log for the triggers that caused the opening or closing of the well.
Ref. Val	Displays the values of the trigger that caused the opening or closing of the well.
Casing	Displays the casing pressure for the last 5 cycles.
Tubing	Displays the tubing pressure for the last 5 cycles.
Line	Displays the line pressure lfor the last 5 cycles.

Field	Description
Total Minutes ON	Displays the total on minutes of the well for the last 5 cycles.
Total Minutes OFF	Displays the total off minutes of the well for the last 5 cycles.
Load Factor	Displays the current Load Factor Percentage of the well. This value shows **only** when the well is in the **Unarmed Shut-In** or **Armed Shut-In** stages. The Load Factor Percentage is calculated using the following formula: $\frac{\text{Casing Pressure (psig)} - \text{Tubing Pressure(psig)}}{\text{Casing Pressure (psig)} - \text{Sales Line Pressure (psig)}} X\ 100$
Afterflow Minutes	Displays the total minutes the cycle has been in the afterflow stage of the well cycle for the last 5 cycles.
DP	Displays the differential pressure for the last 5 cycles .
Cycle Volume	Displays the volume accumulated for the last 5 cycles.
Flow Rate	Displays the flow rate for the last 5 cycles.
Critical Rate	Displays the critical flow rate for the last 5 cycles.
Casing-Line	Displays the casing minus the line pressure for the last 5 cycles.
Tubing-Line	Displays the tubing minus the line pressure for the last 5 cycles.

2. Proceed to *Section 3.4, PMWO Gas Lift Operate Screen.*

3.4 PMWO Gas Lift Operate Screen

To access the PMWO Gas Lift Operate screens:

1. From the Directory Tree, select **User Program** > **PM Well Optimization** (for FB107) or **Program #1, PMWO_v402_04_12w** (for ROC800) in the ROCLINK configuration tree.

   Note: For the ROC800, the last 2 or 3 characters of the program filename represent the number of supported wells. The program name that appears in the directory tree depends on the version of your Well Optimization program. See *Section 1.3*, for more information.

2. Double-click **Display #82, PMWO Gas Lift Operate** (for FB107) or **Display #69, PMWO Gas Lift Operate** (for ROC800).

3. Double-click **#1, Well 1**. The Gas Lift Operate screen displays:

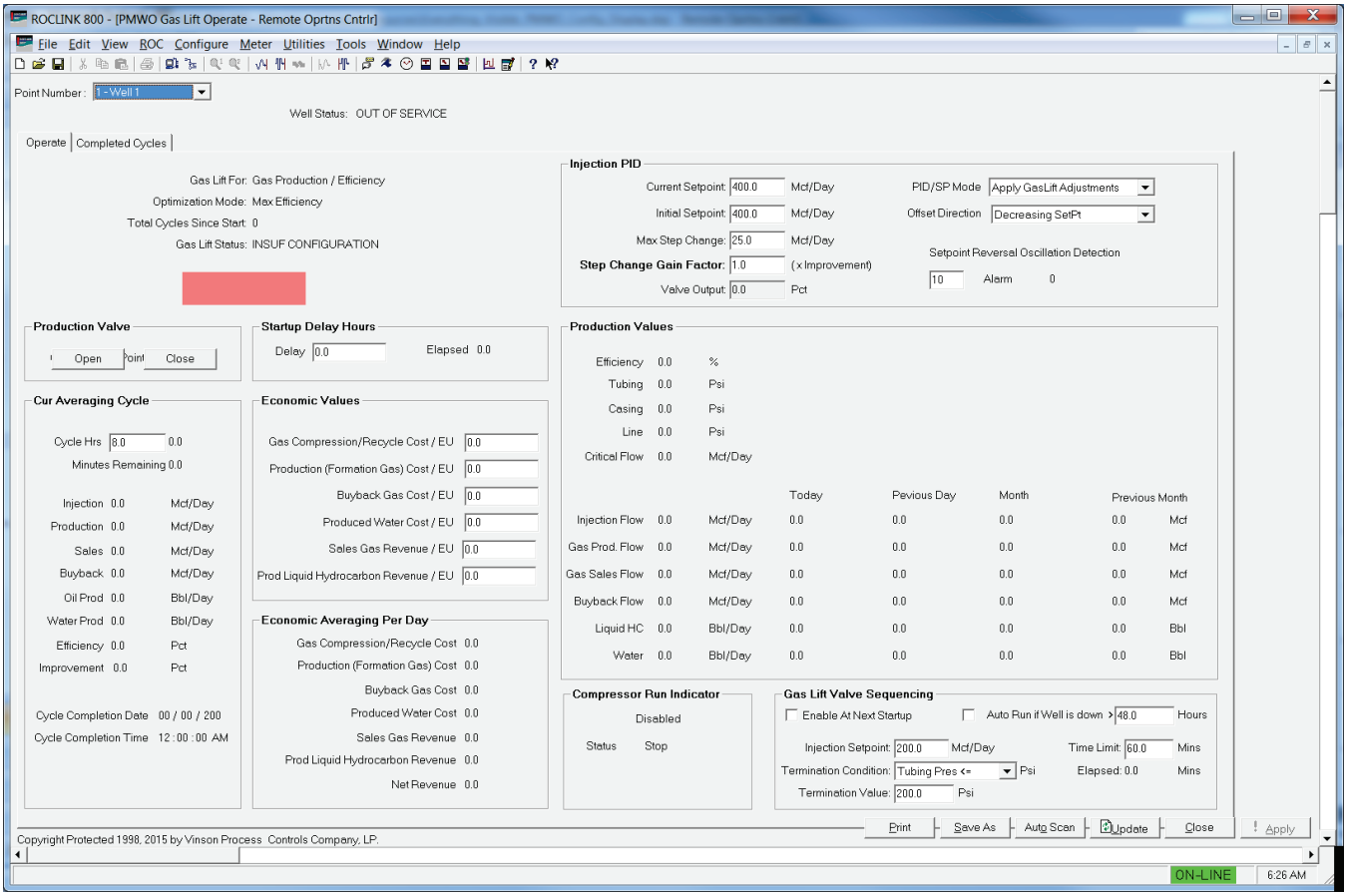


Figure 28. PMWO Gas Lift Operate screen

3.4.1 PMWO Gas Lift Operate– Operate Tab Screen

Use this tab (which displays first when you open the PMWO Gas Lift Operate screen) to view the Gas Lift Status and the Core Values of the Gas Lift function of the Well Optimization program.

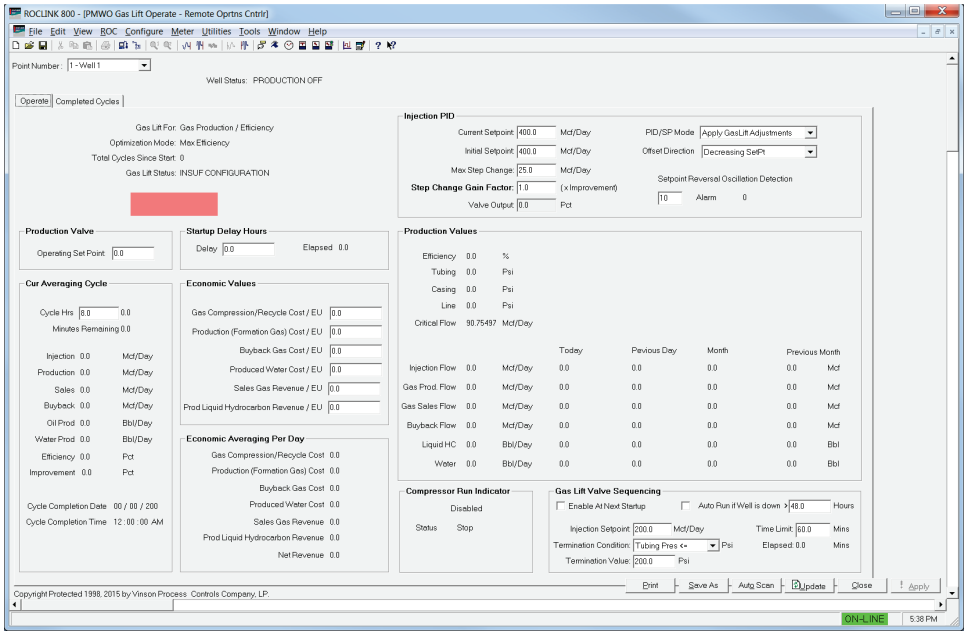


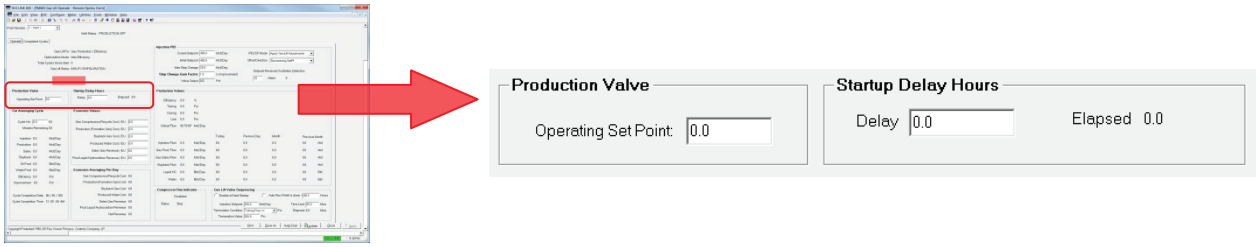
Figure 29. PMWO Gas Lift Operate – Operate tab

1. Review the values in the following fields:

Field	Description
Gas Lift For	Shows the gas lift mode to optimize for from the **PMWO Config – Gas Lift** tab.
Optimization Mode	Shows the optimization method selected from the **PMWO Config – Gas Lift** tab.
Total Cycles Since Start	Shows the total number of completed gas lift test averaging cycles since the last start.
Gas Lift Status	Shows the current status of the gas lift.

2. Proceed to *Section 3.4.1.1, PMWO Gas Lift Operate – Operate Tab (Production Valve & Startup Delay Hours).*

3.4.1.1 PMWO Gas Lift Operate – Operate Tab (Production Valve & Startup Delay Hours)

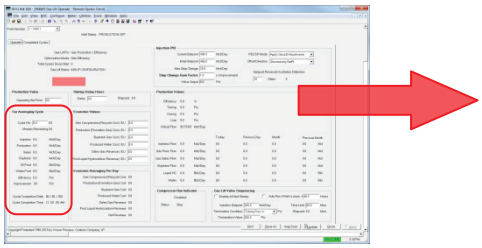


1. Review the values in the following fields:

Field	Description
Production Valve	
Operating Set Point	Sets the operating setpoint the program uses to control the opening of the production valve. This field shows **only** when you define a PID loop for the **Production Valve**.
Startup Delay Hours	
Delay	Sets the delay at the start up of the gas lift when run for the first time or upon restart. After the first averaging cycle, the program ignores the **Startup Delay (hours)** until the gas lift test averaging cycle has stop.
Elapsed	Shows the amount of the delay time that has elapsed.

2. Proceed to *Section 3.4.1.2, PMWO Gas Lift Operate – Operate Tab (Current Averaging Cycle).*

3.4.1.2 PMWO Gas Lift Operate – Operate Tab (Current Averaging Cycle)



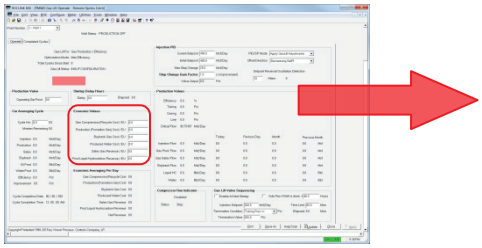
1. Review the values in the following fields:

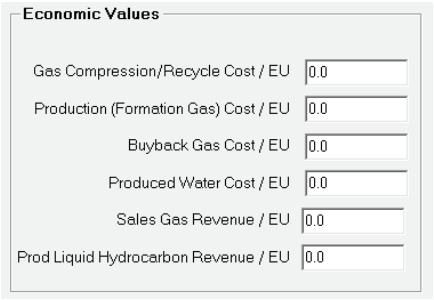
Field	Description
Cycle Hrs	Sets the duration, in hours, of the test averaging cycle.The program adjusts the injection setpoint at the end of each averaging period.
Minutes Remaining	Shows the amount of the time left for the current averaging cycle.
Injection	Shows the average flow rate of the injection meter.
Production	Shows the average flow rate of the gas production meter.
Sales	Shows the average flow rate of the sales meter.
Buyback	Shows the average flow rate of the buyback meter.
Oil Prod	Shows the average flow rate of the oil production meter.
Water Prod	Shows the average flow rate of the water production meter.
Efficiency	Shows the efficiency the program calculates. Efficiency = 1.0 - (Injection Flowrate / Production Flowrate)
Improvement	Shows the improvement of the current averaging cycle in comparison with the last averaging cycle, based on the gas lift optimization mode selected.

Field	Description
Cycle Completion Date	Shows the date of the current cycle.
Cycle Completion Time	Shows the time of the current cycle.

2. Proceed to *Section 3.4.1.3, PMWO Gas Lift Operate – Operate Tab (Economic Values).*

3.4.1.3 PMWO Gas Lift Operate – Operate Tab (Economic Values)





1. Review the values in the following fields:

Field	Description
Gas Compression/Recycle Cost / EU	Sets the cost to compress or recycle the production gas and optionally buyback gas you use to inject back into the well. When you do not utilize buyback gas or high pressure buyback gas, the Economic Averaging Per Day Gas Compression/Recycle Cost is equal to the Injection Flowrate * Compression/Recycle Cost/EU. When you use low pressure buyback gas, the Economic Averaging Per Day Gas Compression/Recycle Cost is equal to (Injection Flowrate + Buyback Gas Flowrate) * Compression/Recycle Cost/EU.
Production (Formation Gas) Cost / EU	Sets the cost for the production (formation) gas of the gas you use to inject back into the well. The Economic Averaging Per Day Production (Formation Gas) Cost = (Production Flowrate – Injection Flowrate) * Production (Formation Gas) Cost/EU.
Buyback Gas Cost / EU	Sets the cost for the buyback gas you inject into the well. The Economic Averaging Per Day Buyback Gas Cost = Buyback Gas Flowrate * Buyback Gas Cost/EU.
Produced Water Cost / EU	Sets the cost to dispose the water from the well. The Economic Averaging Per Day Produced Water Cost = Produced Water Flowrate * Produced Water Cost/EU.

Field	Description
Sales Gas Revenue / EU	Sets the sales gas revenue for the gas from the well. The Economic Averaging Per Day Sales Gas Revenue = Sales Gas Flowrate * Sales Gas Revenue/EU.
Prod Liquid Hydrocarbon Revenue / EU	Sets the liquid hydrocarbon revenue from well production. The Economic Averaging Per Day Prod Liquid Hydrocarbon Revenue = Prod Liquid Hydrocarbon Flowrate * Prod Liquid Hydrocarbon Revenue/EU.

2. Proceed to *Section 3.4.1.4, PMWO Gas Lift Operate – Operate Tab (Economic Averaging Per Day).*

3.4.1.4 PMWO Gas Lift Operate – Operate Tab (Economic Averaging Per Day)

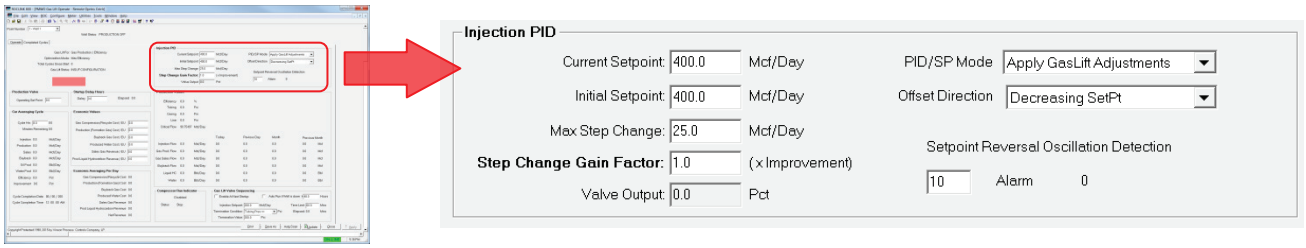
1. Review the values in the following fields:

Field	Description
Gas Compression/Recycle Cost	Shows the average cost per day for gas compression and recycling.
Production (Formation) Gas Cost	Shows the average cost per day for production gas.
Buyback Gas Cost	Shows the average cost per day for buyback gas.
Produced Water Cost	Shows the average cost per day for water produced.
Sales Gas Revenue	Shows the average revenue per day for sales gas.
Prod Liquid Hydrocarbon Revenue	Shows the average revenue per day for oil.

Field	Description
Net Revenue	Shows the net revenue the program calculates: Net Revenue = (Sales Gas Revenue + Prod Liquid Hydrocarbon Revenue) – (Gas Compression/Recycle Cost + Production (Formation Gas) Cost + Buyback Gas Cost + Produced Water Cost) **Note:** For Net Revenue, you may not use all of these options at a particular site. For any undefined production meters, the economic value is 0 in the calculation.

2. Proceed to *Section 3.4.1.5, PMWO Gas Lift Operate – Operate Tab (Injection PID).*

3.4.1.5 PMWO Gas Lift Operate – Operate Tab (Injection PID)



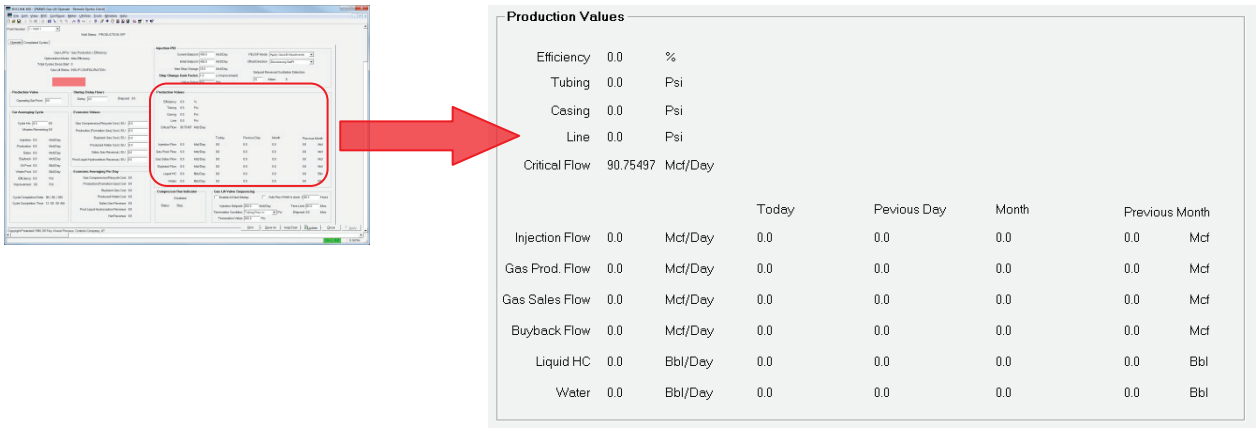
1. Review the values in the following fields:

Field	Description
Current Setpoint	Shows the current setpoint for the injection meter. The program modifies this setpoint based on the optimization mode you select and the results of the previous averaging cycle. You can enter manual value to change the injection setpoint. The change in the Current Injection Setpoint = Current Injection Setpoint + (Improvement * Offset Setpoint Gain).
Initial Setpoint	Defines the injection setpoint for the first gas lift averaging cycle. You can only use this value the first time you start the gas lift. When the **Action Upon Abort** in **Valve Closure/Abort Testing** is set to **Clear All – Use Initial SetPt**, the program uses the **Initial Injection Setpoint** any time the valve is closed or a test is aborted.
Max Step Change	Defines the maximum setpoint change the program allows based on the results of the averaging cycle.
Step Change Gain Factor	Defines the gain factor.
Valve Output	Shows the current open percentage of the valve.

Field	Description
PID/SP Mode	Selects the method the program uses to modify the setpoint. Click to select the modification method you prefer. The available options are: **Apply Gas Lift Adjustments**¸ **SetPt is Critical Rate + Pct**, **Fixed SetPt** and **Manual Output Pct**.
Offset Direction	Defines the movement direction of the setpoint based on the results of the averaging cycle. The program modifies this direction based on the averaging cycle results.
Setpoint Reversal Oscillation Detection	Defines the number of oscillations around the setpoint where the program reverses direction before an alarm is produced.

2. Proceed to *Section 3.4.1.6, PMWO Gas Lift Operate – Operate Tab (Production Values).*

3.4.1.6 PMWO Gas Lift Operate – Operate Tab (Production Values)

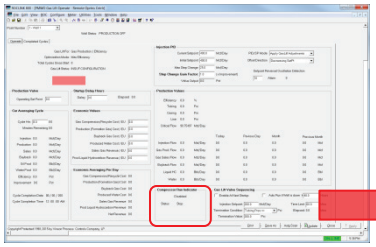


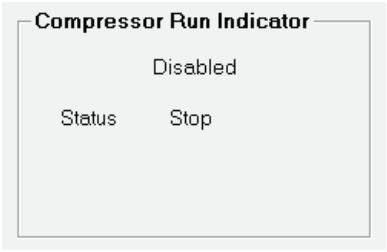
1. Review the values in the following fields:

Field	Description
Efficiency	Shows the current efficiency.
Tubing	Shows the current tubing pressure.
Casing	Shows the current casing pressure.
Line	Shows the current line pressure.
Critical Flow	Shows the current critical flow rate.
Injection Flow	Shows the current injection meter flow rate.
Gas Prod. Flow	Shows the current gas production meter flow rate.
Gas Sales Flow	Shows the current gas sales meter flow rate.
Buyback Flow	Shows the current buyback meter flow rate.
Liquid HC	Shows the current oil production meter flow rate.
Water	Shows the current water production meter flow rate.

2. Proceed to *Section 3.4.1.7, PMWO Gas Lift Operate – Operate Tab (Compressor Run Indicator).*

3.4.1.7 PMWO Gas Lift Operate – Operate Tab (Compressor Run Indicator)



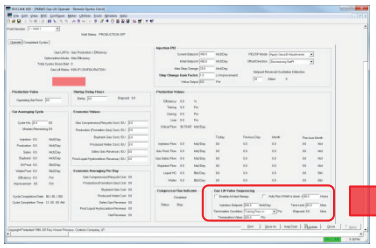


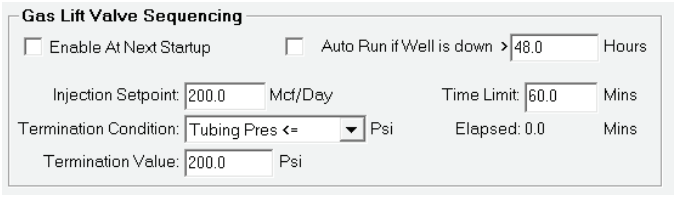
1. Review the values in the following fields:

Field	Description
Compressor Run Indicator	
Status	Shows the current status of the compressor.

2. Proceed to *Section 3.4.1.8, PMWO Gas Lift Operate – Operate Tab (Gas Lift Valve Sequencing).*

3.4.1.8 PMWO Gas Lift Operate – Operate Tab (Gas Lift Valve Sequencing)





1. Review the values in the following fields:

Field	Description
Enable At Next Startup	When you enable this option, the gas lift valve sequencing start-up routine runs on the next start up. This is a one-time selection. You need to enable this option again to run the valve sequencing routine on each additional start up.
Auto Run if Well is down >	When you enable this option, the valve sequencing routine runs when the well is down for the number of hours you specify. This is a permanent selection and runs every time the well is down for the specified amount of time.
Injection Setpoint	Overrides the current setpoint of the injection on startup until the program reaches the termination condition.

Field	Description
Termination Condition	Defines the termination condition that must occur before the valve sequencing routine ends and the control returns to the Injection PID loop. When you select **Tubing Pres <=**, the valve sequencing routine ends when the Tubing Pressure is less than or equal to the **Termination Value**. When you select **Casing** – **Tubing >=**, the valve sequencing routine ends when the casing pressure minus (–) tubing pressure is greater than or equal to the **Termination Value**. **Note:** The **Termination Condition** and **Time Limit** share an "OR" relationship and the sequence ends when the system meets either condition.
Termination Value	When the **Termination Condition** becomes true in comparison with the value you enter here, the valve sequencing ends.
Time Limit	Sets the maximum amount of time for the valve sequencing routine to run. When the system reaches this time limit, the routine ends. **Note:** The **Termination Condition** and **Time Limit** share an **OR** relationship. The sequence ends when the system meets either condition.
Elapsed	Shows the time the gas lift valve sequencing has been running.

2. Proceed to *Section 3.4.2, PMWO Gas Lift Operate – Completed Cycles Tab* .

3.4.2 PMWO Gas Lift Operate– Completed Cycle Tab Screen

The Completed Cycle tab allows you to view the previous and the last averaging cycles and each respective daily Economic Results.

To access the Completed Cycle screen:

1. Select the **Completed Cycle** tab on the **PMWO Gas Lift Operate** screen. The Completed Cycle tab screen displays:

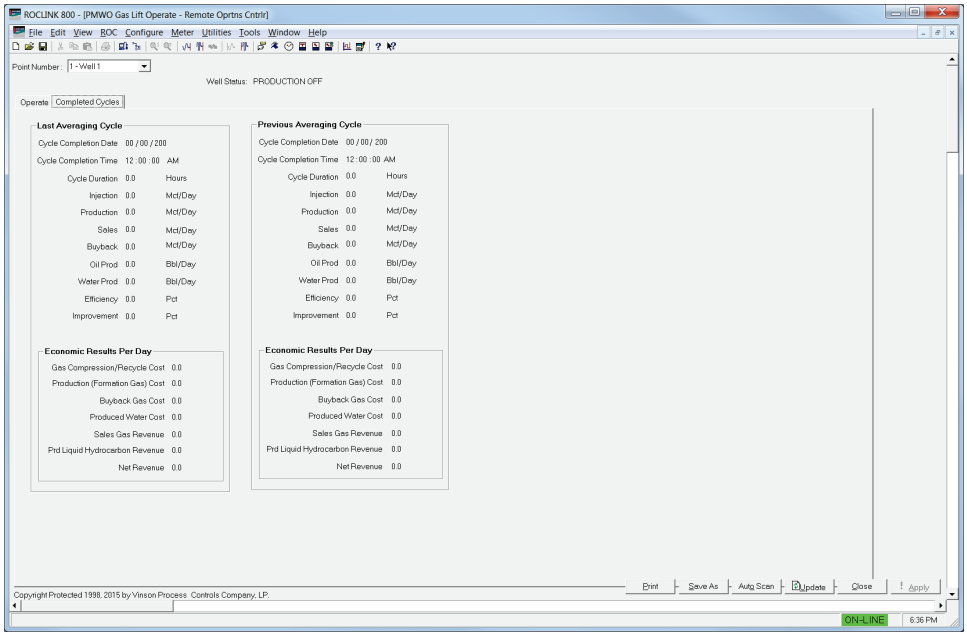
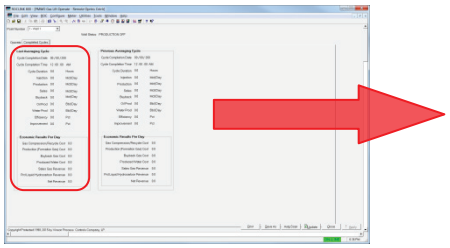
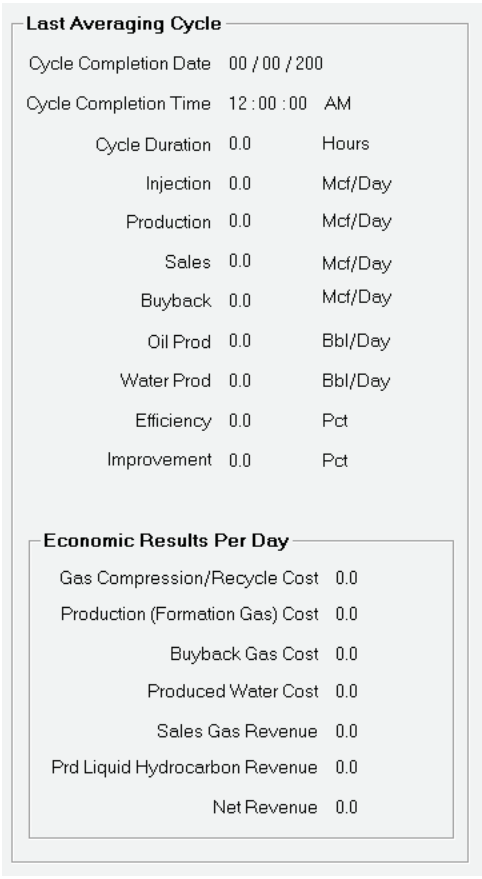


Figure 30. PMWO Gas Lift Operate – Operate tab

2. Proceed to *Section 3.4.2.1, PMWO Gas Lift Operate – Completed Cycles Tab (Last Averaging Cycle)* to view the last averaging cycle data.

3.4.2.1 PMWO Gas Lift Operate – Completed Cycles Tab (Last Averaging Cycle)





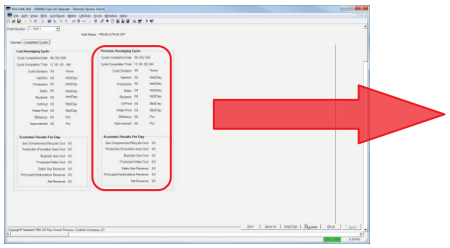
1. Review the values in the following fields:

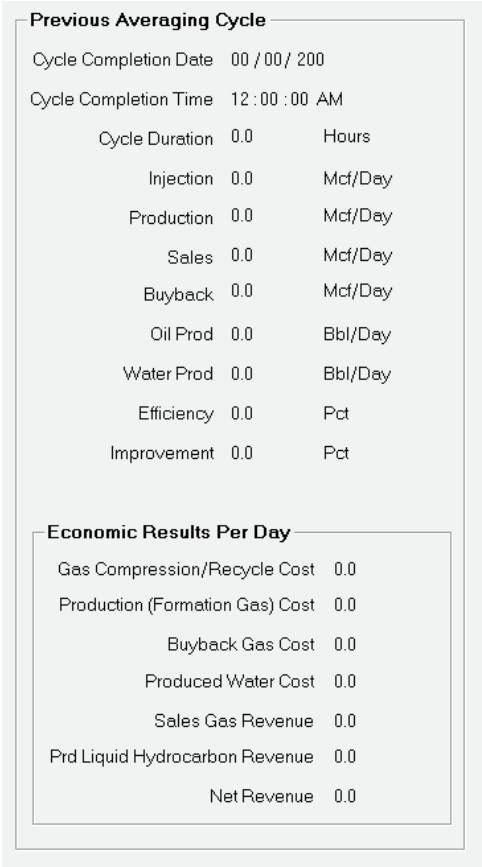
Field	Description
Cycle Completion Date	Shows the date of the last completed cycle.
Cycle Completion Time	Shows the time of the last completed cycle.
Cycle Duration	Shows the duration of the last completed cycle.
Injection	Shows the average flow rate of the injection meter of the last averaging cycle.
Production	Shows the average flow rate of the gas production meter of the last averaging cycle.
Sales	Shows the average flow rate of the sales meter of the last averaging cycle.
Buyback	Shows the average flow rate of the buyback meter of the last averaging cycle.
Oil Prod	Shows the average flow rate of the oil production meter of the last averaging cycle.
Water Prod	Shows the average flow rate of the water production meter of the last averaging cycle.

Field	Description
Efficiency	Shows the efficiency of the last averaging cycle. Efficiency = 1.0 - (Injection Flowrate / Production Flowrate)
Improvement	Shows the improvement of the last averaging cycle in comparison with the previous averaging cycle, based on the gas lift optimization mode selected.
Economic Results Per Day	
Gas Compression/ Recycle Cost	Shows the last average cost per day for gas compression and recycling.
Production (Formation Gas) Cost	Shows the last average cost per day for production gas.
Buy Back Gas Cost	Shows the last average cost per day for buyback gas.
Produced Gas Revenue	Shows the last average cost per day for water.
Sales Gas Revenue	Shows the last average revenue per day for sales gas.
Prd Liquid Hydrocarbon Revenue	Shows the last average revenue per day for oil.
Net Revenue	Shows the last net revenue the program calculates. Net Revenue = (Sales Gas Revenue + Prod Liquid Hydrocarbon Revenue) – (Gas Compression/Recycle Cost + Production (Formation Gas) Cost + Buyback Gas Cost + Produced Water Cost) **Note:** For Net Revenue, you may not use all of these options at a particular site. For any undefined production meters, the economic value is 0 in the calculation.

2. Proceed to *Section 3.4.2.2, PMWO Gas Lift Operate – Completed Cycles Tab (Previous Averaging Cycle).*

3.4.2.2 PMWO Gas Lift Operate – Completed Cycles Tab (Previous Averaging Cycle)





1. Review the values in the following fields:

Field	Description
Cycle Completion Date	Shows the date of the previous completed cycle.
Cycle Completion Time	Shows the time of the previous completed cycle.
Cycle Duration	Shows the duration of the previous completed cycle.
Injection	Shows the average flow rate of the injection meter of the previous averaging cycle.
Production	Shows the average flow rate of the gas production meter of the previous averaging cycle.
Sales	Shows the average flow rate of the sales meter of the previous averaging cycle.
Buyback	Shows the average flow rate of the buyback meter of the previous averaging cycle.
Oil Prod	Shows the average flow rate of the oil production meter of the previous averaging cycle.

Field	Description
Water Prod	Shows the average flow rate of the water production meter of the previous averaging cycle.
Efficiency	Shows the efficiency of the previous averaging cycle. Efficiency = 1.0 - (Injection Flowrate / Production Flowrate)
Improvement	Shows the improvement of the previous averaging cycle in comparison with the previous averaging cycle, based on the gas lift optimization mode selected.
Economic Results Per Day	
Gas Compression/Recycle Cost	Shows the previous average cost per day for gas compression and recycling.
Production (Formation Gas) Cost	Shows the previous average cost per day for production gas.
Buy Back Gas Cost	Shows the previous average cost per day for buyback gas.
Produced Gas Revenue	Shows the previous average cost per day for water produced.
Sales Gas Revenue	Shows the previous average revenue per day for sales gas.
Prd Liquid Hydrocarbon Revenue	Shows the previous average revenue per day for oil.
Net Revenue	Shows the previous net revenue as calculated by the program. Net Revenue = (Sales Gas Revenue + Prod Liquid Hydrocarbon Revenue) – (Gas Compression/Recycle Cost + Production (Formation Gas) Cost + Buyback Gas Cost + Produced Water Cost) **Note:** For Net Revenue, you may not use all of these options at a particular site. For any undefined production meters, the economic value is 0 in the calculation.

2. Proceed to *Section 3.5, PMWO Cyclic Operate screen.*

3.5 PMWO Cyclic Operate Screen

To access the PMWO Cyclic Operate screens:

1. From the Directory Tree, select **User Program** > **PM Well Optimization** (for FB107) or **Program #1, PMWO_v402_04_12w** (for ROC800) in the ROCLINK configuration tree.

   Note: For the ROC800, the last 2 or 3 characters of the program filename represent the number of supported wells. The program name that appears in the directory tree depends on the version of your Well Optimization program. See *Section 1.3*, for more information.

2. Double-click **Display #83, PMWO Cyclic Lift Operate** (for FB107) or **Display #69, PMWO Cyclic Lift Operate** (for ROC800).

3. Double-click **#1, Well 1**. The Cyclic Operate screen displays:

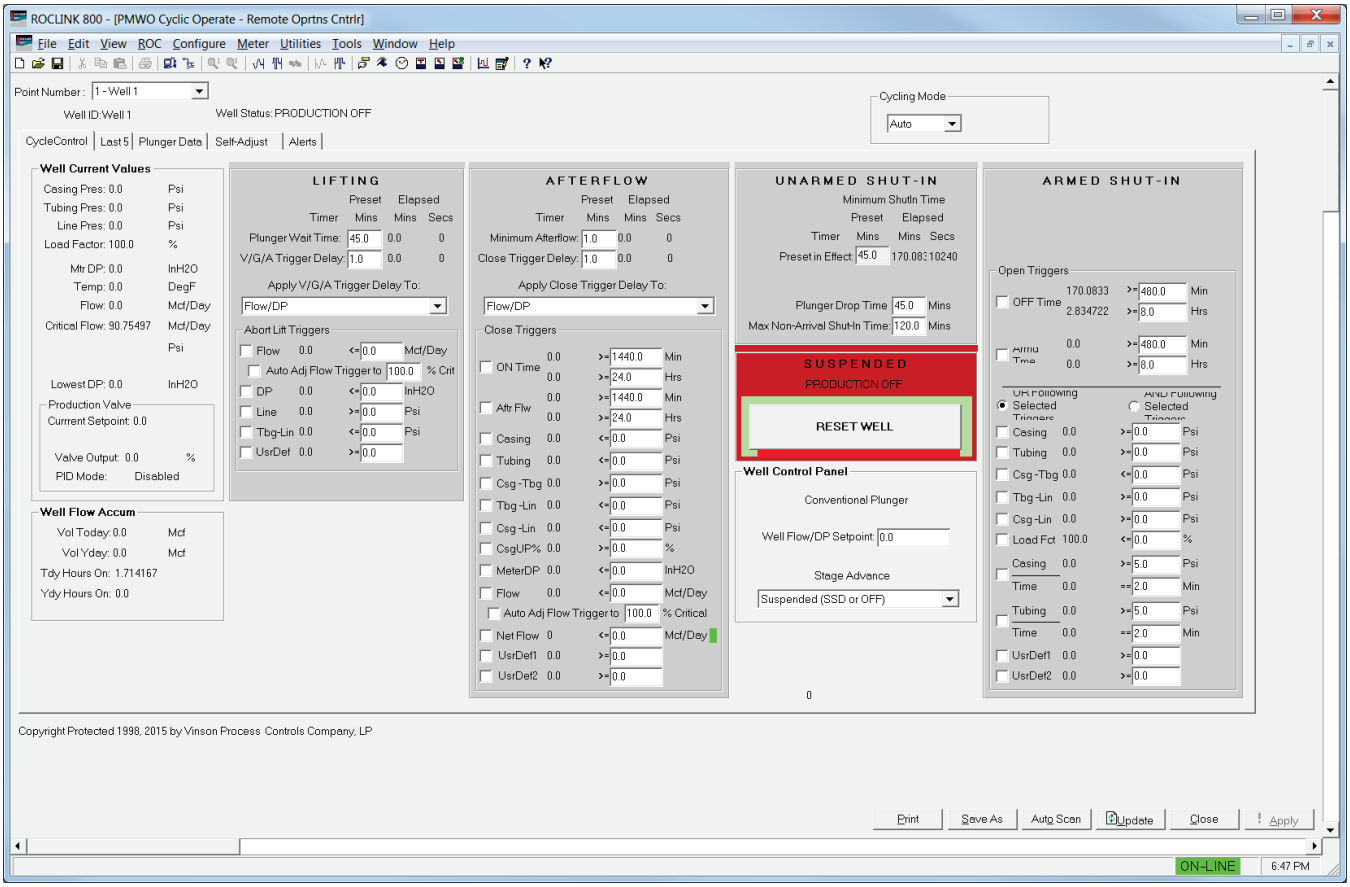


Figure 31. PMWO Cyclic Operate screen

3.5.1 PMWO Cyclic Operate– CycleControl Screen

Use this tab (which displays first when you open the PMWO Cyclic Operate screen) to view the current cyclic control values and to configure the plunger lift conditions and parameters.

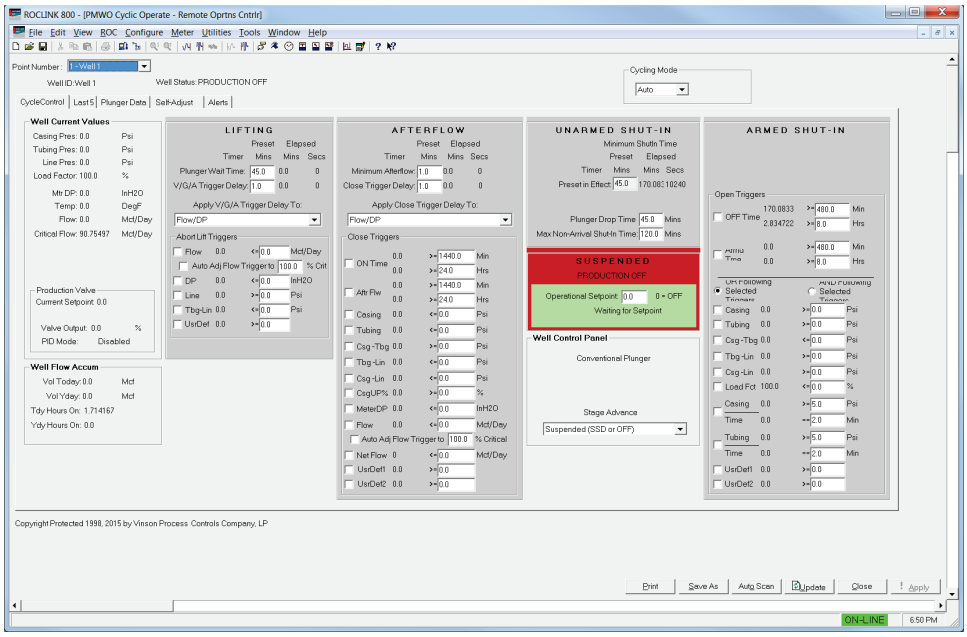
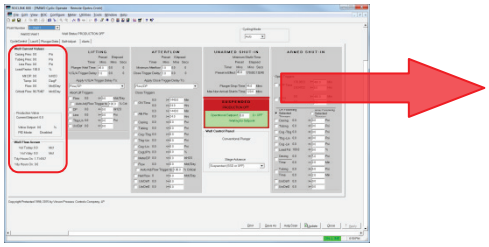
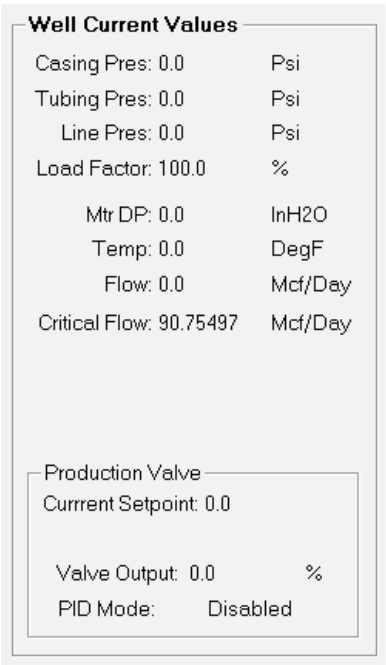


Figure 32. PMWO Cyclic Operate – Operate tab

3.5.1.1 PMWO Cyclic Operate – CycleControl Tab (Well Current Values)



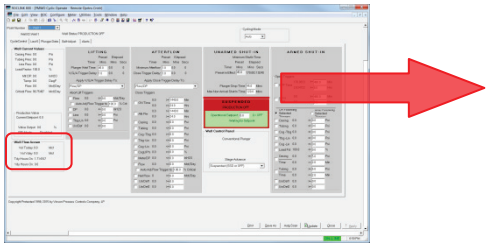


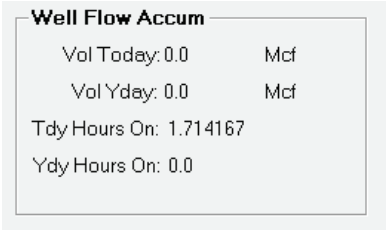
1. Review the values in the following fields:

Field	Description
Casing Pres	Displays the current casing pressure of the well.
Tubing Pres	Displays the current tubing pressure of the well.
Line Pres	Displays the current line pressure of the well.
Load Factor	Displays the current Load Factor Percentage of the well. This value shows **only** when the well is in the **Unarmed Shut-In** or **Armed Shut-In** stages. The Load Factor Percentage is calculated using the following formula: $\frac{\text{Casing Pressure (psig)} - \text{Tubing Pressure(psig)}}{\text{Casing Pressure (psig)} - \text{Sales Line Pressure (psig)}} X\ 100$
Mtr DP	Displays the current differential pressure reading from the meter.
Temp	Displays the current temperature reading from the meter.
Flow	Displays the current flow rate reading from the meter.
Critical Flow	Displays the current critical flow.
Production Valve	
Current Setpoint	Displays the current setpoint.
Valve Output	Displays the production valve opening percentage.
PID Mode	Displays the current PID mode you enable.

2. Proceed to *Section 3.5.1.2, PMWO Cyclic Operate – CycleControl Tab (Well Flow Accum).*

3.5.1.2 PMWO Cyclic Operate – CycleControl Tab (Well Flow Accum)





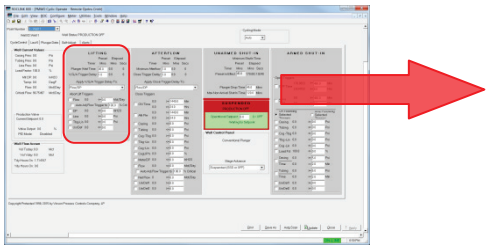
1. Review the values in the following fields:

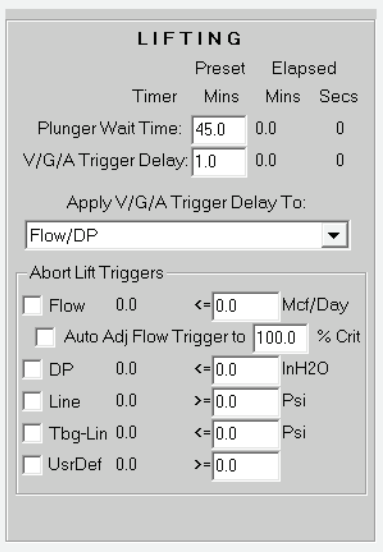
Field	Description
Vol Today	Displays the flow volume of the well for the current day.
Vol Yday	Displays the flow volume of the well from the previous day.
Tdy Hours On	Displays the amount of hours the well has been ON for the current day.

Field	Description
Ydy Hours On	Displays the amount of hours the well has been ON for the previous day.

2. Proceed to *Section 3.5.1.3, PMWO Cyclic Operate – CycleControl Tab (Lifting).*

3.5.1.3 PMWO Cyclic Operate – CycleControl Tab (Lifting)





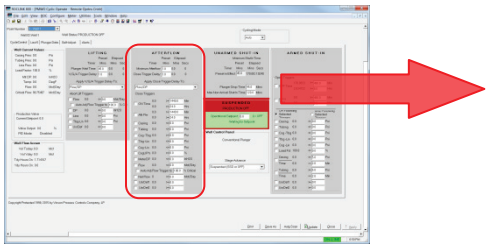
1. Review the values in the following fields:

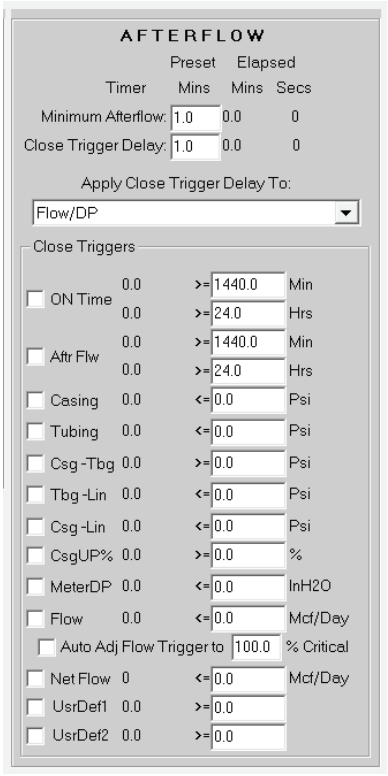
Field	Description
Plunger Wait Time	Sets the maximum amount of time to wait for the plunger to arrive.
V/G/A Trigger Delay	Sets the maximum amount of time to wait before the well changes the stage once this delay has been triggered. This value must be less than the **Plunger Wait Time**.
Apply V/G/A/ Trigger Delay To:	Allows you to select what triggers to apply to the V/G/A Trigger Delay. If you select **Flow/DP**, the Flow trigger and the DP trigger apply to the V/G/A Trigger Delay. If you select **Flow/DP and Pressures**, the Flow trigger, the DP trigger, the Line trigger, and the Tbg-Lin trigger apply to the V/G/A Trigger Delay. If you select **Flow/DP and User-Def**, the Flow trigger, the DP trigger, and the UsrDef trigger apply to the V/G/A Trigger Delay. If you select **All Triggers**, the Flow trigger, the DP trigger, the Line trigger, the Tbg-Lin trigger, and the UsrDef trigger apply to the V/G/A Trigger Delay.
Abort Lift Triggers, Venting Triggers, or GAPL Triggers **Note:** The label for this section of triggers changes depending on the type of trigger you enable.	

Field	Description
Flow [ ] <=	The **Flow** trigger becomes true when the Flow is less than or equal to the Flow Trigger value you set. The **Flow** trigger becomes false when the Flow is greater than Flow Trigger value you set.
Auto Adj Flow Trigger to	Updates the value of the flow trigger (above) to match a percentage of the critical flowrate. This shows **only** visible when you enable **Coleman-Turner Critical Flow Calculation** from **PMWO Config – General Tab (Well Options)**.
DP [ ] <=	The **DP** trigger becomes true when the differential pressure is less than or equal to the DP Trigger value you set. The **DP** trigger becomes false when the differential pressure is greater than DP Trigger value you set.
Line [ ] >=	The **Line** trigger becomes true when the line pressure is greater than or equal to the Line Trigger value you set. The **Line** trigger becomes false when the line pressure is less than the Line Trigger value you set.
Tbg-Lin [ ] <=	The **Tbg-Lin** trigger becomes true when the Tubing Pressure minus the Line Pressure is less than or equal to the Tubing minus Line Trigger value you define. The **Tbg-Lin** trigger becomes false when the Tubing Pressure minus the Line Pressure is greater than the Tubing minus Line Trigger value you define.
UsrDef [ ] >=	The **UsrDef** trigger label matches the name you enter on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef** trigger operator matches the one you select on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef** trigger becomes true when the operator between the value you set and the trigger you set makes the comparison true. The **UsrDef** trigger becomes false when the operator between the value you set and the trigger you set makes the comparison false.

2. Proceed to *Section 3.5.1.4, PMWO Cyclic Operate – CycleControl Tab (Afterflow).*

3.5.1.4 PMWO Cyclic Operate – CycleControl Tab (Afterflow)





1. Review the values in the following fields:

Field	Description
Minimum Afterflow	Sets the minimum amount of time the well must be in the Afterflow stage before the **Close Trigger Delay** and any of the triggers in the **Close Triggers** field are able to execute. When the elapsed time for the **Minimum Afterflow** reaches the **Minimum Afterflow Preset Time**, the elapsed time stops counting and the program looks at the close triggers you enable in the **Close Triggers** field.
Close Trigger Delay	Sets the maximum amount of time to wait before the well moves to the **Unarmed Shut-In** stage once the system triggers the **Close Trigger Delay**.

Field	Description
Apply Close Trigger Delay To	Allows you to select what triggers will be applied to the Close Trigger Delay. If you select **Flow/DP**, the MeterDP trigger, the Flow trigger, and the Net Flow trigger applies to the **Close Trigger Delay**. If you select **Flow/DP and Pressures**, the MeterDP trigger, the Flow trigger, the Net Flow trigger, the Casing trigger, the Tubing trigger, the Csg-Tbg trigger, the Tbg-Lin trigger, the Csg-Lin trigger, and the CsgUP% trigger applies to the **Close Trigger Delay**. If you select **Flow/DP and User-Def**, then the MeterDP trigger, the Flow trigger, the Net Flow trigger, the UsrDef1 trigger, and the UsrDef2 trigger applies to the **Close Trigger Delay**. If you select **All Non-Timer Related Triggers**, then the MeterDP trigger, the Flow trigger, the Net Flow trigger, the Casing trigger, the Tubing trigger, the Csg-Tbg trigger, the Tbg-Lin trigger, the Csg-Lin trigger, the CsgUP% trigger, the UsrDef1 trigger, and the UsrDef2 trigger applies to the **Close Trigger Delay**.
Close Trigger **Note:** You use these triggers to enable the **Close Trigger Delay** and to move to the **Unarmed Shut-In** field. The selected triggers operate using the OR function.	
ON Time	The **ON Time Min** updates to show the current ON Time of the well in minutes. This value starts incrementing right when the well starts the Lifting stage. The **ON Time Hrs** updates to show the current ON Time of the well in hours. This value starts incrementing right when the well starts the Lifting stage. The **ON Time** trigger becomes true when the ON Time in hours and minutes is greater than or equal to the ON Time Trigger values you set here. The **ON Time** trigger stays false when the ON Time in hours and minutes is less than the ON Time Trigger values you set here.

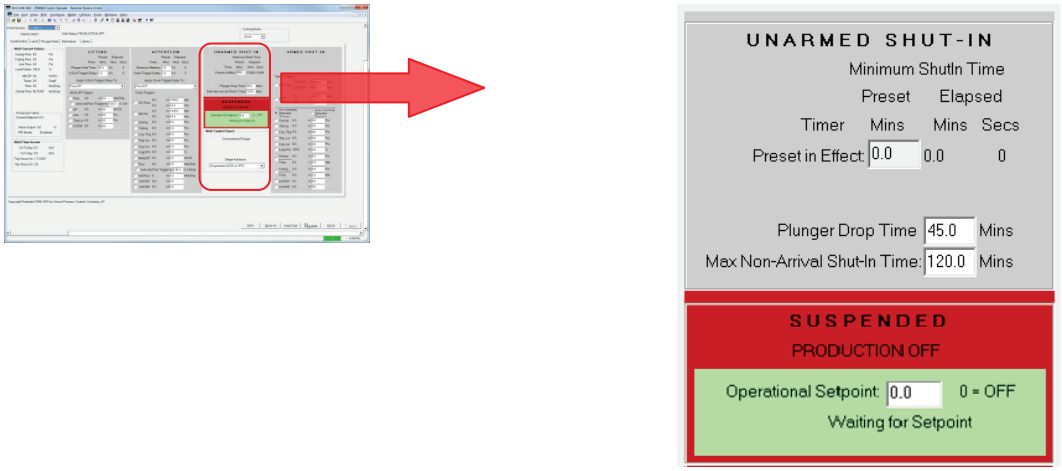
Field	Description
Aftr Flw	The **Aftr Flw Min** updates to show the current Aftr Flw time of the well in minutes. This value starts incrementing right when the well starts the Afterflow stage. The **Aft Flw Hrs** updates to show the current Aft Flw time of the well in hours. This value starts incrementing right when the well starts the Afterflow stage. The **Aftr Flw** trigger becomes true when the **Aftr Flw** time in hours and minutes is greater than or equal to the Aftr Flow trigger values you define here. The **Aftr Flw** trigger stays false when the **Aftr Flw** time in hours and minutes is less than the Aftr Flw trigger values you set here.
Casing	The **Casing** trigger becomes true when the casing pressure is less than or equal to the Casing trigger value you set here. The **Casing** Trigger becomes false when the casing pressure is greater than the Casing Trigger value you set here.
Tubing	The **Tubing** trigger becomes true when the tubing pressure is less than or equal to the Tubing trigger value you define here. The Tubing Trigger becomes false when the Tubing Pressure is greater than the Tubing trigger value you set here.
Cag-Tbg	The **Csg-Tbg** trigger becomes true when the casing pressure minus (-) the tubing pressure is greater than or equal to the **Csg-Tbg** trigger value you set here. The **Csg-Tbg** trigger becomes false when the Casing Pressure minus (-) the Tubing Pressure is less than the defined Csb-Tbg Trigger value.
Tbg-Lin	The **Tbg-Lin** trigger becomes true when the tubing pressure minus (-) the line pressure is less than or equal to **Tbg-Lin** trigger value you set here. The **Tbg-Lin** trigger becomes false when the tubing pressure minus (-) the line pressure is greater than the **Tbg-Lin** trigger value you set here.
Csg-Lin	The **Csg-Lin** trigger becomes true when the casing pressure minus (-) the line pressure is less than or equal to the **Csg-Lin** trigger value you set here. The **Csg-Lin** trigger becomes false when the casing pressure minus (-) the line pressure is greater than the **Csg-Lin** trigger value you set here.

Field	Description
CSGUP%	This value only updates when the well is in the Afterflow stage. The **CsgUP%** trigger becomes true when the percent increase of the casing pressure in the Afterflow stage is greater than or equal to the **CsgUP%** trigger value you set here. The **CsgUP%** trigger becomes false when the percent increase of the casing pressure in the Afterflow stage is less than the **CsgUP%** trigger value you set here.
Meter DP	The **MeterDP** trigger becomes true when the meter differential pressure is less than or equal to the **MeterDP** trigger value you set here. The **MeterDP** trigger becomes false when the meter differential pressure is greater than the **MeterDP** trigger value you set here.
Flow	The **Flow** trigger becomes true when the flow is less than or equal to the **Flow** trigger value you set here. The **Flow** trigger becomes false when the flow is greater than the **Flow** trigger value you set here.
Auto Adj Flow Trigger to	Updates the value of the flow trigger (above) to match a percentage of the critical flowrate. This shows **only** visible when you enable **Coleman-Turner Critical Flow Calculation** from **PMWO Config – General Tab (Well Options)**.
Net Flow	The **Net Flow** trigger becomes true when the Net Flow is less than or equal to the **Net Flow** trigger value you set here. The **Net Flow** trigger becomes false when the Net Flow is greater than the **Net Flow** trigger value you set here.
UserDef1	The **UsrDef1** trigger label matches the trigger tag you enter on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef1** trigger operator matches the one you select on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef1** trigger becomes true when the operator between the value you define in the **Close Trigger 1** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison true. The **UsrDef1** trigger becomes false when the operator between the value you define in the **Close Trigger 1** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison false.

Field	Description
UserDef2	The **UsrDef2** trigger label matches the trigger tag you enter on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef2** trigger operator matches the one you select on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef2** trigger becomes true when the operator between the value you define in the **Close Trigger 2** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison true. The **UsrDef2** trigger becomes false when the operator between the value you define in the **Close Trigger 2** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison false.

2. Proceed to *Section 3.5.1.5, PMWO Cyclic Operate – CycleControl Tab (UnArmed Shut-In).*

3.5.1.5 PMWO Cyclic Operate – CycleControl Tab (UnArmed Shut-In)



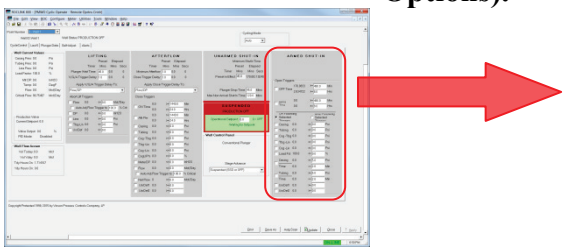
1. Review the values in the following fields:

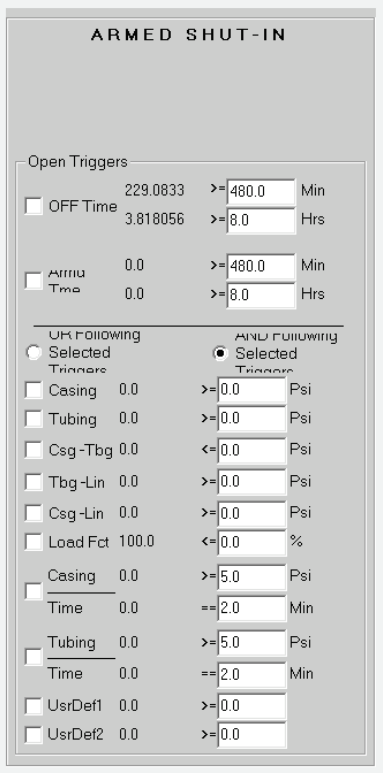
Field	Description
Preset in Effect	Specifies how long the well must be in the **Unarmed Shut-In** stage. The **read-only Elapsed** value in minutes and seconds shows the amount of time when a certain well behavior is in effect or active. When **Plunger Drop Time** is active, the amount of time you set in the **Plunger Drop Time Minutes** is the value that populates the **Preset in Effect** field. When **Max Non-Arrival Shut-In Time** is active, the amount of time you set in the **Max Non-Arrival Shut-In Time** is the value that populates the Preset in Effect field. When **Progressive Non-Arrival Shut-In** is active, the amount of time that populates the **Preset in Effect** field is determined by taking the time in the **Non-Arrival Shut-In Minutes** field and dividing it by the number in the **Progressive Will Increment** field [TLP 67 X 07]. For instance, if the **Max Non-Arrival Shut-In Time** is 1 minute and the **Progressive Will Increment** is 2 steps, then the first time a non-arrival occurs in the **Preset in Effect** time is 30 seconds. When a resulting time is in seconds, it is rounded up to 1 minute. The **Preset in Effect** always increments until the system reaches the **Max-Non Arrival Shut-In** time. Then it stays at such value.
Plunger Drop Time	Sets the amount of time in minutes that allows for the plunger to drop to the bottom of the well. This field is active **only** when the well moves from the Afterflow stage to the Unarmed Shut-In stage or when you select **Go To Plunger Drop Time** from the **After Aborted Non-Arrival** field in the **Plunger Config tab (After Non-Arrival)** of the **PMWO Config** screen.
Max Non-Arrival Shut-In Time	Sets the amount of time in minutes that the well must be shut-in after a non-arrival of the plunger occurs. This is active **only** when the number of consecutive non-arrivals in the Lifting stage reaches the number set in the **After __ Consecutive Non-Arrivals** field under **Plunger Config tab (Non-Arrival Settings)** of the **PMWO Config** screen or when you select **Go To Non-Arrival Shut-In Time** from the **After Non-Arrival** field in the **Plunger Config tab (After Non-Arrival)** of the **PMWO Config** screen.
Operational Setpoint	Enables the production well.

2. Proceed to *Section 3.5.1.6, PMWO Cyclic Operate – CycleControl Tab (Armed Shut-In).*

3.5.1.6 PMWO Cyclic Operate – CycleControl Tab (Armed Shut-In)

This field shows only when you select **Conventional Plunger** from **Cyclic Types and Dependent Options** in the **General Tab (Well Options).**





1. Review the values in the following fields:

Field	Description
Open Triggers	
OFF Time	The **OFF Time Min** updates to show the current OFF Time of the well in minutes. This value starts to increment when the well starts the **Unarmed Shut-In** stage. The **OFF Time Hrs** updates to show the current OFF Time of the well in hours. This value starts to increment when the well starts the **Unarmed Shut-In** stage. The **OFF Time** trigger becomes true when the OFF Time in hours and minutes is greater than or equal to the OFF Time current trigger values you define here. The **OFF Time** trigger stays false when the OFF Time in hours and minutes is less than to the OFF Time current trigger values you define here.
Armd Tme	The **Armd Time Min** updates to show the current Armed Time of the well in minutes. This value starts to increment when the well starts the **Armed Shut-In** stage. The **Armd Time Hrs** updates to show the current Armed Time of the well in hours. This value starts to increment when the well starts the **Armed Shut-In** stage. The **Armd Time** trigger becomes true when the Armed Time in hours and minutes is greater than or equal to the Armed Time current trigger values you define here. The **Armd Time** trigger stays false when the Armed Time in hours and minutes is less than to the Armed time Time current trigger values you define here.
OR Following Selected Triggers	Enforces OR function to all the triggers you enable below.
AND Following Selected Triggers	Enforces AND function to all the triggers you enable below.
Casing [ ] >=	The **Casing** trigger becomes true when the casing pressure of the well is greater than or equal to the casing pressure value you set here. The **Casing** trigger becomes false when the casing pressure of the well is less than to the casing pressure value you set here.
Tubing [ ] >=	The **Tubing** trigger becomes true when the tubing pressure of the well is greater than or equal to the tubing pressure value you set here. The **Tubing** trigger becomes false when the tubing pressure of the well is less than to the tubing pressure value you set here.

Field	Description
Csg-Tbg [ ] <=	The **Csg-Tbg** trigger becomes true when the casing pressure minus (-) the tubing pressure of the well is less than or equal to the **Csg-Tbg** value you set here. The **Csg-Tbg** trigger becomes false when the casing pressure minus (-) the tubing pressure of the well is greater than to the **Csg-Tbg** value you set here.
Tbg-Lin [ ] >=	The **Tbg-Lin** trigger becomes true when the tubing pressure minus (-) the line pressure of the well is greater than or equal to the **Tbg-Lin** value you set here. The **Tbg-Lin** trigger becomes false the tubing pressure minus (-) the line pressure of the well is less than to the **Tbg-Lin** value you set here.
Csg-Lin [ ] >=	The **Csg-Lin** trigger becomes true when the casing pressure minus (-) the line pressure of the well is greater than or equal to the **Csg-Lin** value you set here. The **Csg-Lin** trigger becomes false when the casing pressure minus (-) the line pressure of the well is less than to the **Csg-Lin** value you set here..
Load Fct [ ] <=	The **Load Fct** trigger becomes true when the current load factor percentage is less than or equal to the **Load Fct** value you set here. The **Load Fct** trigger becomes false when the current load factor percentage is greater than the **Load Fct** value you set here. The Load Factor Percentage is calculated using the following formula: $\frac{\text{Casing Pressure (psig)} - \text{Tubing Pressure(psig)}}{\text{Casing Pressure (psig)} - \text{Sales Line Pressure (psig)}} X\ 100$

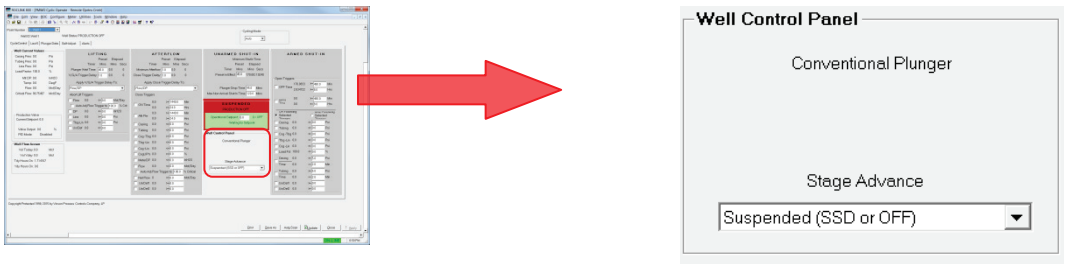
Field	Description
Casing [ ] > = **Time** [ ] = =	The **Casing Time Min** (the **read-only** value between **Time** and the operator **= =)**updates to show the current OFF Time of the well in minutes. This value starts to increment when the well enters the Unarmed Shut-In stage. The **Casing Pressure Increase** (the **read-only** value between **Casing** and the operator **>=**) updates to show how much the Casing Pressure has increased or decreased from the starting value while the well is shut-in. The starting value is the value of the Casing Pressure when the well enters the Unarmed Shut-In stage. The **Casing Pressure Increase** value starts to update once the well is in the Unarmed Shut-In stage. The **Casing Pressure Increase** shows only when the **Casing Pressure increase** is less than the value you set in the **Casing** field. When the **Casing Pressure Increase** is greater than or equal to the value in the **Casing** field, the **Casing Pressure Increase** and the **Casing Time Min** resets to zero. This time, the **Casing Time Min** starts counting again. The **Casing/Time** trigger becomes true when the OFF time in minutes is equal to the **Casing Time** trigger value you define. The **Casing/Time** trigger stays false when the OFF time in minutes is less than the **Casing Time** trigger value you define.

Field	Description
Tubing [ ] > = **Time** [ ] = =	The **Tubing Time Min** (the **read-only** value between **Time** and the operator **= =)**updates to show the current OFF Time of the well in minutes. This value starts to increment when the well enters the Unarmed Shut-In stage. The **Tubing Pressure Increase** (the **read-only** value between **Tubing** and the operator **>=**) updates to show how much the Tubing Pressure has increased or decreased from the starting value while the well is shut-in. The starting value is the value of the Tubing Pressure when the well enters the Unarmed Shut-In stage. The **Tubing Pressure Increase** value starts to update once the well is in the Unarmed Shut-In stage. The **Tubing Pressure Increase** shows only when the **Tubing Pressure increase** is less than the value you set in the **Tubing** field. When the **Tubing Pressure Increase** is greater than or equal to the value in the **Tubing** field, the **Tubing Pressure Increase** and the **Tubing Time Min** resets to zero. This time, the **Tubing Time Min** starts counting again. The **Tubing/Time** trigger becomes true when the OFF time in minutes is equal to the **Tubing Time** trigger value you define. The **Tubing/Time** trigger stays false when the OFF time in minutes is less than the **Tubing Time** trigger value you define.
UsrDef1	The **UsrDef1** trigger label matches the trigger tag you enter on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef1** trigger operator matches the one you select on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef1** trigger becomes true when the operator between the value you define in the **Open Trigger 1** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison true. The **UsrDef1** trigger becomes false when the operator between the value you define in the **Open Trigger 1** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison false.

Field	Description
UsrDef2	The **UsrDef2** trigger label matches the trigger tag you enter on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef2** trigger operator matches the one you select on the **Cyclic Triggers** tab of the **PMWO Config** screen. The **UsrDef2** trigger becomes true when the operator between the value you define in the **Open Trigger 2** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison true. The **UsrDef2** trigger becomes false when the operator between the value you define in the **Open Trigger 2** field under the **Cyclic Triggers** tab of the **PMWO Config** screen and the trigger you define here makes the comparison false.

2. Proceed to *Section 3.5.1.7, PMWO Cyclic Operate – CycleControl Tab (Well Control Panel).*

3.5.1.7 PMWO Cyclic Operate – CycleControl Tab (Well Control Panel)



1. Review the values in the following fields:

Field	Description
Well Control Panel	Allows you to control the well. You can shut the well OFF or advance the well to a different stage.
Stage Advance	Select a stage you want the well to advance to.

2. Proceed to *Section 3.5.2, PMWO Cyclic Operate – Last 5 Tab.*

3.5.2 PMWO Cyclic Operate– Last 5 Tab Screen

The Last 5 tab allows you to view the last 5 events and the respective parameter readings of your cyclic control application.

To access the Last 5 screen:

1. Select the **Last 5** tab on the **PMWO Cyclic Operate** screen. The Last 5 tab screen displays:

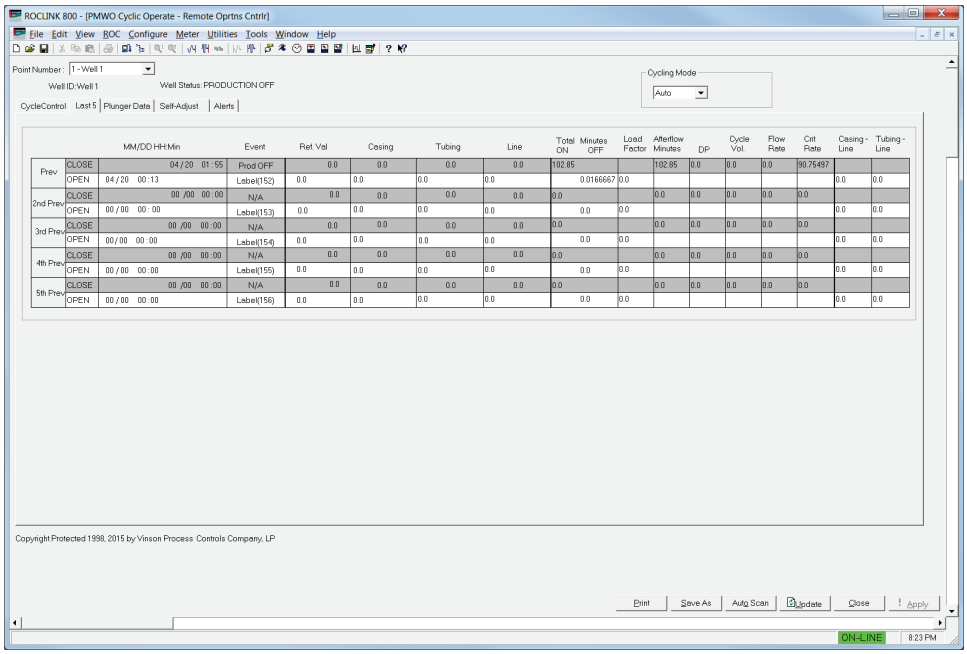


Figure 33. PMWO Cyclic Operate – Last 5 tab

2. Review the values in the following fields:

Field	Description
MM/DD HH:Min	Shows the month, day, hour, and minute of the last 5 logs.
Event	Displays the last 5 event log for the triggers that caused the opening or closing of the well.
Ref. Val	Displays the values of the trigger that caused the opening or closing of the well.
Casing	Displays the casing pressure for the last 5 cycles.
Tubing	Displays the tubing pressure for the last 5 cycles.
Line	Displays the line pressure lfor the last 5 cycles.
Total Minutes ON	Displays the total on minutes of the well for the last 5 cycles.
Total Minutes OFF	Displays the total off minutes of the well for the last 5 cycles.
Load Factor	Displays the current Load Factor Percentage of the well. This value shows **only** when the well is in the **Unarmed Shut-In** or **Armed Shut-In** stages. The Load Factor Percentage is calculated using the following formula: $\frac{\text{Casing Pressure (psig)} - \text{Tubing Pressure(psig)}}{\text{Casing Pressure (psig)} - \text{Sales Line Pressure (psig)}} X\ 100$
Afterflow Minutes	Displays the total minutes the cycle has been in the afterflow stage of the well cycle for the last 5 cycles.
DP	Displays the differential pressure for the last 5 cycles .

Field	Description
Cycle Vol.	Displays the volume accumulated for the last 5 cycles.
Flow Rate	Displays the flow rate for the last 5 cycles.
Crit Rate	Displays the critical flow rate for the last 5 cycles.
Casing-Line	Displays the casing minus the line pressure for the last 5 cycles.
Tubing-Line	Displays the tubing minus the line pressure for the last 5 cycles.

3. Proceed to *Section 3.5.3, PMWO Cyclic Operate – Plunger Data tab.*

3.5.3 PMWO Cyclic Operate– Plunger Data Screen

The Plunger Data tab allows you to view the last 10 plunger arrivals, the plunger cycle logs, rise velocity averages, and the venting minutes.

To access the Plunger Data screen:

1. Select the **Plunger Data** tab on the **PMWO Cyclic Operate** screen. The Plunger Data tab screen displays:

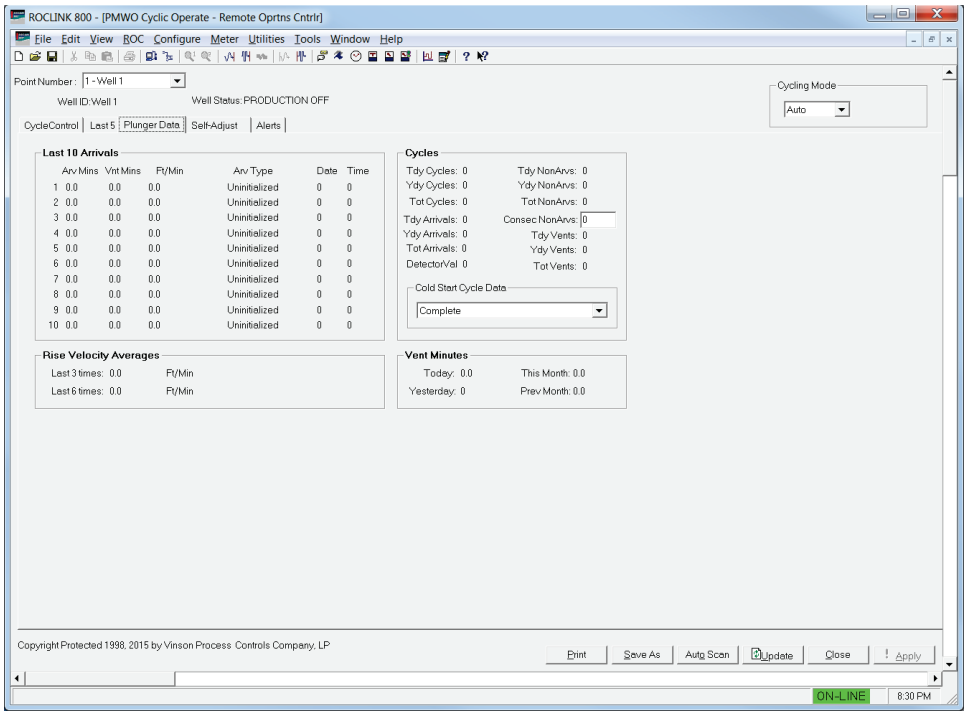
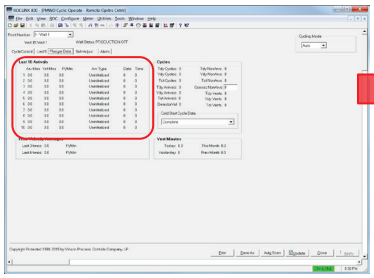
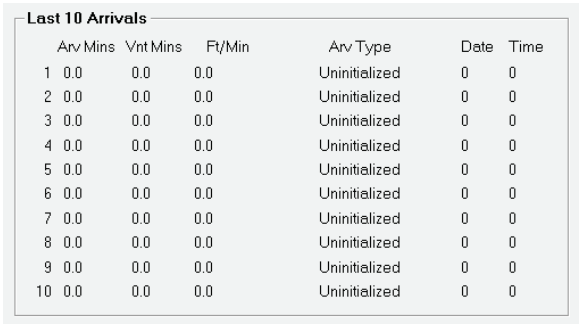


Figure 34. PMWO Cyclic Operate – Plunger Data tab

2. Proceed to *Section 3.5.3.1, PMWO Cyclic Operate – Plunger Data Tab (Well Control Panel).*

3.5.3.1 PMWO Cyclic Operate – Plunger Data Tab (Well Control Panel)



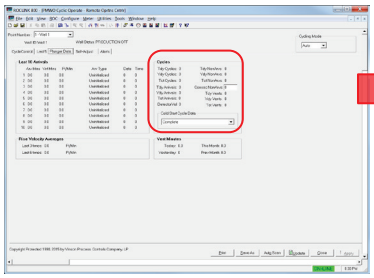


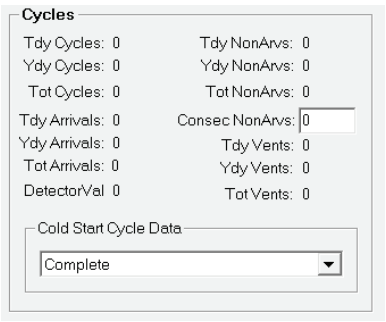
1. Review the values in the following fields:

Field	Description
Arv Mins	Displays the time of the plunger arrival. If the plunger doesn't arrive, the program displays the time of the well at the Lifting stage.
Vnt Mins	Displays the time the well stays at the Venting stage.
Ft/Min	Displays the plunger travel velocity.
Arv Type	Displays type of arrival or non-arrival. The system only logs the arrival or non-arrival when you select either **Conventional Plunger** or **Continuous Plunger** from the **Cyclic Types and Dependent Options** in **PMWO Config – General tab (Well Options)**.
Date	Displays the date of the plunger arrival or non-arrival logs
Time	Displays the time of the plunger arrival or non-arrival logs

2. Proceed to *Section 3.5.3.2, PMWO Cyclic Operate – Plunger Data Tab (Cycles).*

3.5.3.2 PMWO Cyclic Operate – Plunger Data Tab (Cycles)





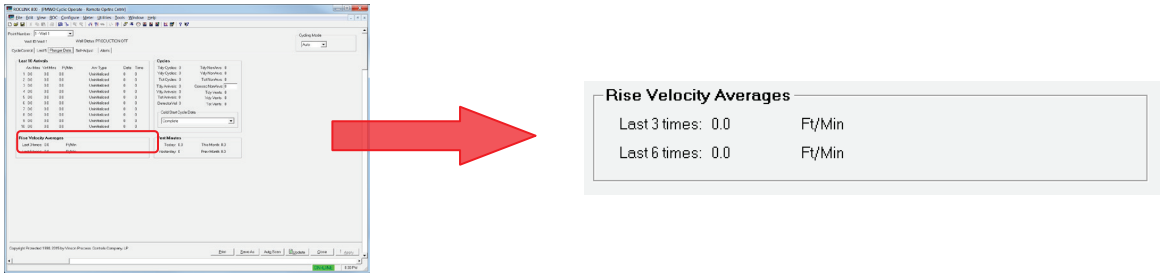
1. Review the values in the following fields:

Field	Description
Tdy Cycles	Shows the number of cycles for the current day.

Field	Description
Ydy Cycles	Shows the number of cycles for the previous day.
Tot Cycles	Shows the total number of cycles from the moment you enable the program.
Tdy Arrivals	Shows the number of plunger arrivals for the current day.
Ydy Arrivals	Shows the number of plunger arrivals for the previous day.
Tot Arrivals	Shows the total number of plunger arrivals from the moment you enable the program.
DetectorVal	Displays the current value of the plunger arrival detector. A value of 0 means the detector is not currently sensing the presence of the plunger, and a value of 1 means the plunger arrival detector is currently tripped.
Tdy NonArvs	Shows the number of plunger non-arrivals for the current day.
YdY NonArvs	Shows the number of plunger non-arrivals for the previous day.
Tot NonArvs	Shows the total number of plunger non-arrivals from the moment you enable the program.
Consec NonArvs	Shows the number of consecutive plunger non-arrivals. Every time the Plunger doesn't arrive this value increases by 1. This value resets to zero once a plunger arrival occurs.
Tdy Vents	Shows the number of days the vent opens for the current day.
Ydy Vents	Shows the number of days the vent opened for the previous day.
Tot Vents	Shows the total number of vents from the moment you enable the program.
Cold Start Cycle Data	Provides an option to clear out the accumulations the program displays in the Cycles frame. P MWO Cyclic Operate – Plunger Data Tab (Cycles).

2. Proceed to *Section 3.5.3.3, PMWO Cyclic Operate – Plunger Data Tab (Rise Velocity Averages).*

3.5.3.3 PMWO Cyclic Operate – Plunger Data Tab (Rise Velocty Averages)

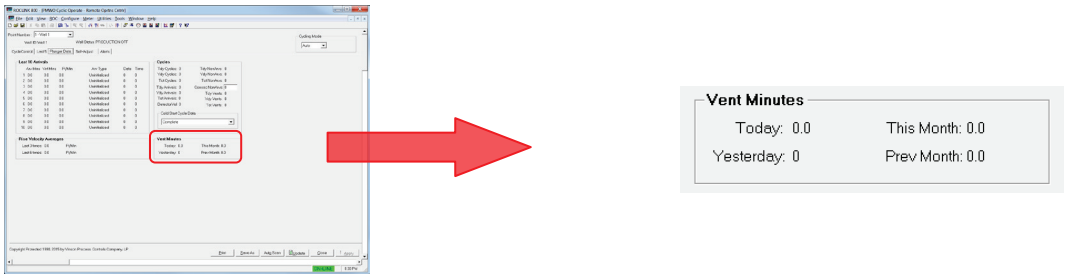


1. Review the values in the following fields:

Field	Description
Last 3 times	Shows an average of the velocity of the plunger to rise from the well bottom to the surface for the last 3 cycles.
Last 6 times	Shows an average of the velocity of the plunger to rise from the well bottom to the surface for the last 6 cycles.

2. Proceed to *Section 3.5.3.4, PMWO Cyclic Operate – Plunger Data Tab (Vent Minutes).*

3.5.3.4 PMWO Cyclic Operate – Plunger Data Tab (Vent Minutes)



1. Review the values in the following fields:

Field	Description
Today	Shows the number of minutes the vent opens for the current day.
Yesterday	Shows the number of minutes the vent opened for the previous day.
This Months	Shows the number of minutes the vent opens for the current month.
Prev Month	Shows the number of minutes the vent opened for the previous month.

2. Proceed to *Section 3.5.4, PMWO Cyclic Operate – Self-Adjust Tab.*

3.5.4 PMWO Cyclic Operate – Self-Adjust Tab

The Self-Adjust tab (which displays when only you enable **Self-Adjustment of Trigger** from the **Cyclic Independent Options** in the **General tab (Well Options)**) allows you configure the self adjustment of the close and open triggers of the cyclic control.

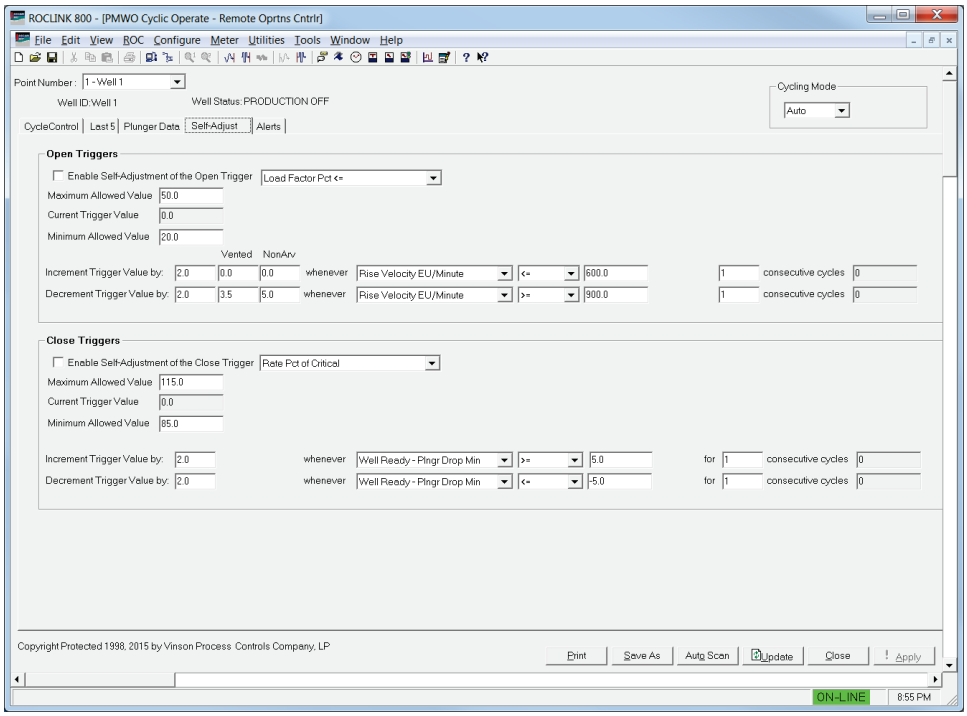
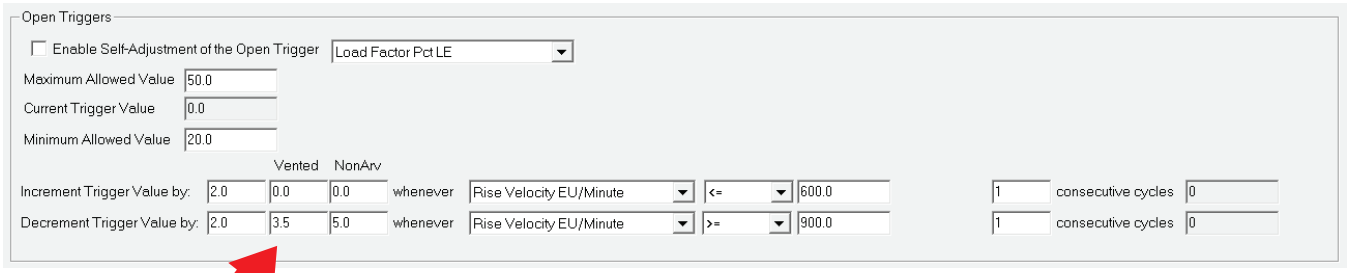
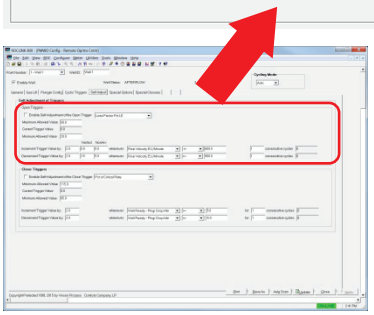


Figure 35. PMWO Config – Self-Adjust tab

3.5.4.1 PMWO Config – Self-Adjust Tab (Open Triggers)



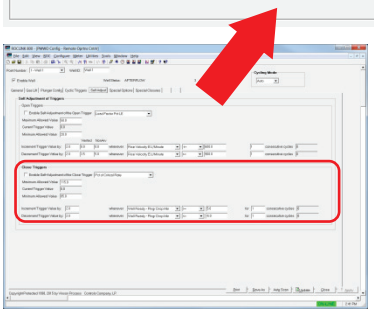


1. Review the values in the following fields:

Field	Description
Enable Sel-Adjustment of the Open Trigger	Enables the well to allow an adjustment of the open trigger you select. Click ▼ to select the open trigger you like to adjust.
Maximum Allowed Value	Sets the maximum value the open trigger you select can reach.
Current Trigger Value	This **read-only** value that updates to show the current value of the open trigger you select.
Minimum Allowed Value	Sets the minimum value the open trigger you select can reach.
Increment Trigger Value by	Set the incremental value for the open trigger you select. The open trigger increases by this value when the condition to increment becomes true.
Decrement Trigger Value by	Set the decremental value for the open trigger you select. The open trigger decreases by this value when the condition to decrement becomes true.

2. Proceed to *Section 3.5.4.2, PMWO Cyclic Operate – Self-Adjust Tab (Close Triggers).*

3.5.4.2 PMWO Cyclic Operate – Self-Adjust Tab (Close Triggers)



1. Review the values in the following fields:

Field	Description
Enable Self-Adjustment of the Open Trigger	Enables the well to allow an adjustment of the close trigger you select. Click ▼ to select the close trigger you like to adjust.
Maximum Allowed Value	Sets the maximum value the close trigger you select can reach.
Current Trigger Value	This **read-only** value that updates to show the current value of the close trigger you select.
Minimum Allowed Value	Sets the minimum value the close trigger you select can reach.
Increment Trigger Value by	Set the incremental value for the close trigger you select. The close trigger increases by this value when the condition to increment becomes true.
Decrement Trigger Value by	Set the decremental value for the close trigger you select. The close trigger decreases by this value when the condition to decrement becomes true.

2. Proceed to *Section 3.5.5, PMWO Cyclic Operate – Alerts tab.*

3.5.5 PMWO Cyclic Operate – Alerts Tab

The Alerts tab (which displays when you enable **Real-Time Values Alert** from **Well Options** in the **General** tab) allows you to set up real Time Value Alerts and Cycle Analysis Alerts.

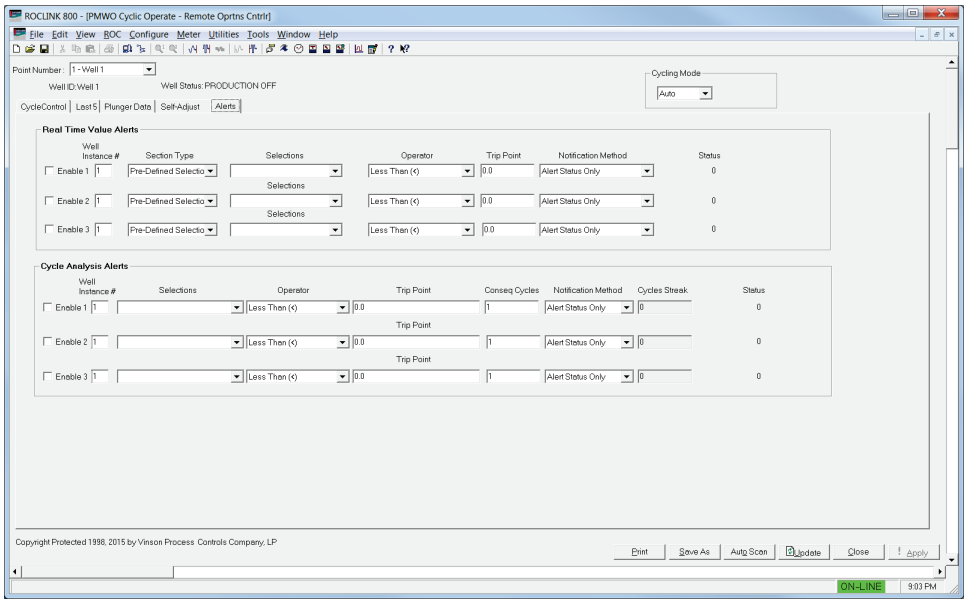
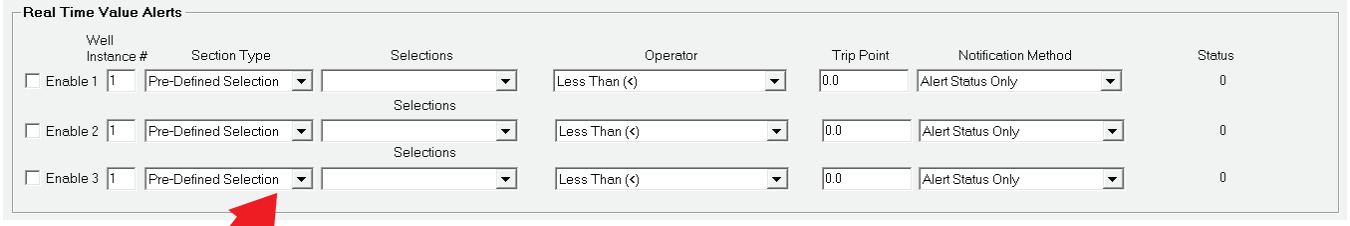
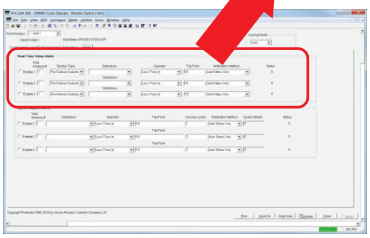


Figure 36. PMWO Cyclic Operate – Alerts tab

3.5.5.1 PMWO Cyclic Operate – Alerts Tab (Real Time Value Alerts)





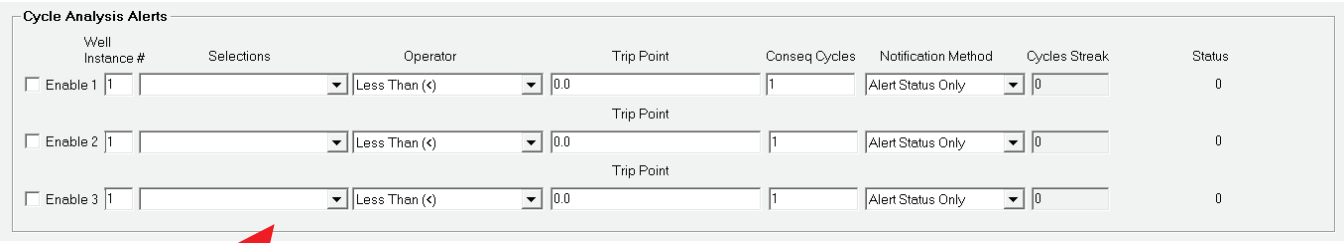
3. Review the values in the following fields:

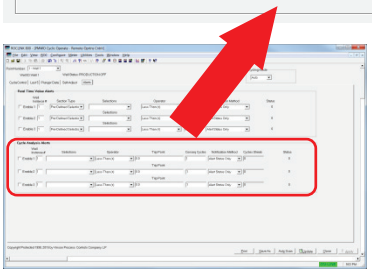
Field	Description
Enable	Enable the Alert
Well Instance #	Sets the instance number of the well for the alert you configure.
Section Type	Sets the section type for the real time alert. Click ▼ to select the option you prefer.
Selections	Selects the option you prefer to monitor in comparison with the **Trip Point**. Click ▼ to select the option you prefer. This field shows **only** when you select **Pre-Defined Selection** as the **Section Type.**

Field	Description
Operator	Defines the input you prefer to monitor in comparison with the **Trip Point.** This field shows **only** when you select **Browseable TLP** as the **Section Type.**
Trip Point	Selects the operator you choose to compare the selection or TLP input to the trip point. Click to select the operator you prefer.
Notification Method	Defines the trip point for the alert.
Status	Selects the notification you wish to receive when an alert occurs. Click to select the notification method you prefer.

4. Proceed to *Section 3.2.8.2, PMWO Config – Alerts Tab (Cyclic Analysis Alerts).*

3.5.5.2 PMWO Cyclic Operate – Alerts Tab (Cycle Analysis Alerts)





1. Review the values in the following fields:

Field	Description
Enable	Enables the alert.
Well Instance #	Sets the instance number of the well for the alert you configure.
Selections	Selects the option you prefer to monitor in comparison with the **Trip Point**. Click to select the option you prefer.
Operator	Selects the operator you choose to compare the selection or TLP input to the trip point. Click to select the operator you prefer.
Trip Point	Defines the trip point for the alert.
Conseq Cycles	Sets the number of consecutive streaks that the condition must be true for before causing the alert.
Notification Method	Select the notification you wish to receive when an alert occurs. Click to select the notification method you prefer.
Cycle Streak	Shows the current number of consecutive cycles for which the condition has been true.
Status	Shows the current status of the alert.

2. Proceed to *Section 3.6* to save the configuration.

3.6 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:

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

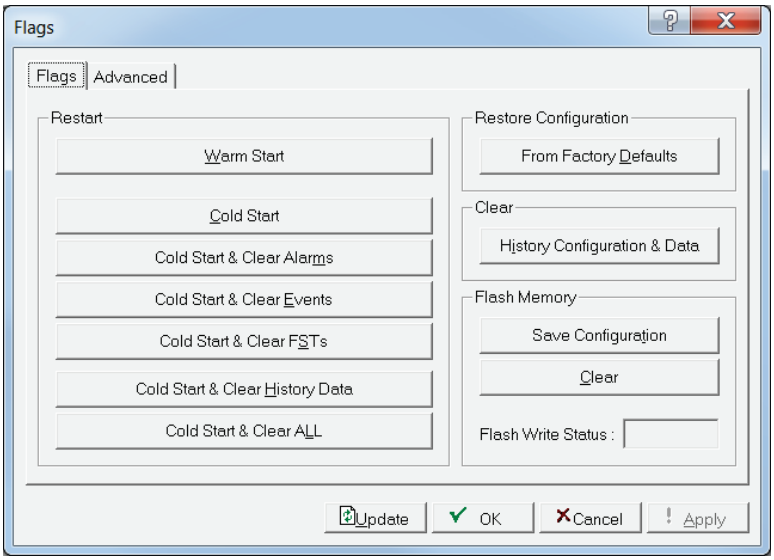


Figure 37. Flags screen

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

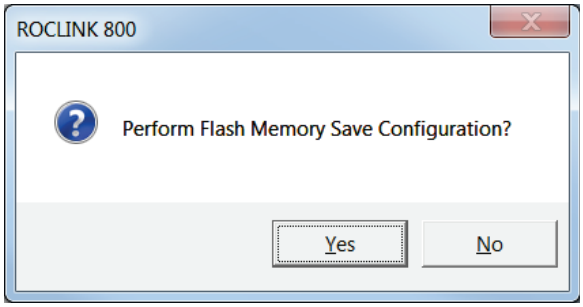


Figure 38. Perform screen

3. Click **Yes** to begin the save process. The Flash Write Status field on the Flags screen displays In Progress. When the Save Configuration completes, the Flash Write Status field on the Flags screen displays Completed.
4. 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 – Setting up a Well Optimization Function

This chapter describes how to set up the well core parameters and the main functions of the Well Optimization Manager; the Intermitter, the Gas Lift, and the Plunger Lift. This section functions as a quick start guide to show the basic fields that you must for typical program operation. Each section includes additional steps to show how to manually simulate the functionality in a non-production scenario.

4.1 Setting up the Well Core Parameters

Regardless of the optimization technique you employ, the Well Optimization Manager shares some basic, common features. These parameters include configuration of the the casing pressure input, the tubing pressure input, and the sales meter. This section walks through the basic starting point requirement for all the wells.

4.1.1 Well Core Configuration

You configure the well core parameters using the PMWO Config screen. See *Section 3.2 PMWO Config Screen* for instructions on how to access the PMWO Config screen.

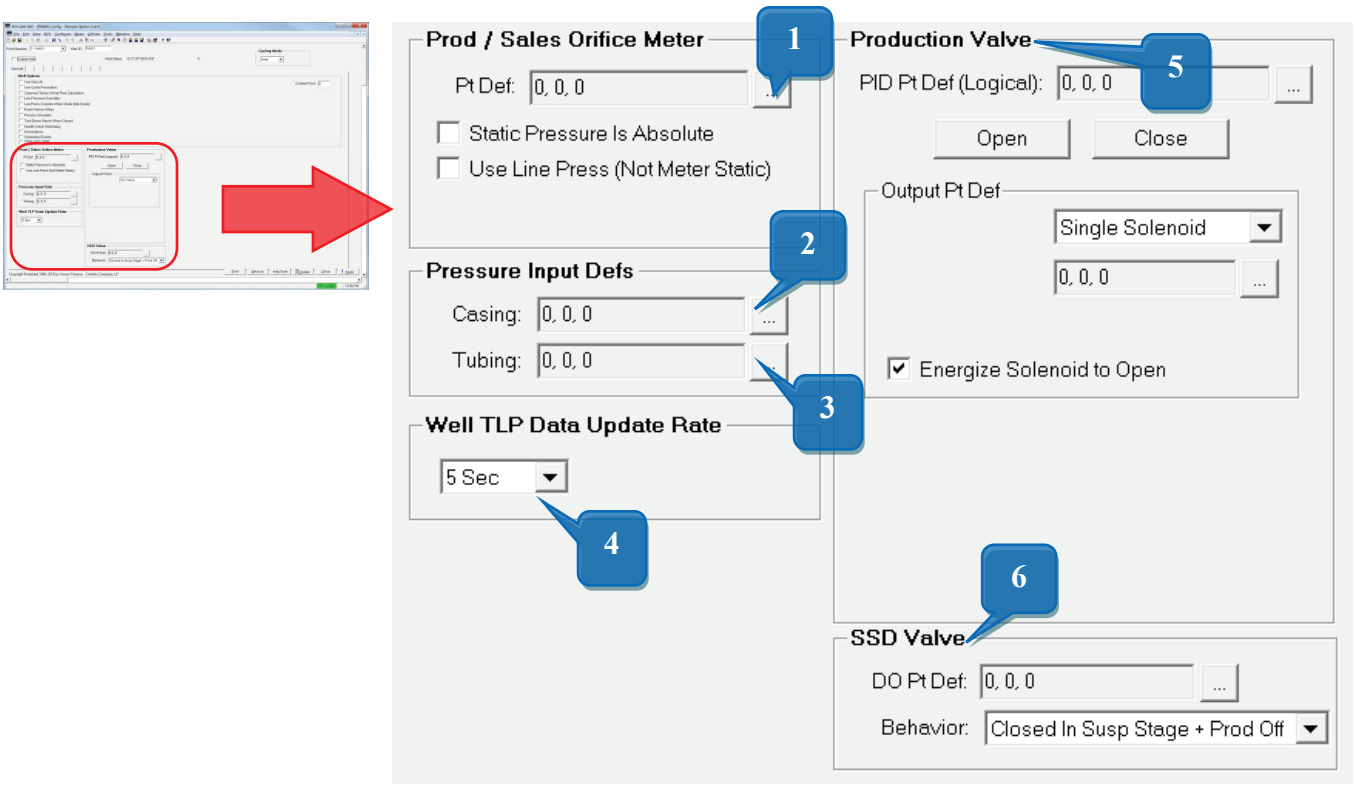


Figure 39. Well Core Configuration

Follow the following steps.

1. Define the TLP of your Production/Sales Orifice Meter. Typically, you can point this to the gas meter run from the gas leg of the separator. This is commonly an orifice plate measurement.

   Click ... to open the **Select TLP** window.

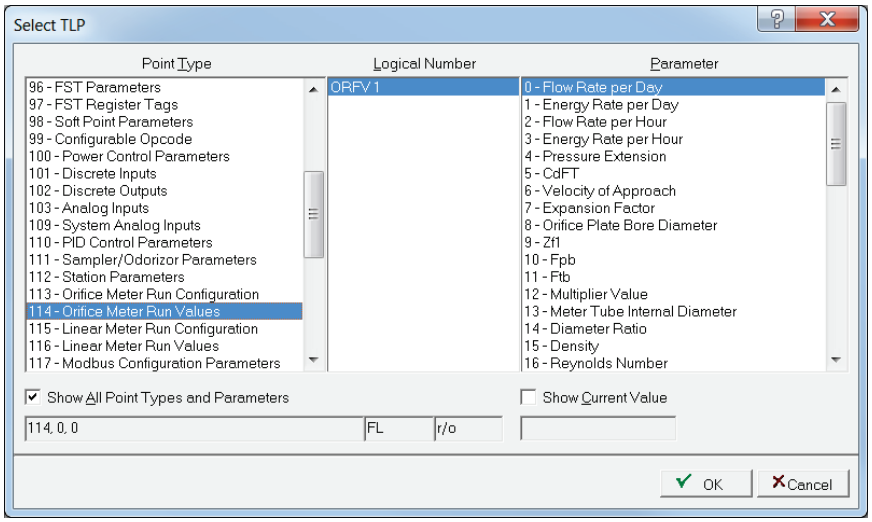


Figure 40. Well Core Configuration – Select TLP (Production/Sales Meter)

   Browse to **Flow Rate per Day** parameter for the meter run. For the ROC800, this is parameter 0 of Point Type 114 (Orifice Meter Run Values). For the FB107, this is parameter 0 of Point Type 47 (Meter Flow Values).

   Click **OK** to save your selection and close the Select TLP dialog box.

   The program needs additional information from the Production / Sales meter run for operation. However, once you complete the meter definition, the program knows which meter run is in use and retrieves all the required information.

2. Define the TLP of your **Casing** pressure. You point this to an analog input from a pressure device that monitors you well casing pressure.

   Click ... to open the **Select TLP** window.

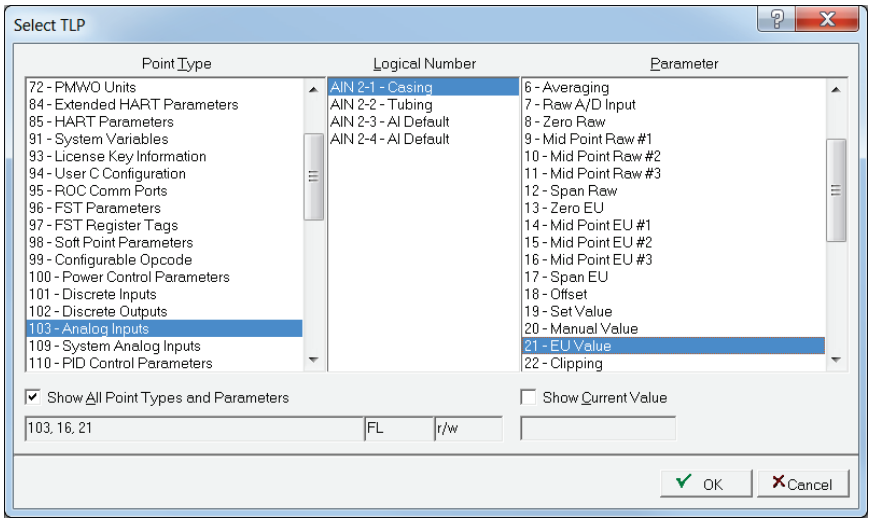


Figure 41. Well Core Configuration – Select TLP (Analog Inputs - Casing)

Browse and select **Analog Inputs** (Point Type 103 for the ROC800 or Point Type 3 for the FB107). Select the Logical Number you assign for the casing pressure and choose **EU Value** for the Parameter (Parameter 21 for the ROC800 or Parameter 14 for the FB107).

Click **OK** to save your selection and close the **Select TLP** dialog box.

3. Define the TLP of your **Tubing** pressure. You point this to an analog input from a pressure device that monitors you well tubing pressure.

Click ... to open the **Select TLP** window.

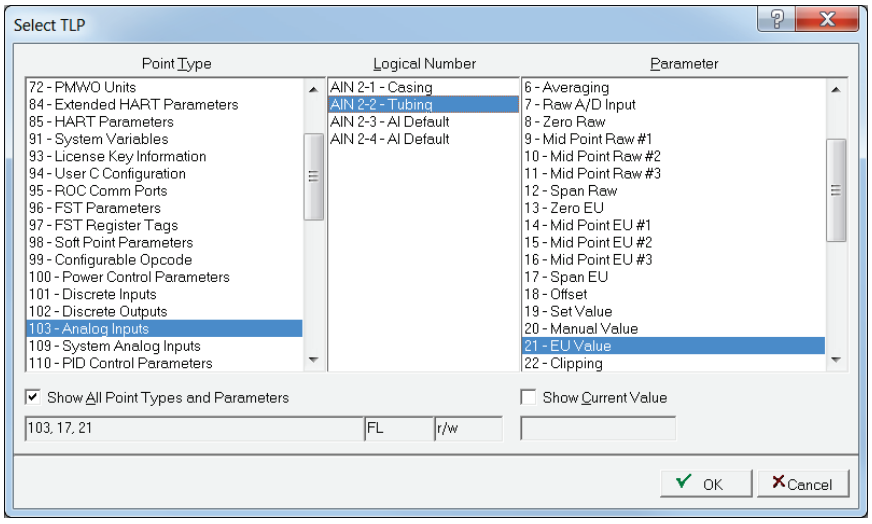


Figure 42. Well Core Configuration – Select TLP (Analog Inputs - Tubing)

Browse and select **Analog Inputs** (Point Type 103 for the ROC800 or Point Type 3 for the FB107). Select the Logical Number you assign for the tubing pressure and choose **EU Value** for the Parameter (Parameter 21 for the ROC800 or Parameter 14 for the FB107).

Click **OK** to save your selection and close the **Select TLP** dialog box.

4. Choose the rate of your well data updates. This indicates how often the program publishes the informational data. The calculations always run internally at once per second regardless of this selection. It is recommended to leave this value at 5 seconds.

5. Define the TLP of the discrete output, analog output, or PID loop you use to control the opening and closing of your **Production Valve**.

   If a flow control valve is in use, it is necessary to define a PID Control Loop to drive it. From the **PID PT Def (Logical)** field, click … and select the appropriate PID tag you configure for the flow control valve. However, if you use a discrete valve, leave this as **Undefined**.

   If you use a discrete valve, select **Single Solenoid** from the **Output Pt Def** field.

   Just below the **Single Solenoid** field, click … to open the **Select TLP** dialog box.

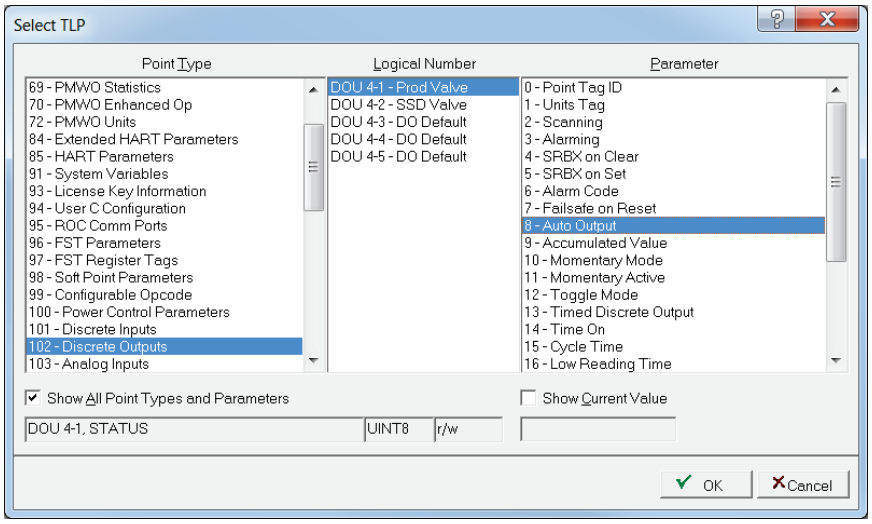


Figure 43. Well Core Configuration – Select TLP (Discrete Outputs – Production Valve)

Browse and select **Discrete Outputs** (Point Type 102 for the ROC800 or Point Type 2 for the FB107). Select the Logical Number you assign for the production valve and choose **Auto Output** (Parameter 8) for the ROC800 or **Status** (Parameter 2) for the FB107.

6. You can optionally configure the SSD (system shut down) valve. This is not a requirement but is recommended.

   From the **DO Pt Def** field, click … to open the **Select TLP** dialog box.

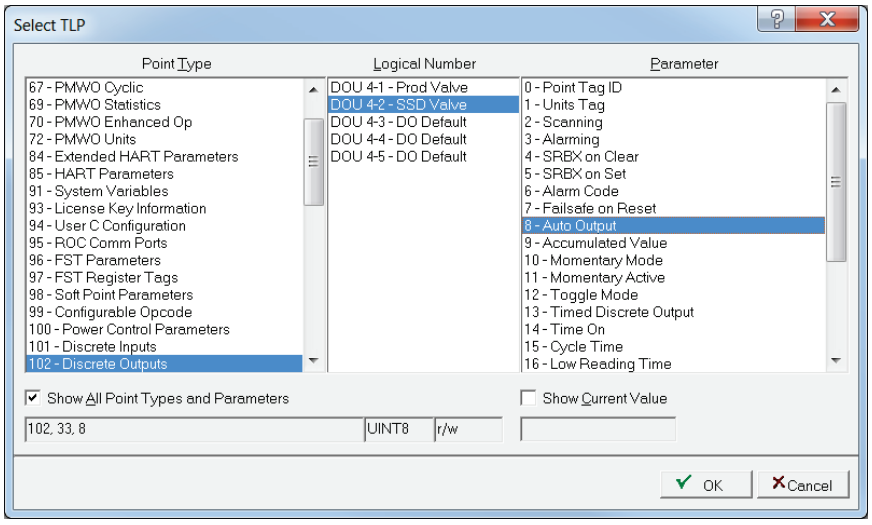


Figure 44. Well Core Configuration – Select TLP (Discrete Outputs – SSD Valve)

Browse and select **Discrete Outputs** (Point Type 102 for the ROC800 or Point Type 2 for the FB107). Select the Logical Number you assign for the production valve and choose **Auto Output** (Parameter 8) for the ROC800 or **Status** (Parameter 2) for the FB107.

You leave the **Behavior** field at default.

The complete Well core configuration looks like the following screenshot:

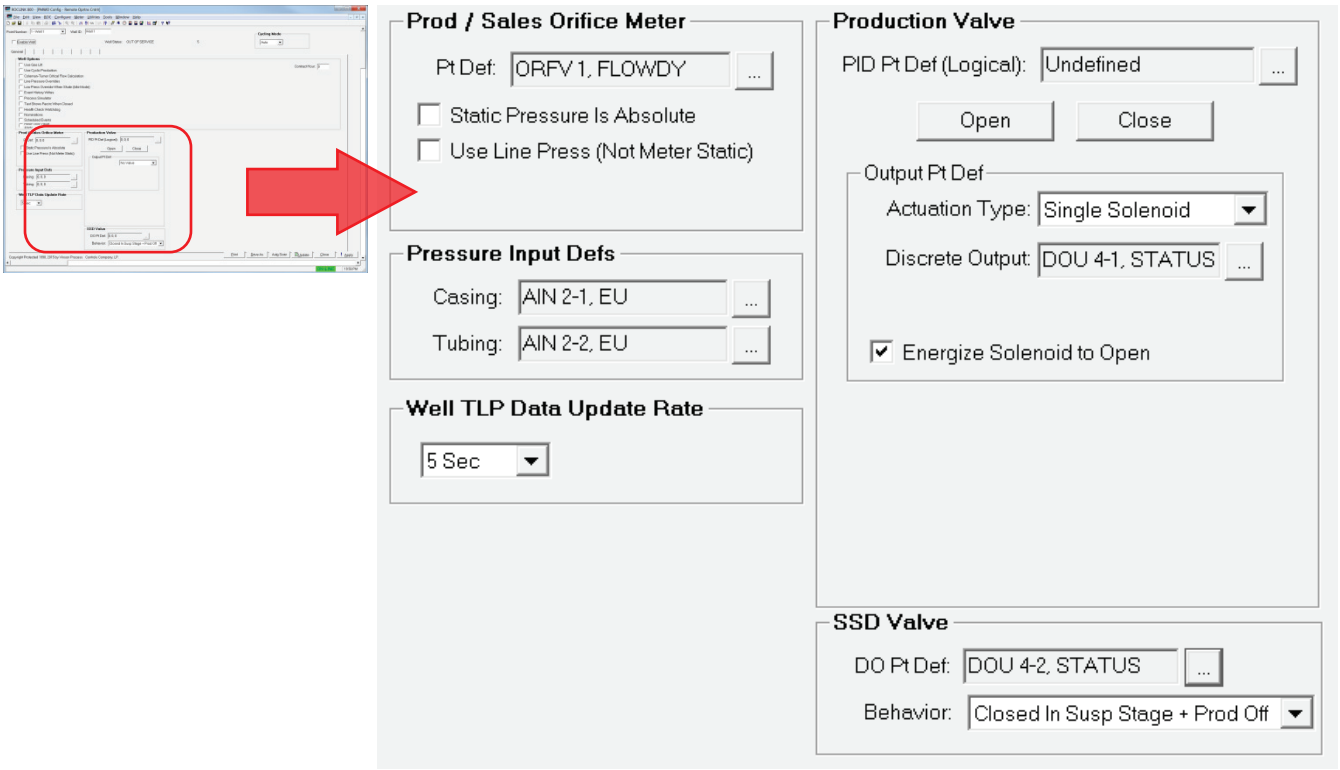


Figure 45. Well Core Configuration (Complete)

7. You enable the well and click **Apply**.

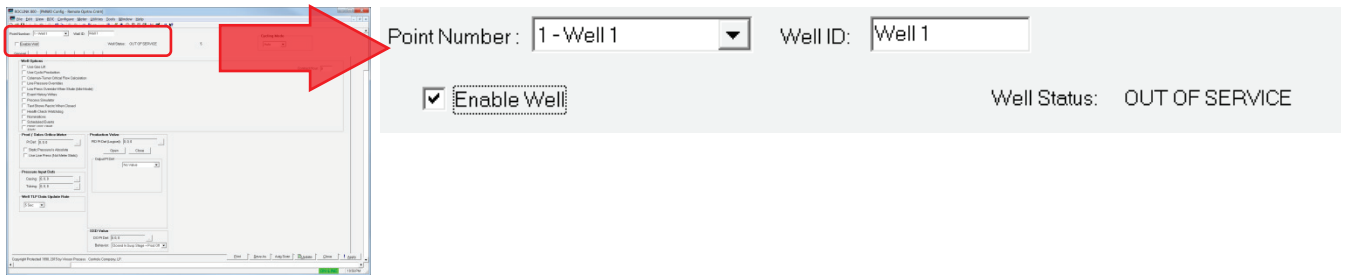


Figure 46. Well Core Configuration – Well enable

Note: If you use the Well Optimization program to manage your gas lift, cyclic control, or any of the function of the program, you enable the well only after you complete the configuration of the function.

8. Proceed to *Section 4.1.2 Simulation Option* if you choose to view a sample simulation configuration. Proceed to *Section 4.2 Setting up Gas Lift*, if you choose to set up a gas lift manager using the program.

4.1.2 Well Core Simulation

This section walks you through the manual configuration of your meters and I/Os for them to display values you use for the simulation process.

1. Configure the meter values for your **Production / Sales Orifice Meter**.

   For the ROC800, go to **Meter > Setup > Orifice Meter** using the ROCLINK 800 menu. The **Orifice Meter Setup** dialog box displays:

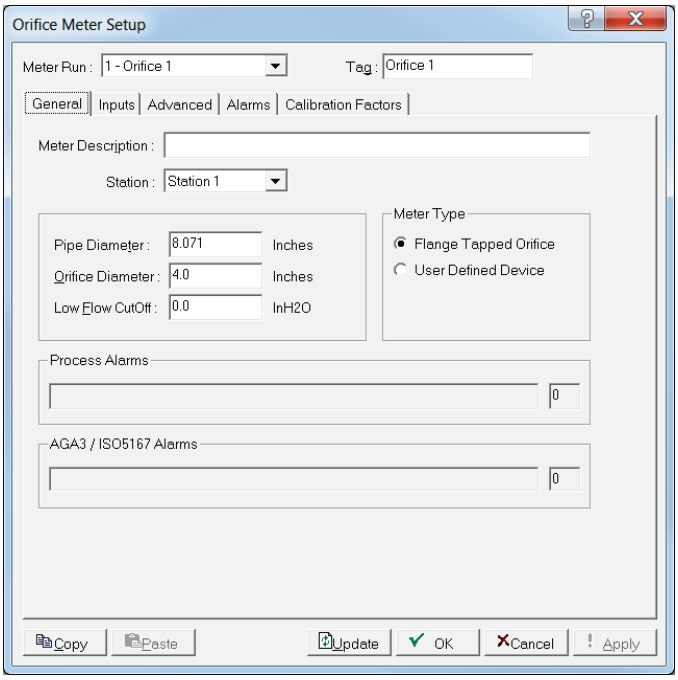


Figure 47. ROC800 Orifice Meter Setup

Select the **Inputs** tab from the **Orifice Meter Setup** dialog box. You check if the **I/O Definition** for the **Differential Pressure**, **Static Pressure**, and **Temperature** is set to **Manual**. If not, click ... and select **Undefined** from the **Select TLP** dialog box. Enter the manual values for each item, as shown in the figure below.

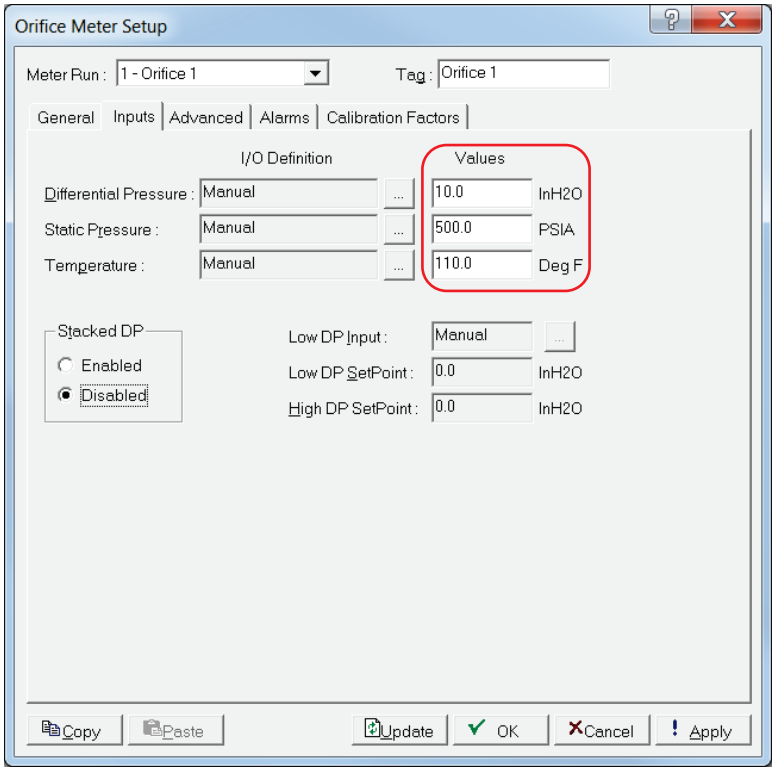


Figure 48. ROC800 Orifice Meter Setup (Inputs tab)

Once this is complete, press the **Apply** button, and then click **OK**.

For the FB107, go to **Meter > Setup** using the ROCLINK 800 menu. The **Meter Setup** dialog box displays:

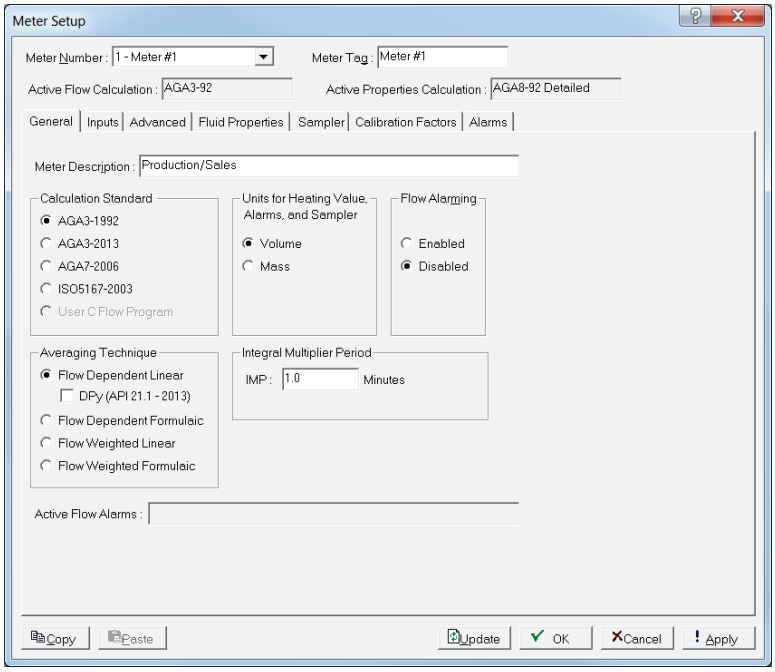


Figure 49. FB107 Orifice Meter Setup

Select the **Inputs** tab from the **Meter Setup** dialog box. You check if the **I/O Definition** for the **Differential Pressure**, **Static Pressure**, and **Temperature** is set to **Manual**. If not, click ... and select **Undefined** from the **Select TLP** dialog box. Enter the manual values for each item, as shown in the figure below.

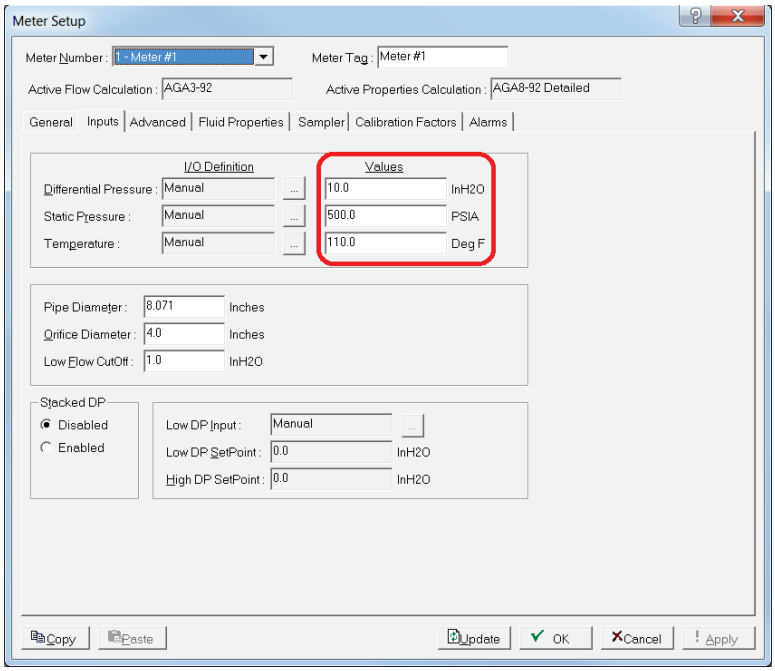


Figure 50. FB107 Orifice Meter Setup (Inputs tab)

Once this is complete, press the **Apply** button, and then click **OK**.

2. Enter the manual **EU Values** for your casing and tubing pressures.

   For both the ROC800 and FB107, go to **Configure > I/O > AI Points** using the ROCLINK 800 menu. The **Analog Input** dialog box displays:

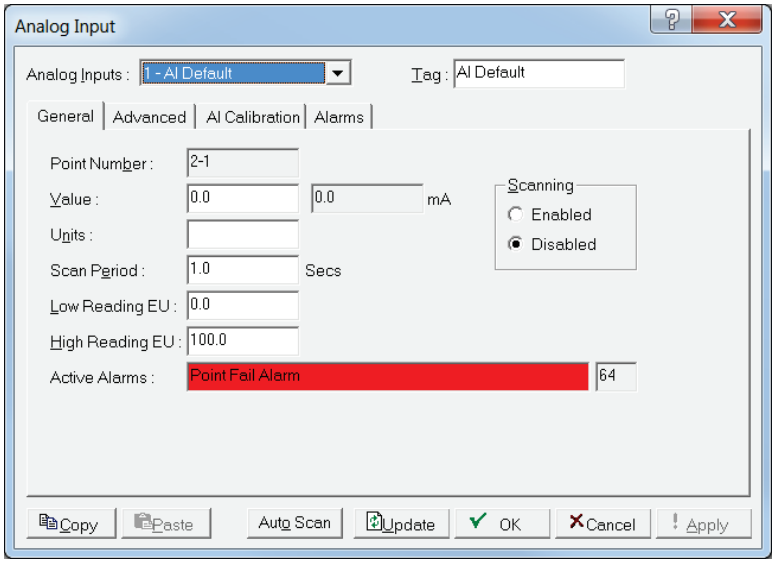


Figure 51. Analog Inputs

From the **Analog Inputs** field, click to select the instance you configure for the casing and tubing pressure input. For example, you use **1 – AI Default** for the casing and **2 – AI Default** for the tubing.

To configure your casing inputs, select **1 – AI Default** from the **Analog Inputs** field and set the **Value** to **500.0** and **Scanning** to **Disabled** from the **General** tab.

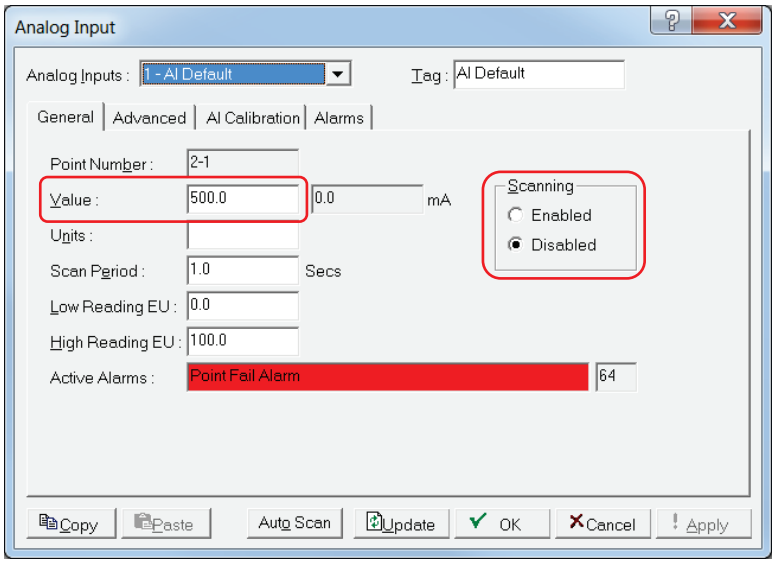
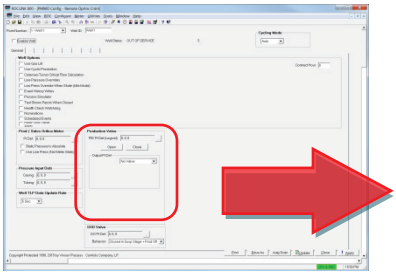


Figure 52. Analog Inputs (Scanning disabled)

To configure the tubing pressure, select **2 – AI Default** from the **Analog Inputs** field and set the **Value** to **550.0** and **Scanning** to **Disabled** from the **General** tab.

3. To start the simulation of the well production, you must open the well. Click the **Open Button** from the **PMWO Config – General Tab (Production Valve)** and click **Apply**. The **Well Status** must show **Well Open**



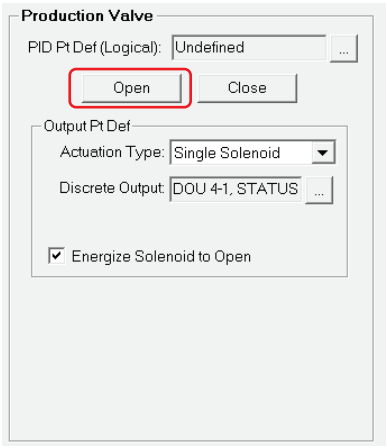


Figure 53. Opening a Production Valve

4. Go to PMWO **Core Operate – Core tab** to view your simulation values. See *Section 3.3 PMWO Core Operate* for more information on how to access the PMWO Core Operate screen.

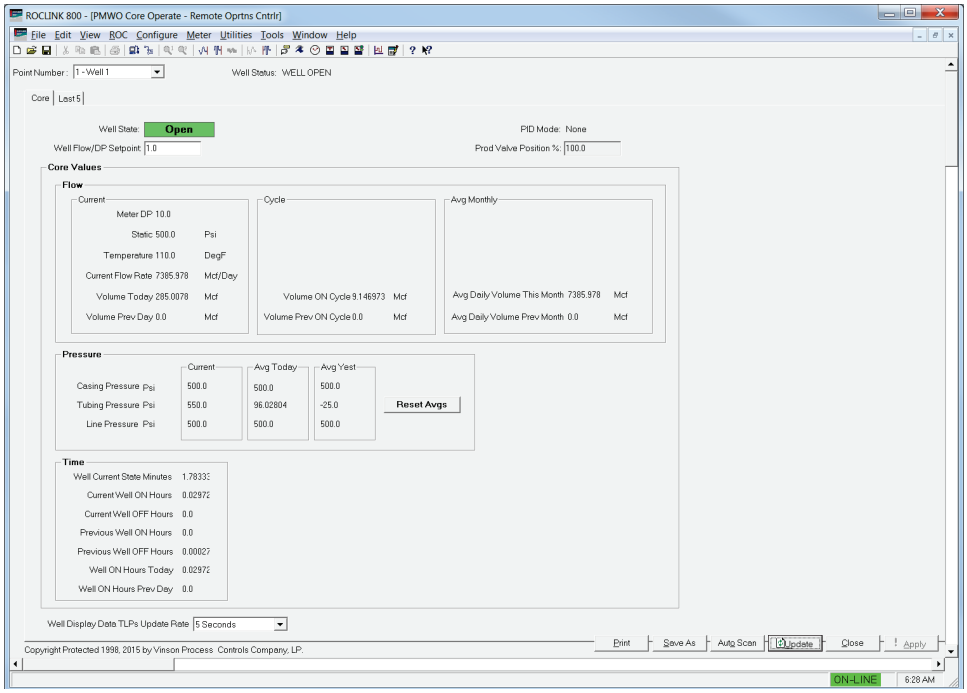


Figure 54. PMWO Core Operate Simulation Values

4.2 Setting up Gas Lift

The Well Optimization Manager program allows you to inject high pressure gas into the well to lift the loading liquid from the bottom of the well. You can use to program to test and calculate the efficiency of the well.

4.2.1 Gas Lift Configuration

o configure the Gas Lift functionality of the Well Optimization Manager program:

1. Enable the **Use Gas Lift** from the **PMWO Config Screen – General tab (Well Options)**. See *Section 3.2.1.1 PMWO Config – General Tab (Well Options)* for more on how to enable the Gas Lift.

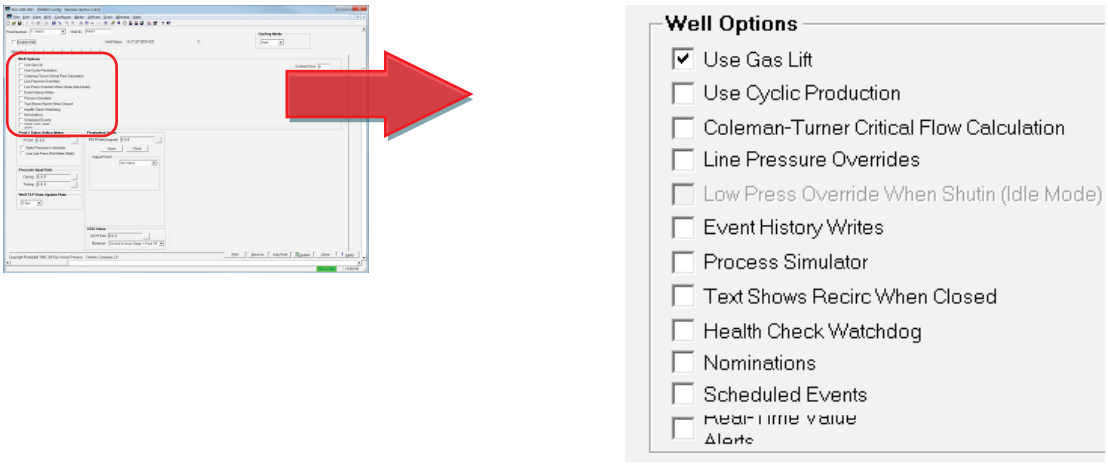


Figure 55. Gas Lift Configuration – Enable Gas Lift

2. When you enable the **Use Gas Lift**, the **Gas Lift** tab of the **PMWO Config** screen appears. Click the **Gas Lift** tab to configure the parameters you use for the gas lift functionality of the program.

   However, before you proceed with Gas Lift configuration, make sure you complete the configuration of the well core parameter. See *Section 4.1.1 Well Core Configuration* for more information.

3. Proceed to the **Gas Lift** tab of the **PMWO Well Config** screen. The Gas Lift tab displays:

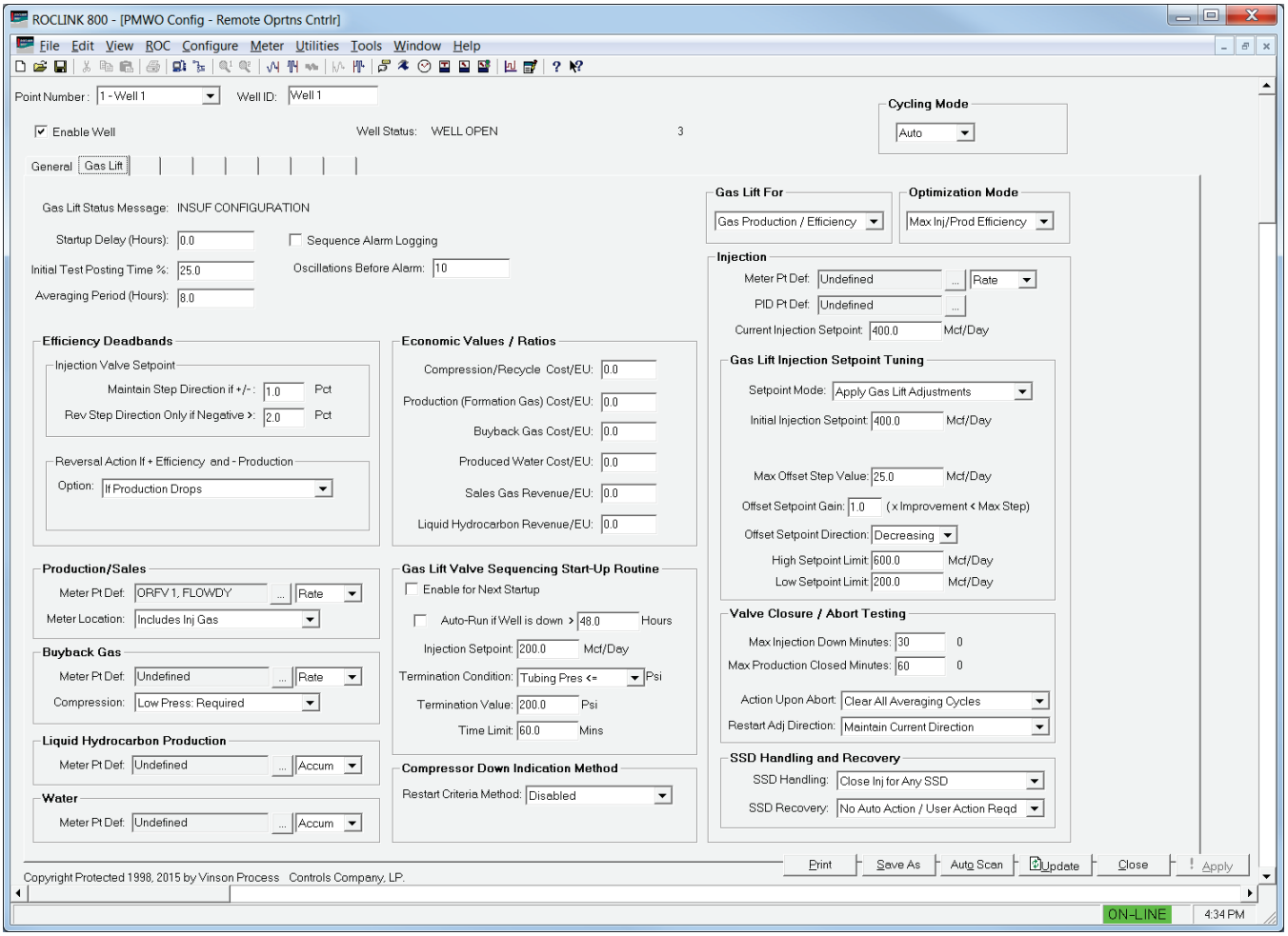


Figure 56. Gas Lift Configuration – PMWO Config, Gas Lift tab

4. Configure the **Startup Delay**, **Initial Test Posting Time %**, and **Averaging Period**. See *Section 3.2.2 PMWO Config – Gas Lift Tab* for more information on these fields.

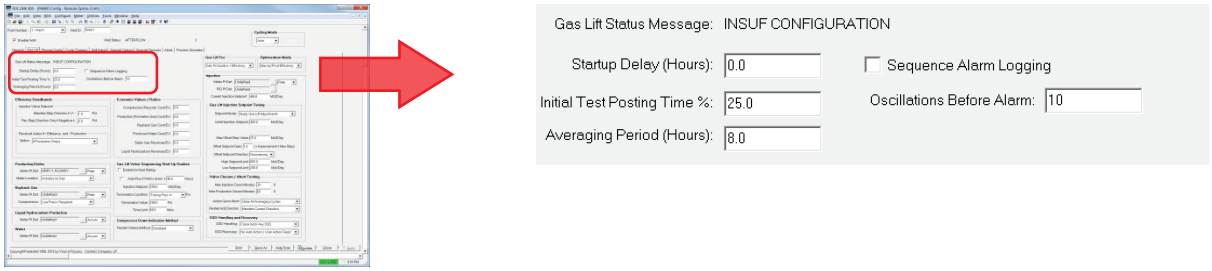


Figure 57. Gas Lift Configuration – PMWO Config,Gas Lift tab

5. Check the **Meter Pt Def** of your **Production/Sales** meter. The program automatically populates the **Meter Pt Def** field after you configure the Well Core Parameters (*Section 4.1.1 Well Core Configuration)*. Define the meter as either as a Production meter **(Meter Location > Includes Inj Gas)** or as a Sales meter **(Meter**

Location > Excludes Inj Gas). See *Section 3.2.2.2 PMWO Config – Gas Lift Tab (Production/Sales)* for more information on these fields.

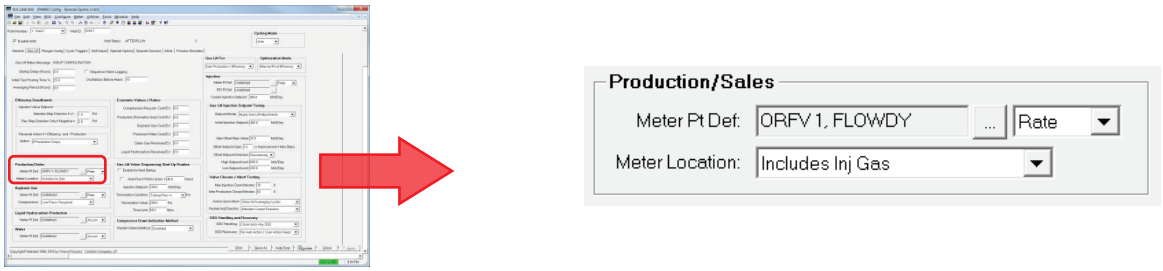


Figure 58. Gas Lift Configuration – Production/Sales Meter

6. Select the **Gas Lift For** and **Optimization Mode** you prefer. See *Section 3.2.2.9 PMWO Config – Gas Lift Tab (Gas Lift For & Optimization Mode)* for more information on the optimization modes.

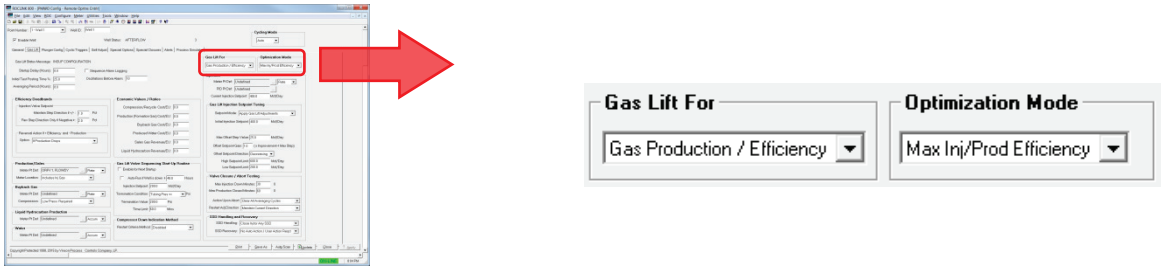


Figure 59. Gas Lift Configuration – Gas Lift Optimization Mode

7. Define the TLP (**Meter Pt Def**) of your Injection meter. Typically, you point this to a gas meter run.

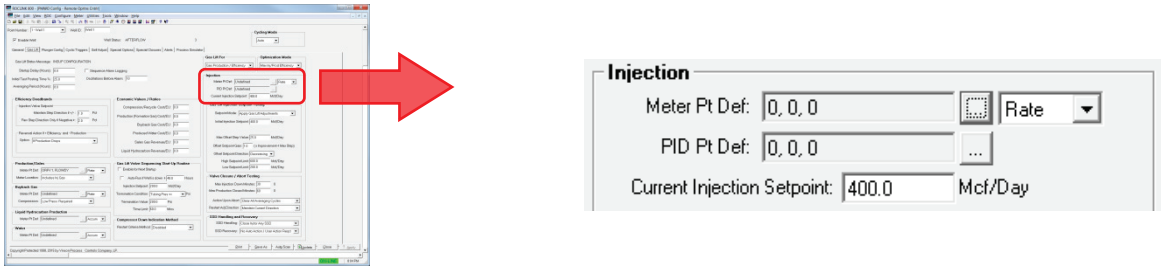


Figure 60. Gas Lift Configuration – Injection Meter

Click ... to open the **Select TLP** window.

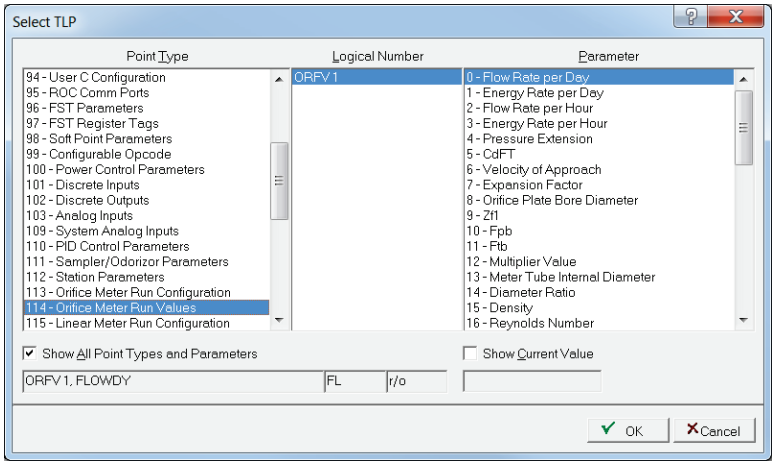


Figure 61. Gas Lift Configuration – Select TLP (Injection Meter)

Browse to **Flow Rate per Day** parameter for the meter run. For the ROC800, this is parameter 0 of Point Type 114 (Orifice Meter Run Values). For the FB107, this is parameter 0 of Point Type 47 (Meter Flow Values).

Click **OK** to save your selection and close the Select TLP dialog box.

The program needs additional information from the Injection meter run for operation. However, once you complete the meter definition, the program knows which meter run is in use and retrieves all the required information.

8. To configure the PID loop for your Injection valve, go to **Configure > Control > PID Loop** using the ROCLINK 800 menu for both the FB107 and the ROC800. The **PID Loop** dialog box displays:

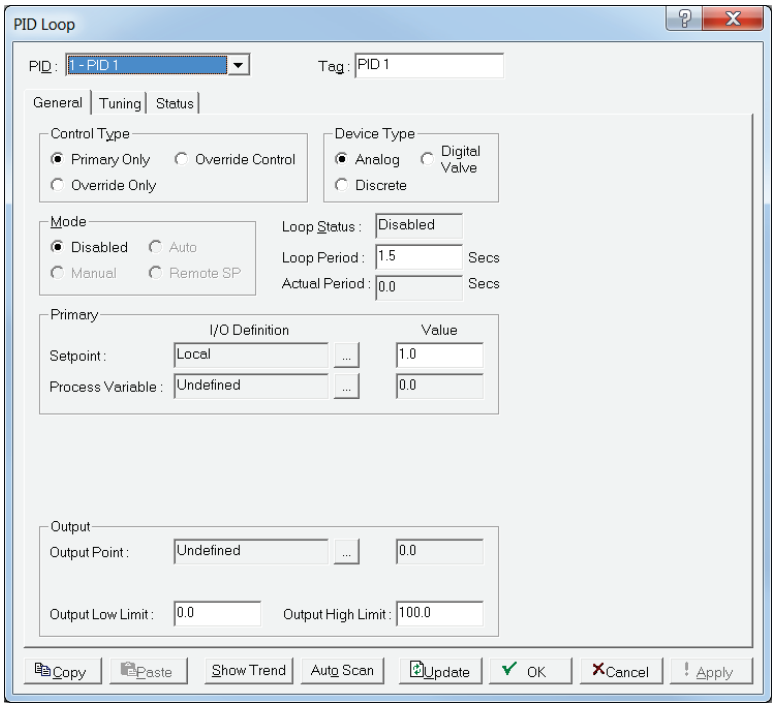


Figure 62. Gas Lift Configuration – PID Loop

9. From the PID Loop dialog box, setup the **Process Variable** of the PID loop for your Injection valve.

Click ... to open the **Select TLP** window.

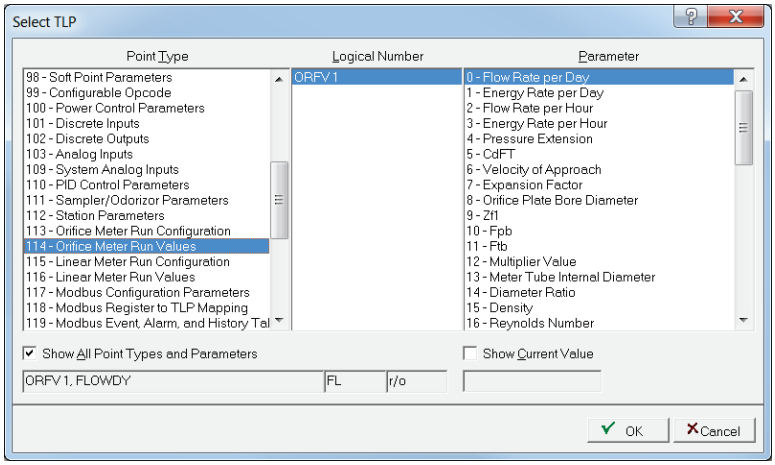


Figure 63. Gas Lift Configuration – Select TLP (PID Loop – Process Variable)

Browse to **Flow Rate per Day** parameter for the Injection meter run. For the ROC800, this is parameter 0 of Point Type 114 (Orifice Meter Run Values). For the FB107, this is parameter 0 of Point Type 47 (Meter Flow Values).

Click **OK** to save your selection and close the Select TLP dialog box.

10. From the PID Loop dialog box, setup the **Output Point** of the PID loop for your Injection valve.

Click ... to open the **Select TLP** window.

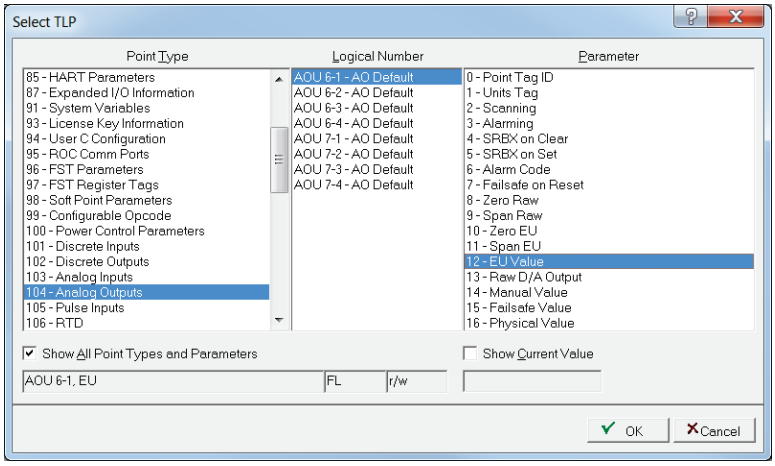


Figure 64. Gas Lift Configuration – Select TLP (PID Output Point)

Browse and select **Analog Outputs** (Point Type 104 for the ROC800 or Point Type 4 for the FB107). Select the Logical Number you assign for the output point and choose **EU Value** (Parameter 12) for the ROC800 or **Auto Value** (Parameter 6) for the FB107.

Click **OK** to save your selection and close the Select TLP dialog box.

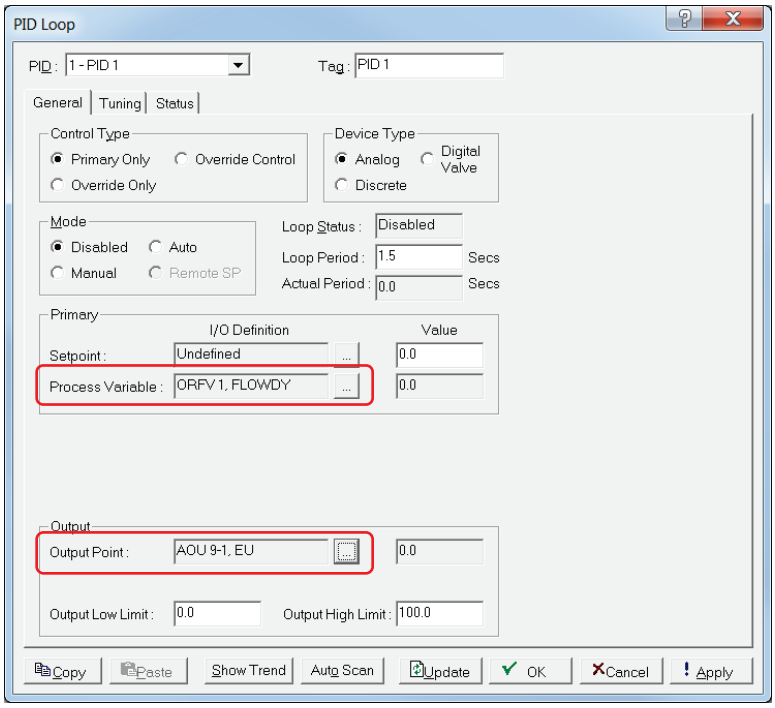


Figure 65. Gas Lift Configuration – PID Loop

11. Define the TLP (**PID Pt Def**) of your PID loop to control the Injection valve.

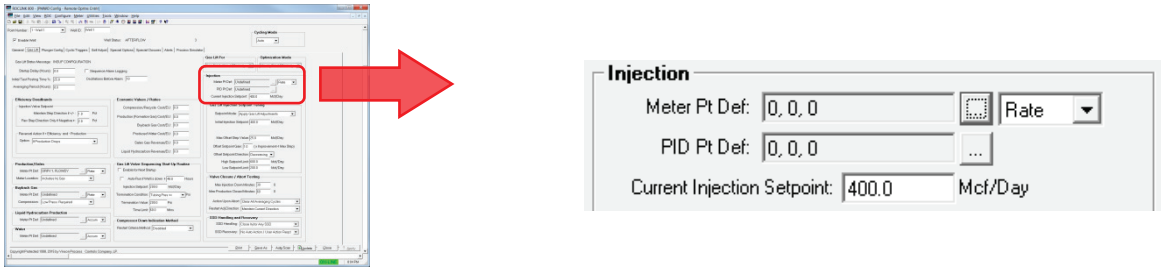


Figure 66. Gas Lift Configuration – Injection PID Loop

Click ... to open the **Select TLP** window.

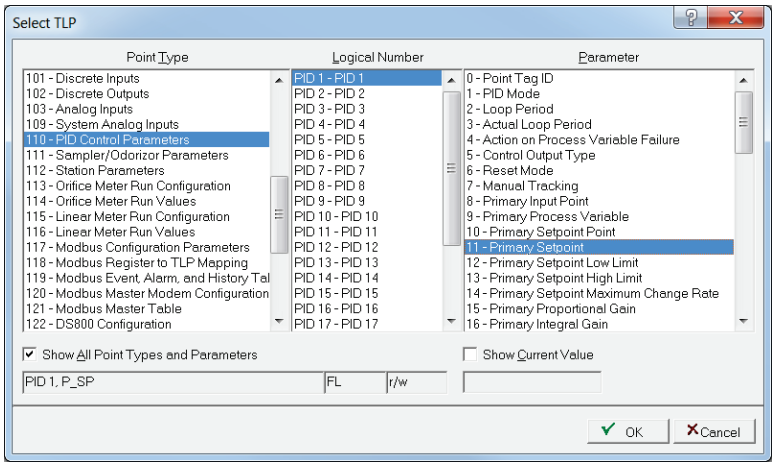


Figure 67. Gas Lift Configuration – Select TLP (PID Loop)

Browse and select **PID Control Parameters** (Point Type 110 for the ROC800 or Point Type 48 for the FB107). Select the Logical Number of the PID loop you configure and choose **Primary Setpoint** (Parameter 11 for the ROC800 or Parameter 6 for the FB107).

Click **OK** to save your selection and close the Select TLP dialog box.

12. Configure your **Gas Lift Injection Setpoint Tuning**. See *Section 3.2.2.10 PMWO Config – Gas Lift Tab (Injection)* for more information on injection setpoint tuning.

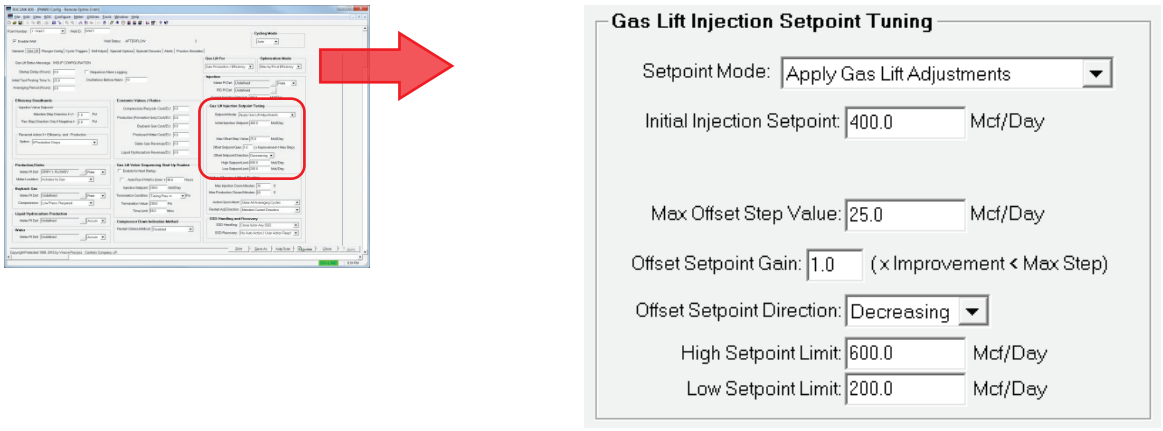


Figure 68. Gas Lift Configuration – Gas Lift Injection Setpoint Tuning

13. Proceed to *Section 4.2.2 Simulation Option* if you choose to view a sample simulation configuration. Proceed to *Section 4.3 Setting up Intermitter,* if you choose to set up an intermitter using the program.

4.2.2 Gas Lift Simulation

This section walks you through the manual configuration of your meters and I/Os for them to display values you use for the simulation process. You use the **PMWO Gas Lift Operate** screen to view the simulation parameters of the Gas Lift functionality. See *Section 3.4 Gas Lift Operate Screen* for more information on accessing the PMWO Gas Lift Operate screen.

1. Configure the well core paramaters first before you proceed with gas lift simulation See *Section 4.1.2 Well Core Simulation* for more information.

2. Configure the **Startup Delay, Initial Test Post Time %,** and **Averaging Period** to low values for simulation purposes. Enter 15 seconds (0.0042 hours) for **Startup Delay** and 3 minutes (0.05 hours) for **Averaging Period**:

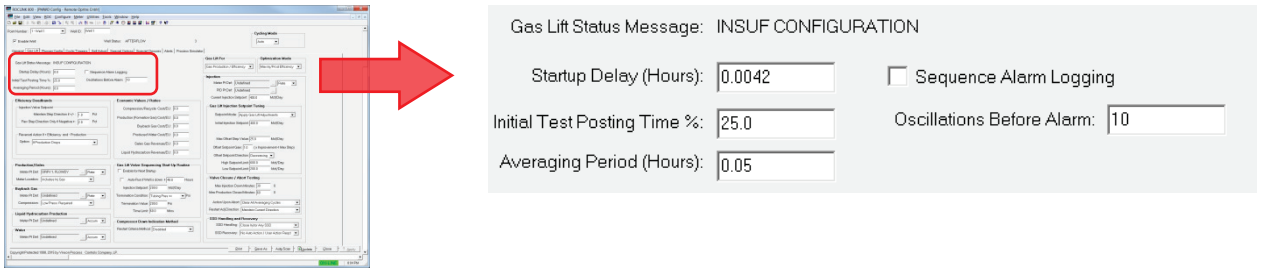


Figure 69. Gas Lift Simulation – Gas Lift Config

3. Configure the meter values for your **Injection Meter**.

For the ROC800, go to **Meter > Setup > Orifice Meter** using the ROCLINK 800 menu. The **Orifice Meter Setup** dialog box displays:

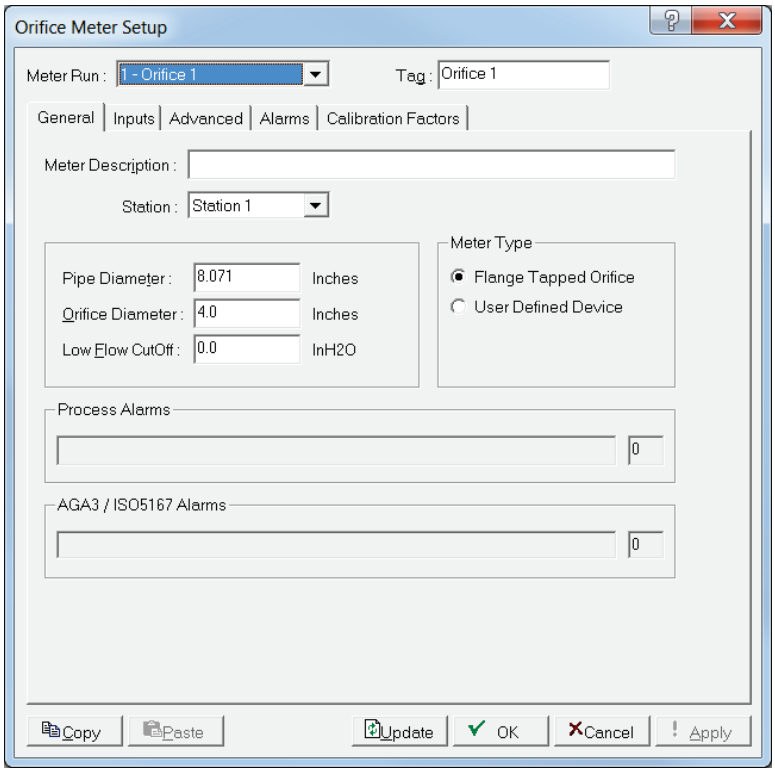


Figure 70. Gas Lift Simulation – ROC800 Orifice Meter Setup

Select the **Inputs** tab from the **Orifice Meter Setup** dialog box. You check if the **I/O Definition** for the **Differential Pressure**, **Static Pressure**, and **Temperature** is set to **Manual**. If not, click ... and select **Undefined** from the **Select TLP** dialog box. Enter the manual values for each item, as shown in the figure below.

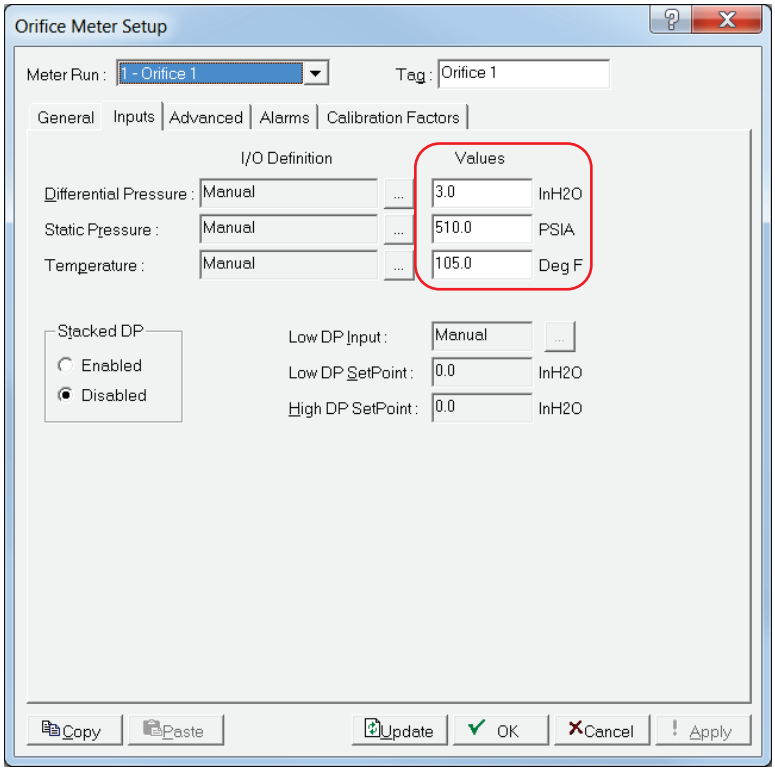


Figure 71. Gas Lift Simulation – ROC800 Orifice Meter Setup (Inputs tab)

Once this is complete, press the **Apply** button, and then click **OK**.

For the FB107, go to **Meter > Setup** using the ROCLINK 800 menu. The **Meter Setup** dialog box displays:

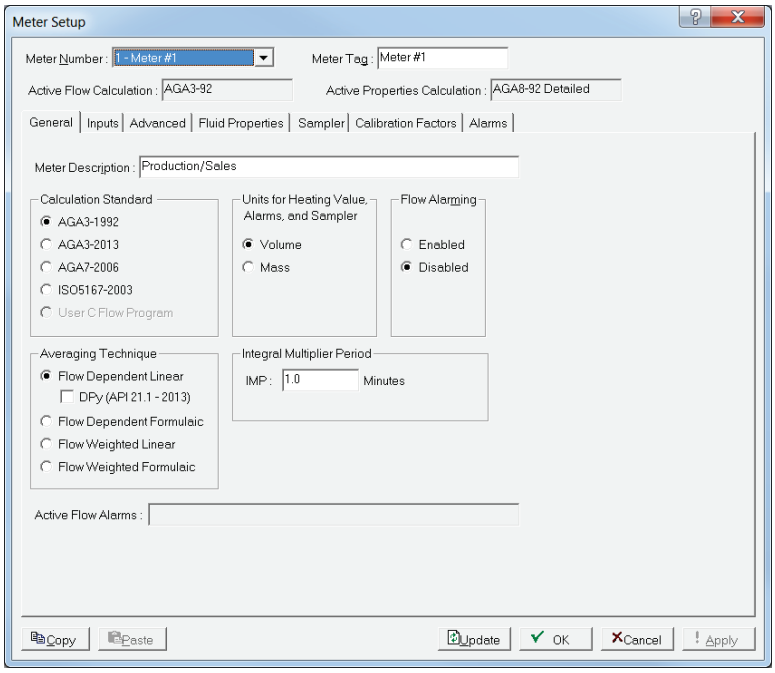


Figure 72. Gas Lift Simulation – FB107 Orifice Meter Setup

Select the **Inputs** tab from the **Meter Setup** dialog box. You check if the **I/O Definition** for the **Differential Pressure**, **Static Pressure**, and **Temperature** is set to **Manual**. If not, click ... and select **Undefined** from the **Select TLP** dialog box. Enter the manual values for each item, as shown in the figure below.

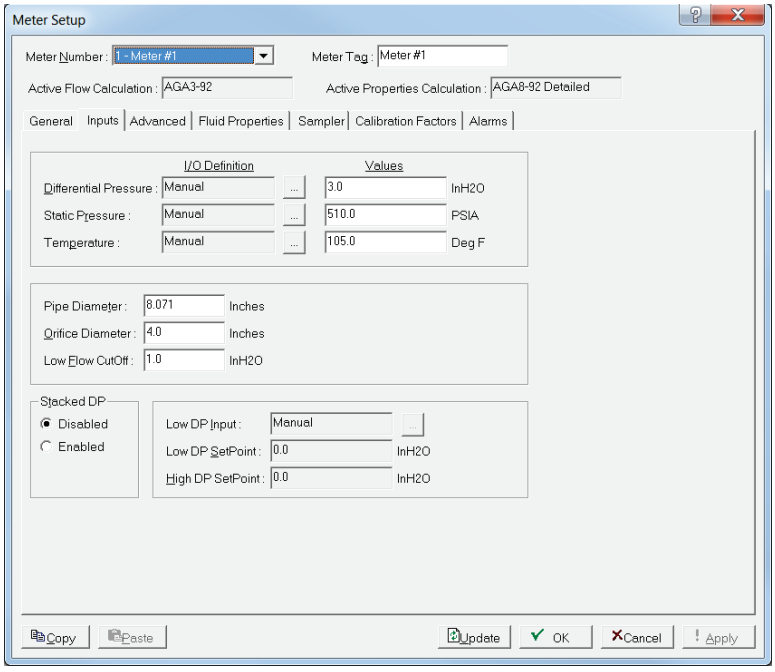


Figure 73. Gas Lift Simulation – FB107 Orifice Meter Setup (Inputs tab)

Once this is complete, press the **Apply** button, and then click **OK**.

4. To start the simulation of gas optimization, you must open the well. Click the **Open** button from the **PMWO Config – General Tab (Production Valve)** and click **Apply**. The **Well Status** must show **Well Open**

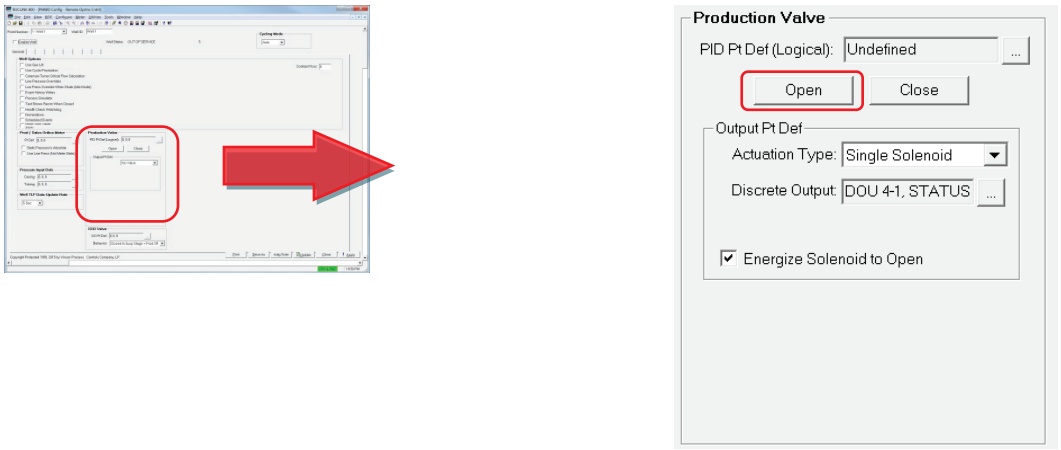


Figure 74. Gas Lift Simulation – Opening a Production Valve

5. Go to **PMWO Gas Lift Operate – Operate** tab. See *Section 3.4 PMWO Gas Lift Operate* for more information on how to access the PMWO Gas Lift Operate screen.

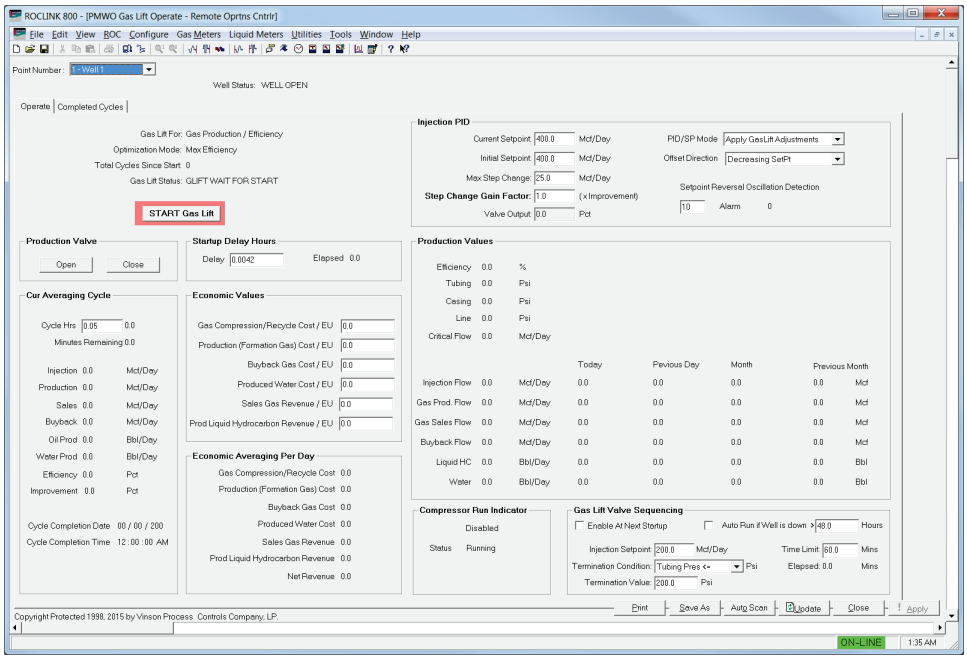
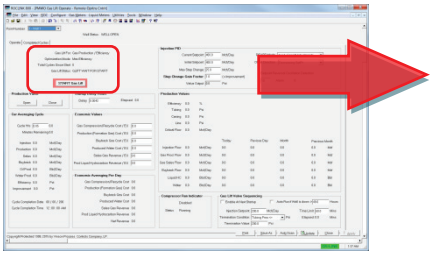


Figure 75. Gas Lift Simulation – PMWO Gas Lift Operate Simulation Values

6. The **Gas Lift Status** shows **GLIFT WAIT FOR START** if you configure the gas lift correctly. Click the **START Gas Lift** button to start the first averaging cycle.



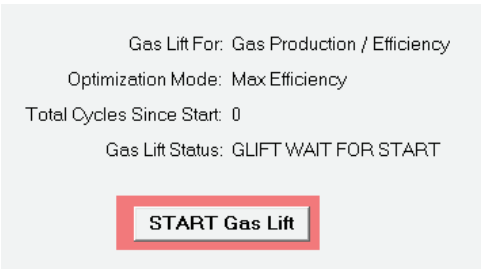
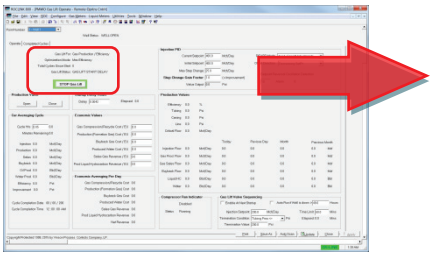


Figure 76. Gas Lift Simulation – Gas Lift Waiting for Start

7. The first gas lift **Startup Delay** begins the 15 second countdown (.0042 hours) and the **Gas Lift Status** should read **GAS LIFT START DELAY.**



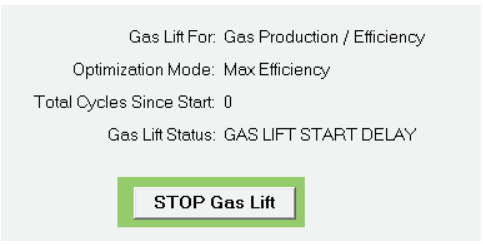


Figure 77. Gas Lift Simulation – Gas Lift Startup Delay

8. When the **Startup Delay** expires, the first averaging period begins and the **Gas Lift Status** should read **GAS LIFT FIRST AVG.**

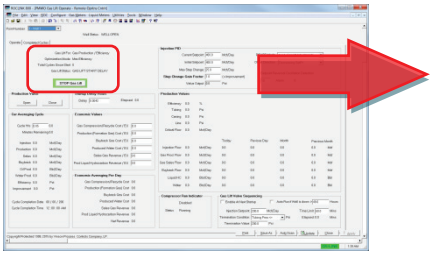


Figure 78. Gas Lift Simulation – Gas Lift First Averaging Cycle

9. The duration of the first gas lift averaging period is 45 seconds. This time depends on the **Initial Test Post Time %**, which you set to 25% of the **Averaging Period** of 3 minutes in step 16. After the initial averaging cycle completes, the **Gas Lift Status** should read **NO SETPT CHG:InDdBnd**. Also, note that your **Total Cycles Since Start** increments to 1 when the first cycle completes.

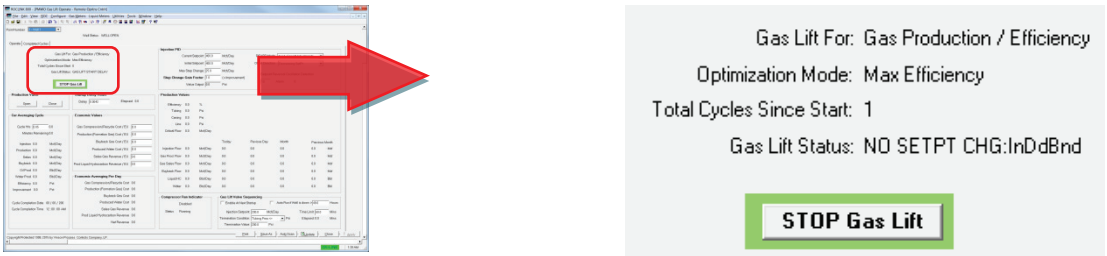


Figure 79. Gas Lift Simulation – No Setpoint Change: In Deadband

10. Change the **Differential Pressure** of the **Production Meter** to the value below to simulate increased production. See the step 9 of *Section 4.1.2 Well Core Simulation* for more information on how to simulate the Production Meter input values.

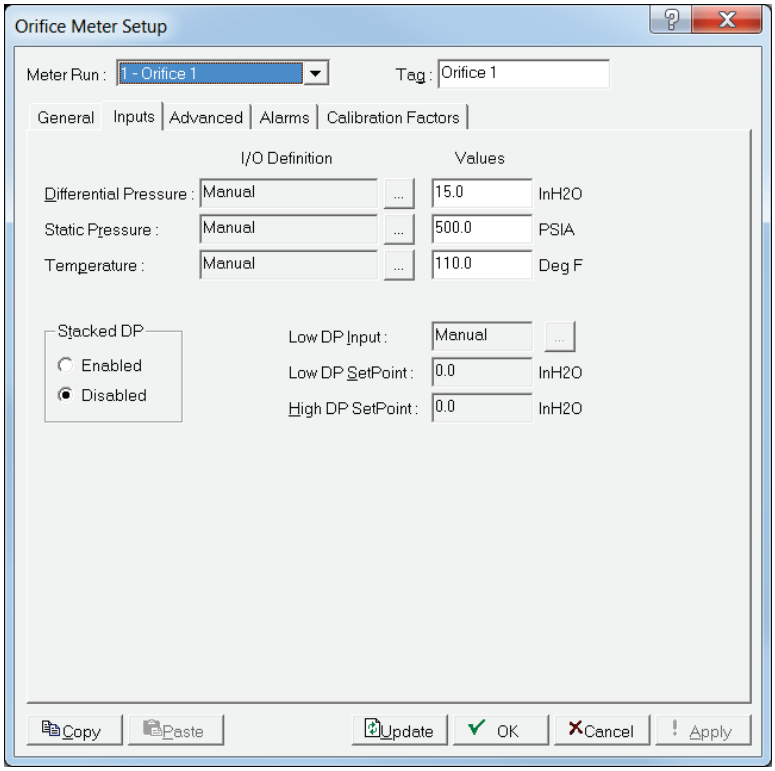
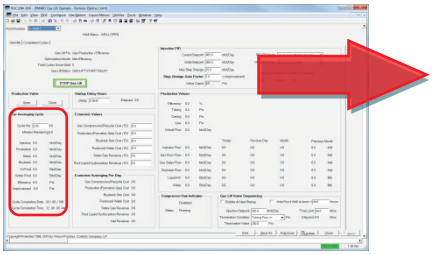


Figure 80. Gas Lift Simulation – Orifice Meter Setup

11. Wait for the **Current Averaging Cycle** to complete. To determine how much time you have to wait, see the **Minutes Remaining** in the **Cur Averaging Cycle**.



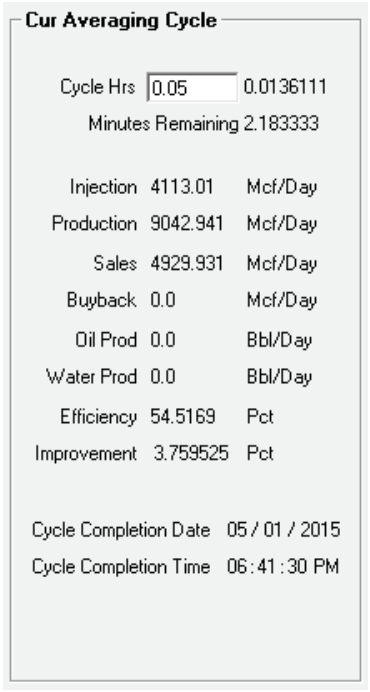
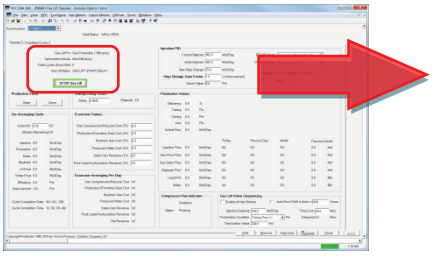


Figure 81. Gas Lift Simulation – Current Averaging Cycle

12. After the current cycle finishes, the increase in production should cause the result in a forward direction setpoint change and the **Gas Lift Status** should read **FWD DIRECTION SP CHG**.



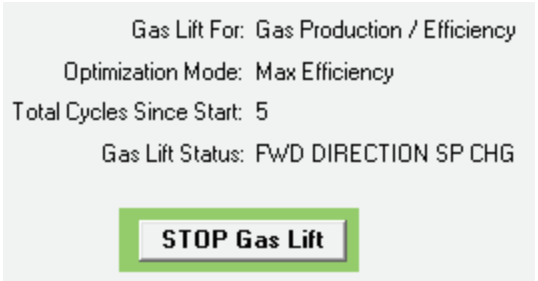
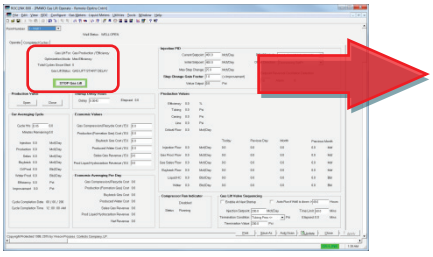


Figure 82. Gas Lift Simulation – Forward Direction Setpoint Change

The program modifies the current setpoint of the **Injection PID** based on the change in production.



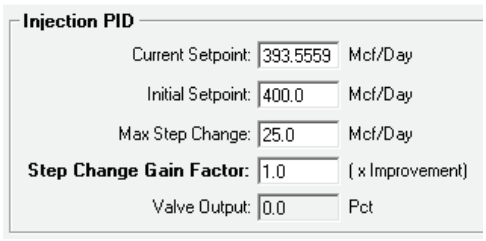


Figure 83. Gas Lift Simulation – Injection Current Setpoint Change

Note: If the change to differential pressure of the production meter is too close to the end of the current averaging cycle, you may have to wait for another cycle to complete before experiencing a change in the injection setpoint.

13. You may change the differential pressure more to see how the program modifies the setpoint based on increased and decreased production.

4.3 Setting up Intermitter

Intermitting is the concept of shutting in the well, using the own energy of the well to allow for the building of downhole pressure. Once there is a sufficient pressure build up, the well production valve open, allowing for production from the well. As the production meter flowrate decreases, and the pressure declines, the well is shut in again, and the cycle continues.

4.3.1 Intermitter Configuration

To configure the Intermitter functionality of the Well Optimization Manager program:

1. Enable the **Use Cyclic Production** from the **PMWO Config Screen – General tab (Well Options)** and press the apply button. See *Section 3.2.1.1 PMWO Config – General Tab (Well Options)* for more on how to enable cylic production.

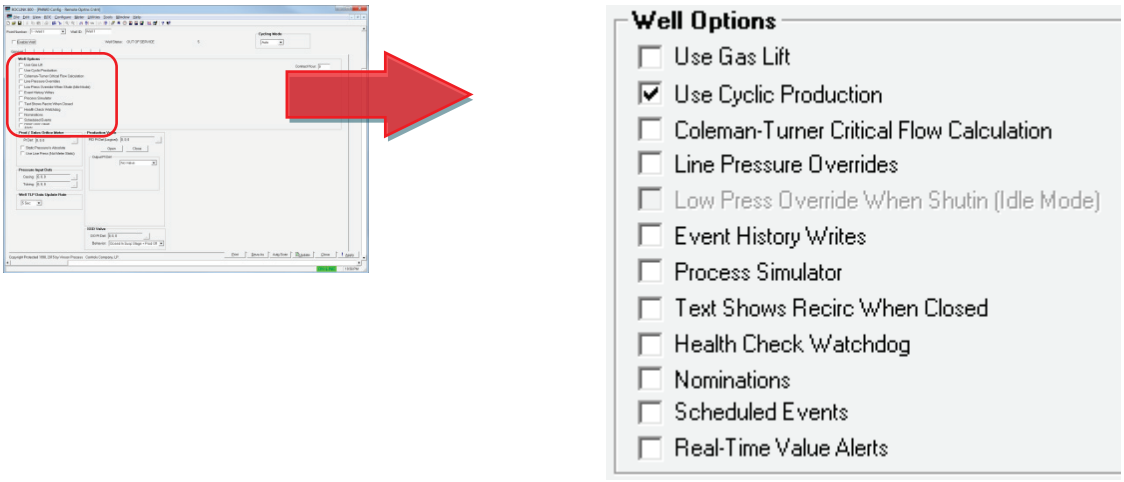


Figure 84. Intermitter Configuration - Enable Cyclic Production

2. When you enable the **Use Cyclic Production**, the **Cyclic Types and Dependent Options** section of the **General Tab** appears, as well as the **Cyclic Triggers** tab. For the Cycle Type drop down selection, select the **No Plunger (Optimize)** option.

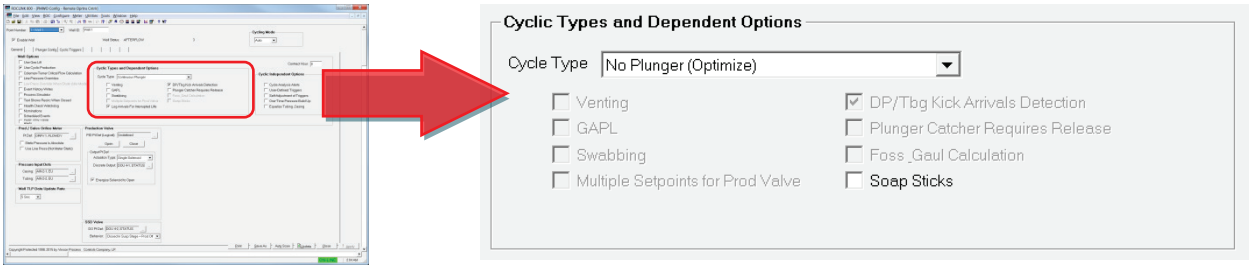


Figure 85. Intermitter Configuration – Cyclic Type – No Punger (Optimize)

Before you proceed with Intermitter configuration, make sure you complete the configuration of the well core parameter. See *Section 4.1.1 Well Core Configuration* for more information.

3. Proceed to the **Cyclic Triggers** tab of the **PMWO Well Config** screen. The Cyclic Triggers tab displays:

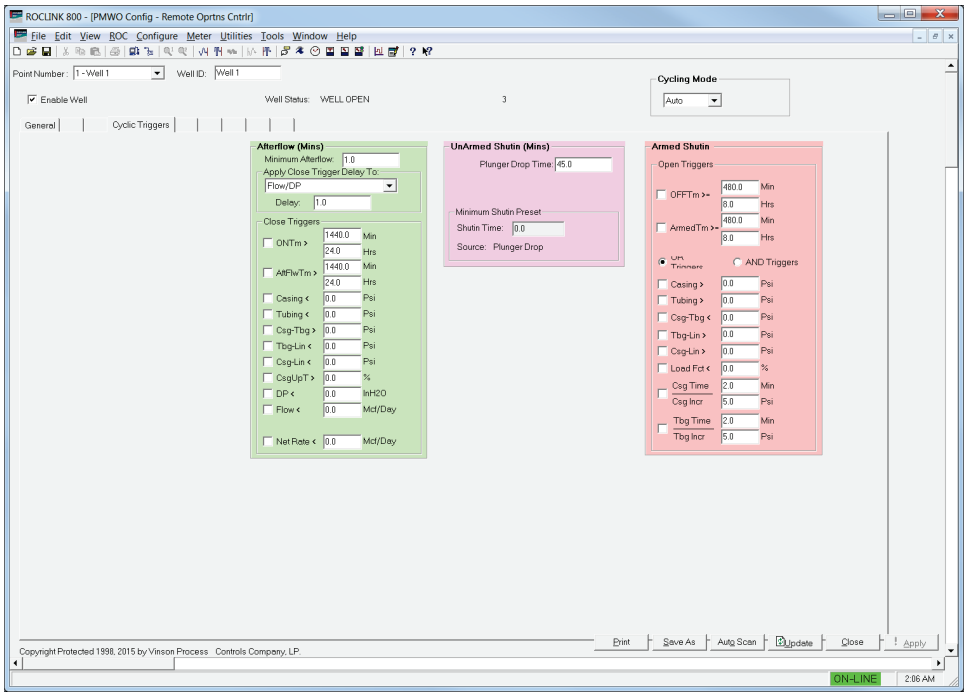


Figure 86. Intermitter Configuration – PMWO Config – Cyclic Triggers tab

Note: This tab presents the limited trigger options for opening and closing the well. The **Afterflow** is the state where the well is open. The **Unarmed Shutin** is the state when the well is shut-in and represents the minimum time the well must remain closed. **Armed Shutin** is when the well is shut-in, but is activel looksfor triggers to open back up the well.

4. In the **Afterflow (Mins)** frame, enable **AftFlwTm**. This prompts the program to use the criteria of time spent in the **Afterflow** state as a trigger to transition to the next state. In the **Mins** field next to the

AftFlwTm checkbox, enter the **Afterflow** state time. This can be as short as a fraction of a minute and as long as several hours. This is the amount of time the well remains in an open state.

Note: If the afterflow time you choose is in several hours, enter the time via the **Hrs** field to the **AftFlwTm** checkbox. You should only enter the time into one of these two fields (not both).

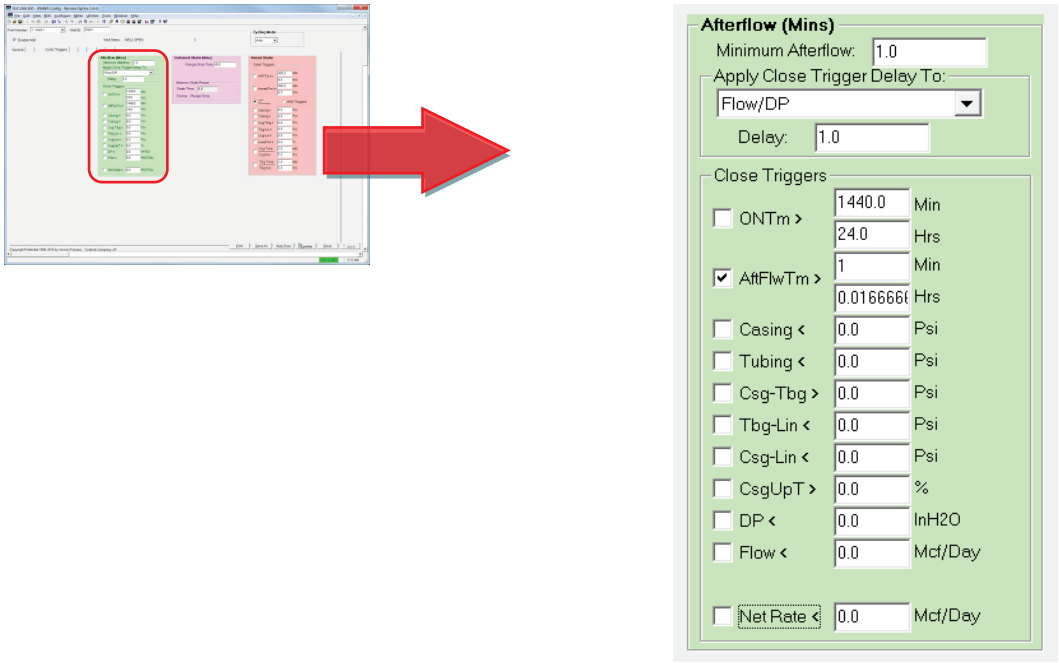


Figure 87. Intermitter Configuration – PMWO Config – Cyclic Triggers tab (Afterflow (Mins))

5. In the **UnArmed Shut-in (Mins)** frame, enter the **Plunger Drop Time** value in minutes. Although no plunger is in use in this mode, this represents the minimum time that the well must be shutin. This can be a matter of minutes or several hours.

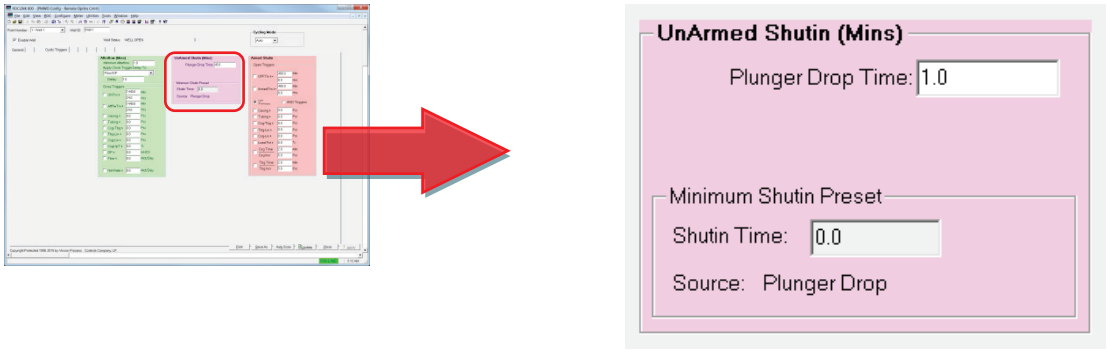


Figure 88. Intermitter Configuration – PMWO Config – Cyclic Triggers tab (UnArmed Shutin (Mins))

6. In the **Armed Shutin** frame, enable the **ArmedTm**. This prompts the program to use the criteria of time spent in the **Armed Shutin** state as

a trigger to transition to the next state (Afterflow), and opens the well. In the **Mins** field next to the **ArmedTm** checkbox, enter the **Armed Shutin** state time. This can be as short as a fraction of a minute and as long as several hours.

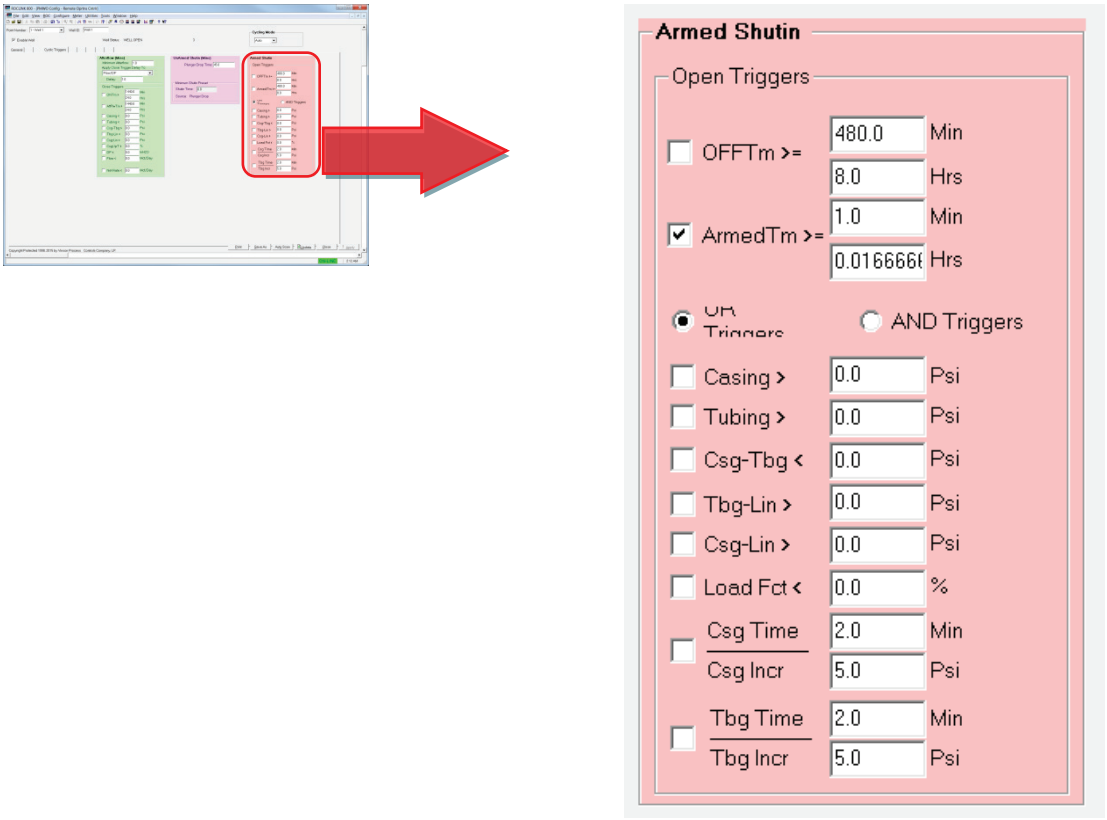


Figure 89. Intermitter Configuration – PMWO Config – Cyclic Triggers tab (Armed Shutin)

7. Proceed to *Section 4.3.2 Simulation Option* if you choose to review a sample simulation configuration. Proceed to *Section 4.4 Setting up Conventional Plunger Lift* if you choose to set up a Plunger Lift using the program.

4.3.2 Intermitter Simulation

This section walks you through the manual configuration of the program for simulation of a well using the intermitter technique. Due to the nature of the feature, this requires no additional I/O or meter flowrate simulation, beyond the basic well core object.

1. Configure the well core and enable the well before you proceed with intermitter simulation. See *Section 4.1.2 Well Core Simulation* for more information.
2. Launch the **PMWO Cyclic Operate** display from the ROCLINK 800 configuration tree (see *Section 3.5 PMWO Cyclic Operate Screen*). The PMWO Cyclic Operate screen displays:

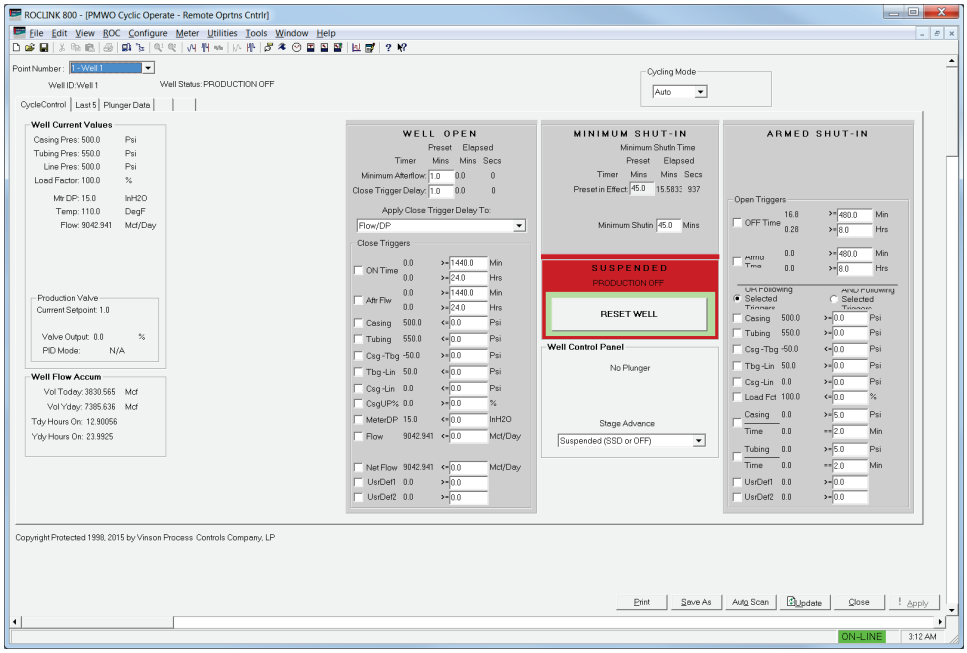


Figure 90. Intermitter Simulation – PMWO Cyclic Operate

Note: This screen is similar to the **PMWO Config – Cyclic Trigger** tab. This is done for you to correct or modify the cyclic triggers during normal operation of the well.You can modify the cyclic trigger values though the **PMWO Config –Cyclic Triggers** or the **PMWO Cyclic Operate** displays.

3. If necessary, update the **Aft Flw** (after flow), **Armd Tme** (armed time), and **Preset In Effect** fields, as shown in *Figure 88*. For the simulation, select a low value for each field, for instance, 1 minute. Click **Apply** to save the changes you make.

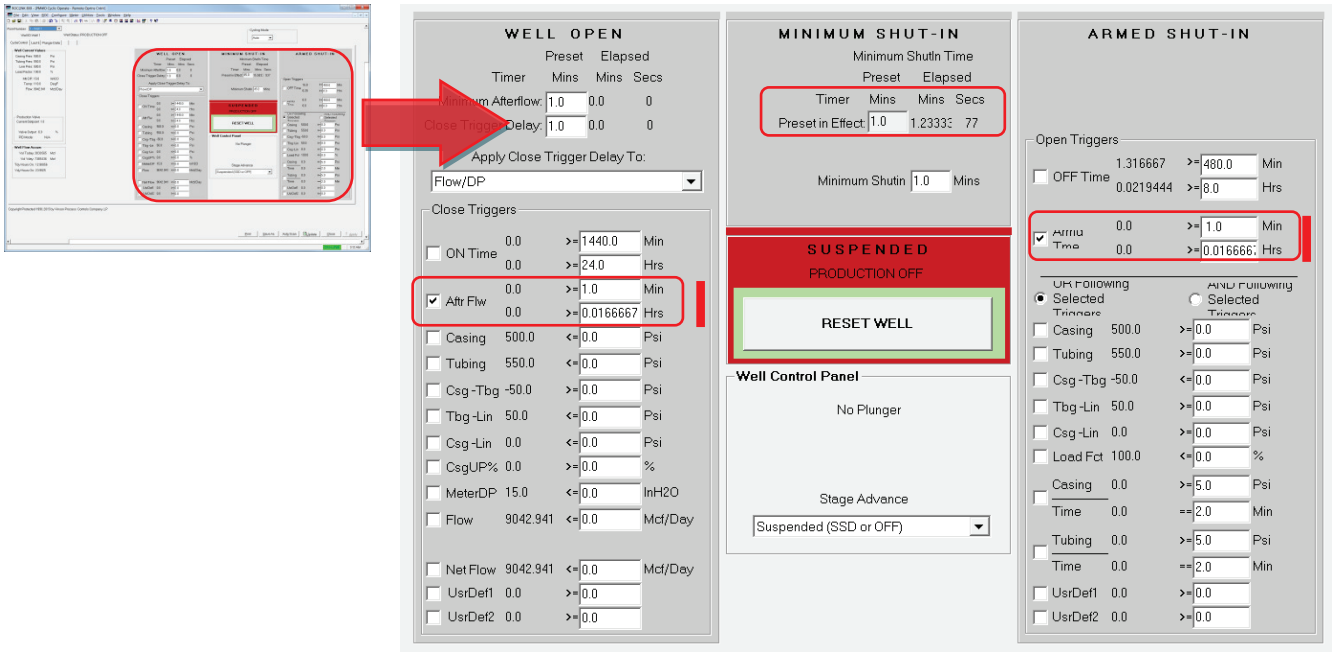


Figure 91. Intermitter Simulation – PMWO Cyclic Operate – CycleControl (Production Off)

Note: The well status shows the message PRODUCTION OFF. This indicates the well is shutin.For this example, PRODUCTION OFF indicates the well is idle. It requires you to open the production valve and reset the well for intermitter operation to begin.

4. If you use a single solenoid output (discrete) for the production valve, the screen appears as shown in *Figure 91*. Press the **Reset Well** button to open the production valve, and begin cylic operation. The **Armed Shut-in** state goes active.

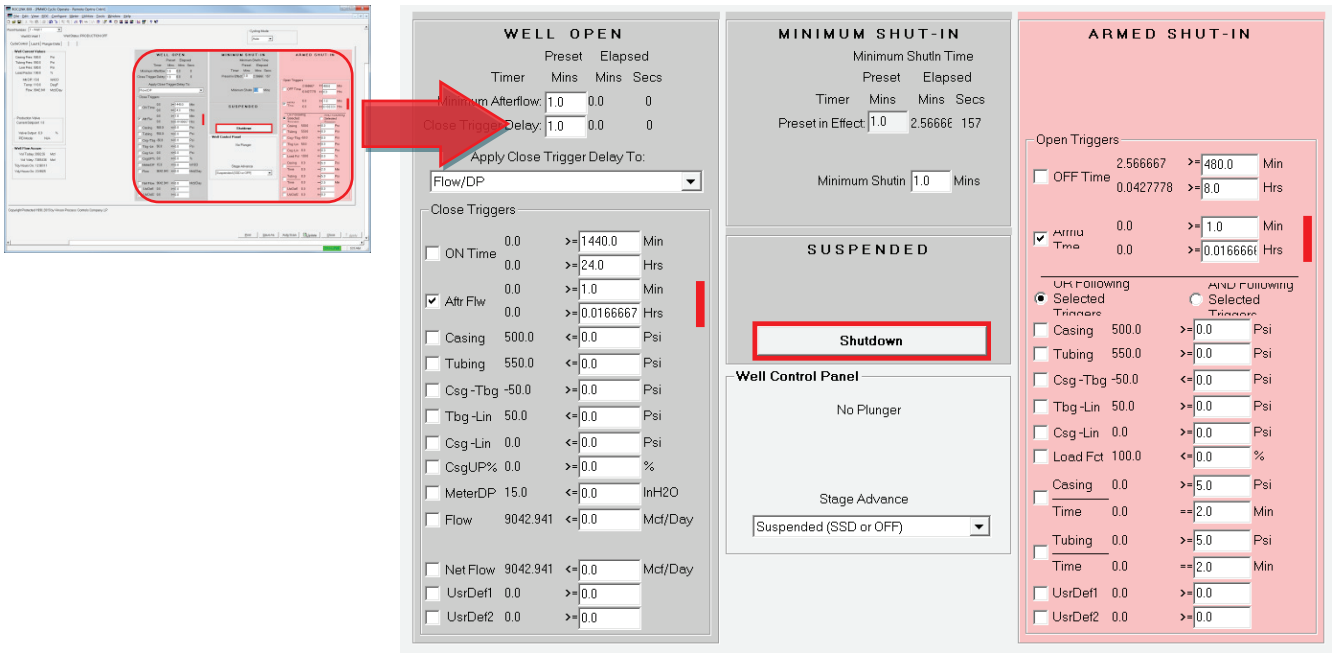


Figure 92. Intermitter Simulation – PMWO Cyclic Operate – CycleControl

The program requires no further action. The well begins the cycle at this point. The timer next to the **Armed Shutin** time begins counting upward. When the time in the state has met the trigger requirment, the program enters the **Well Open** state (opens the production valve). From the well open state, the program eventually cycles to the **Minimum Shut-in** state and (closes the production valve).

5. You may wish to select additional triggers for the Well Open and Armed Shut-in states, experimenting with the program functionality.

4.4 Setting up Plunger Lift

The Plunger Lift is another form of cyclic production. The configuration is similar to the intermitter concept in *Section 4.3.1*. The plunger lift adds additional states and optional features on-top of the concept of intermitting. This section shows the basic configuration of a conventional plunger lift.

4.4.1 Plunger Lift Configuration

To configure the conventional plunger lift functionality of the Well Optimization Manager program:

1. Enable the **Use Cyclic Production** from the **PMWO Config Screen – General tab (Well Options)** and press the apply button. See *Section 3.2.1.1 PMWO Config – General Tab (Well Options)* for more on how to enable cylic production.

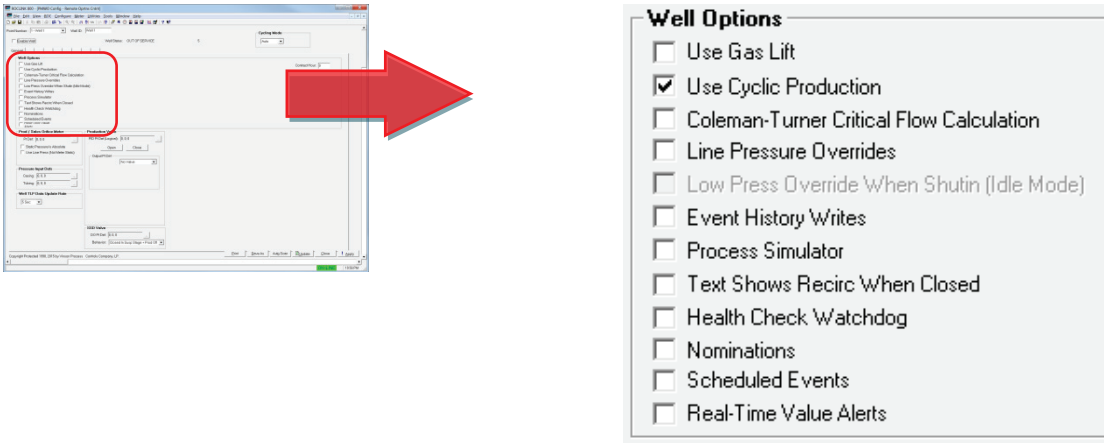


Figure 93. Plunger Lift Configuration – Enable Cyclic Production

2. When you enable the **Use Cyclic Production**, the **Cyclic Types and Dependent Options** section of the **General Tab** appears, as well as the **Plunger Config** tab and **Cyclic Triggers** tab. Select **Conventional Plunger** from the **Cyclic Types and Dependent Options**.

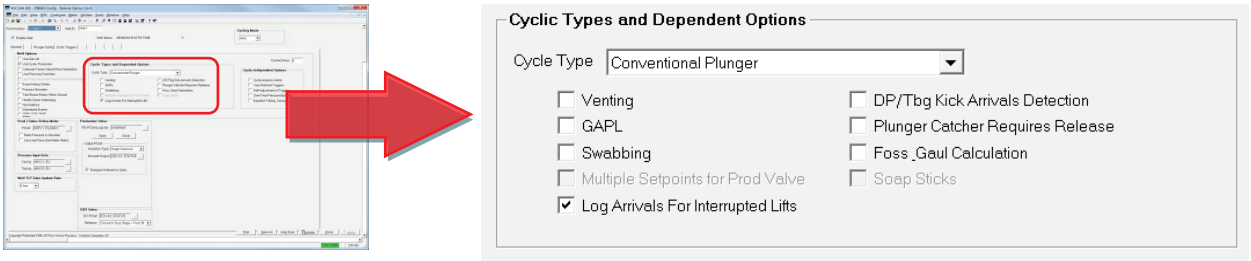


Figure 94. Plunger Lift Configuration – Cycle Type – Conventional Plunger

Before you proceed to the **Plunger Config** tab to configure your plunger lift, make sure you complete the configuration of the well core

parameters. See *Section 4.1.1 Well Core Configuration* for more information.

3. Proceed to the **Plunger Config** tab of the **PMWO Well Config** screen. The Plunger Config tab displays:

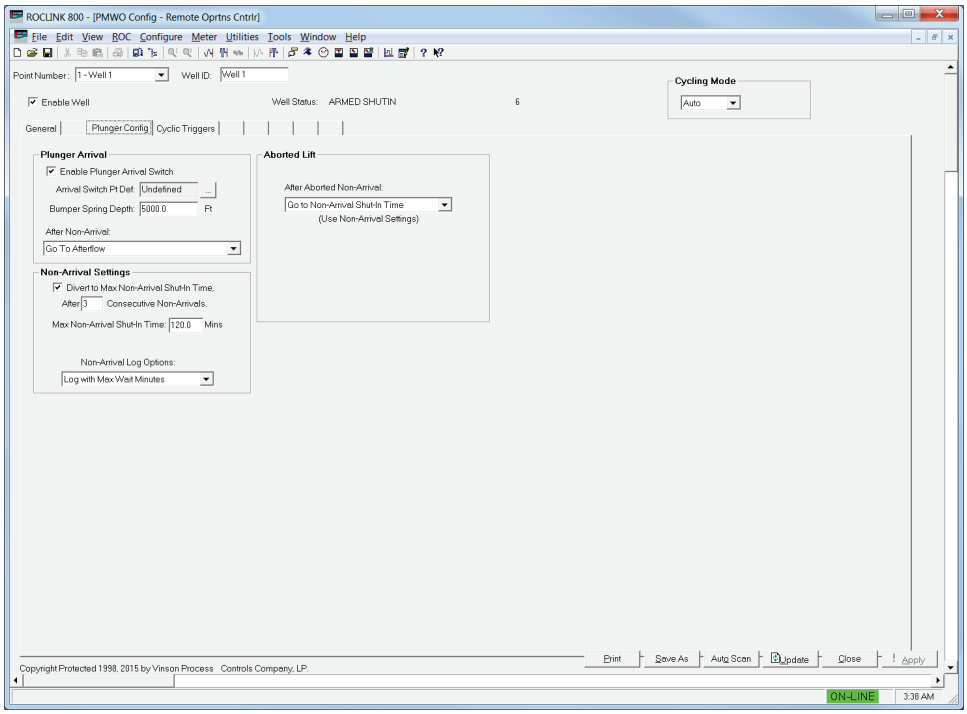


Figure 95. Plunger Lift Configuration – PMWO Config - Plunger Config tab

4. Define **Arrival Switch Pt Def** under the **PMWO Config – Plunger Config tab (Plunger Arrival)**.

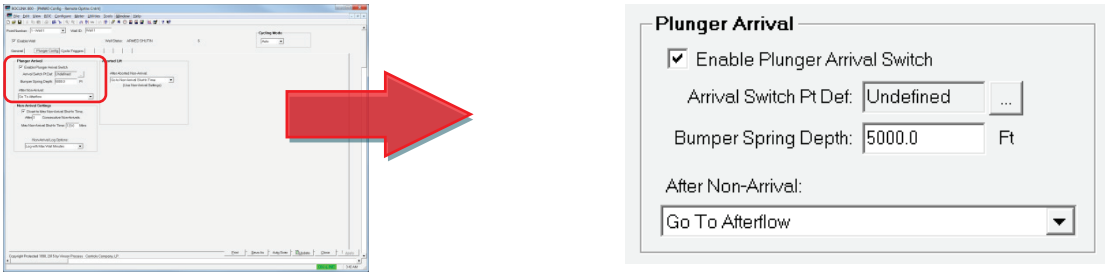


Figure 96. Plunger Lift Configuration – PMWO Config - Plunger Config tab (Plunger Arrival)

Click ... to open the **Select TLP** window.

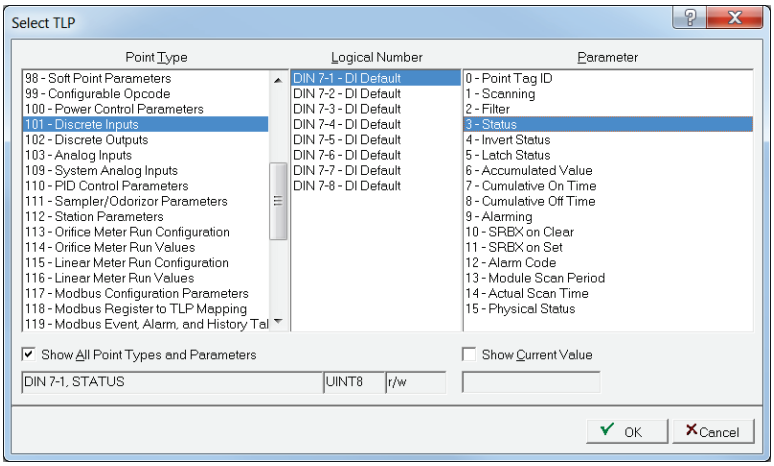


Figure 97. Plunger Lift Configuration –Select TLP (Discrete Inputs)

Browse and select **Discrete Inputs** (Point Type 101 for the ROC800 or Point Type 2 for the FB107). Select the Logical Number of the discrete input you configure and choose **Status** as parameter (Parameter 3 for both the ROC800 and FB107).

Click **OK** to save your selection and close the Select TLP dialog box.

5. Enable **Diver to Max Non-Arrival Shut-In Time** from the **PMWO Config – Plunger Config tab (Non-Arrival Settings).** Although this is not recommended for field operation, this assures cyclic control to continue with the cyclic behaviour even if the program does not detect any plunger arrival.

Figure 98. Plunger Lift Configuration – PMWO Config - Plunger Config tab (Non-Arrival Settings)

6. Proceed to the **Cyclic Triggers** tab of the **PMWO Well Config** screen. The Cyclic Triggers tab displays:

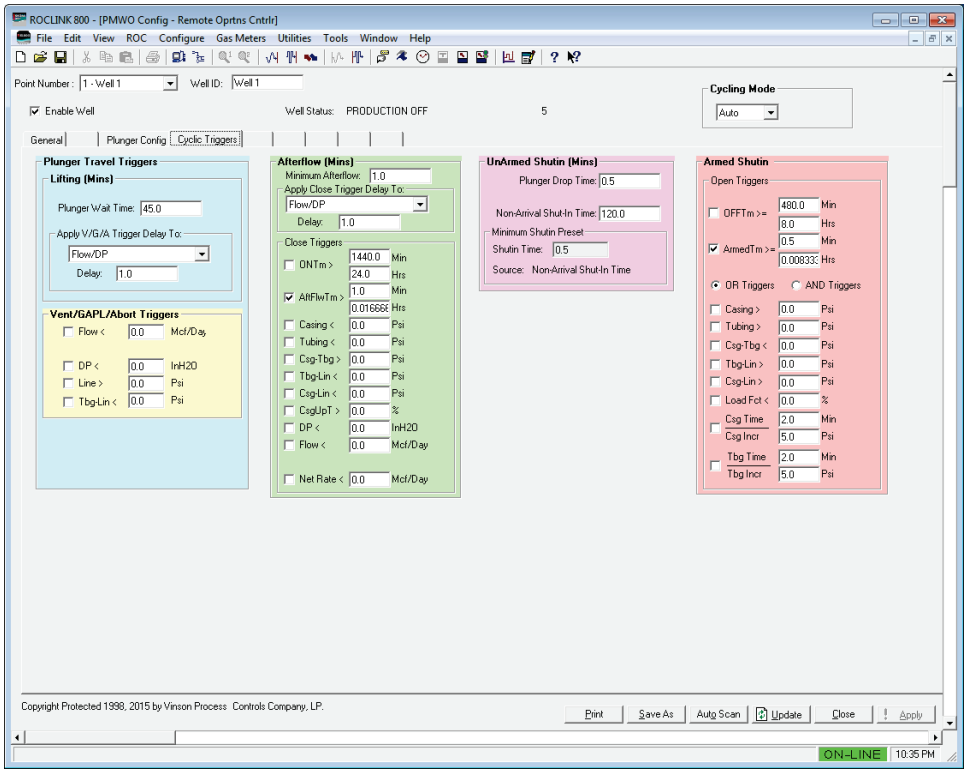


Figure 99. Plunger Lift Configuration – PMWO Configuration - Cyclic Triggers Tab

Note: The colored frames on this tab represent the four states of the plunger lift cycle. During normal operation, the program moves between these states from left to right (**Plunger Travel** to **Afterflow** to **Unarmed Shut-In** to **Armed Shut-In** and back to **Plunger Travel**). Plunger Travel is the state where the well is open, and the plunger is rising to the surface. Afterflow is the state after the plunger arrivesd, and where the well is left open to produce. Unarmed Shutin is the state when the well is shut-in and the minimum time the well must remain close (this is the time the plunger takes to drop to the bottom of the well). Armed Shutin is when the well is shut-in, but actively looks for triggers to open back up the well.

7. In the **Plunger Travel Triggers** frame, enter the maximum amount of time (in minutes) you expect the plunger to arrive at the surface in the **Plunger Wait Time** field.

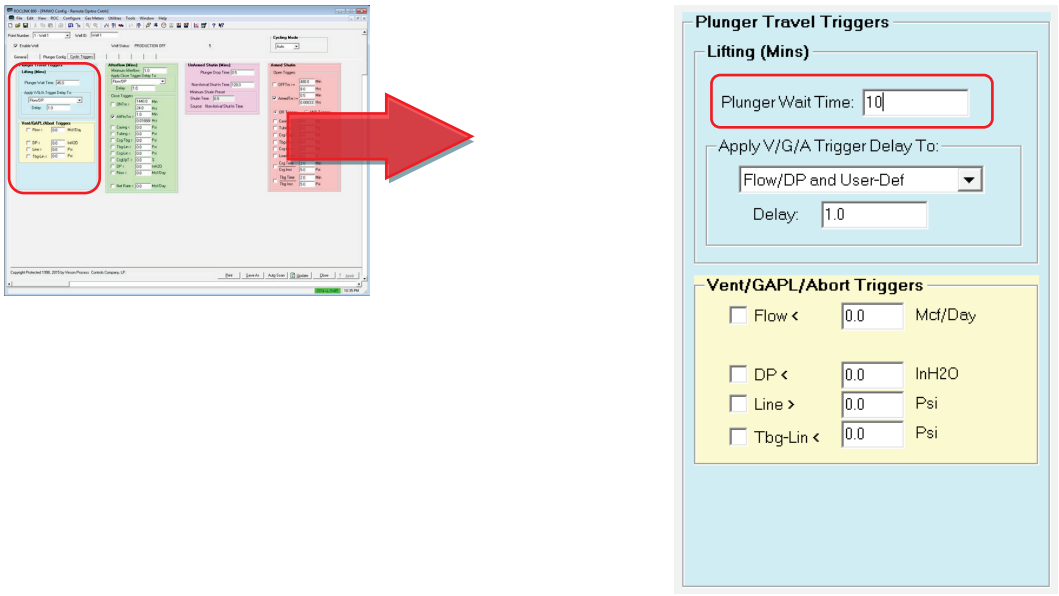


Figure 100. Plunger Lift Configuration – PMWO Configuration - Cyclic Triggers Tab (Plunger Travel Triggers)

8. In the **Afterflow (Mins)** frame, enable **AftFlwTm**. This iprompts the program to use the time the plunger spends in the Afterflow state as a trigger to transition to the next state. In the **Mins** field next to the **ArmedTm** checkbox, enter the **Afterflow** state time. This can be as short as a fraction of a minute and as long as several hours.

   Note: If the afterflow time you choose is in several hours, enter the time via the **Hrs** field to the **AftFlwTm** checkbox. You should only enter the time into one of these two fields (not both).

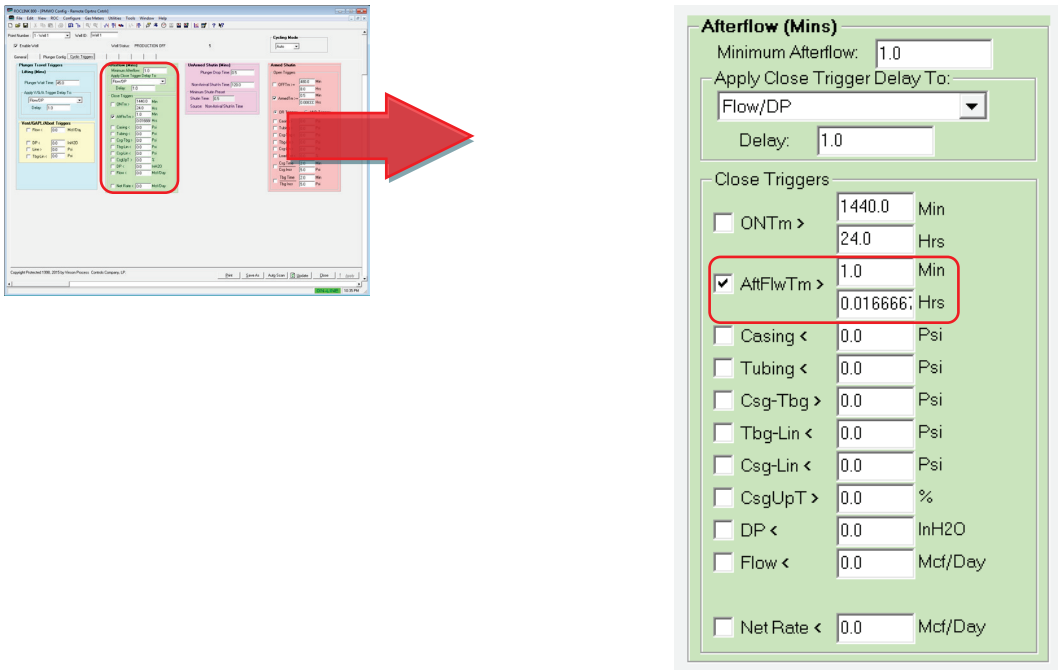


Figure 101. Plunger Lift Configuration – PMWO Configuration - Cyclic Triggers Tab (Afterflow (Mins))

9. In the **UnArmed Shutin (Mins)** frame, enter a **Plunger Drop Time** value (in minutes). Although no plunger is in use in this mode, this represents the minimum time that the well must be shutin. This can be a matter of minutes or several hours.

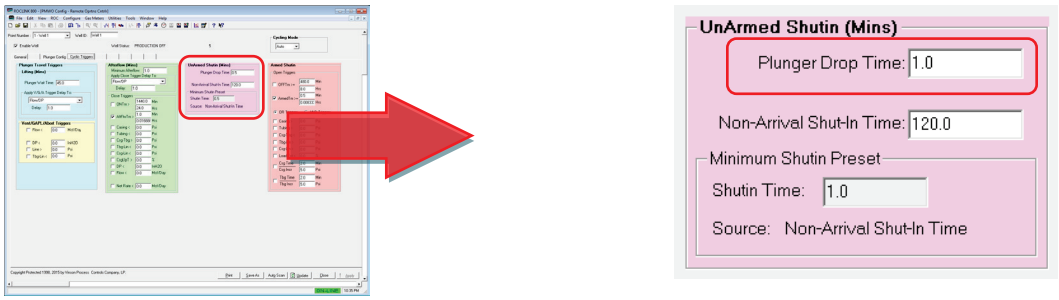


Figure 102. Plunger Lift Configuration – PMWO Configuration - Cyclic Triggers Tab (UnArmed Shutin (Mins))

10. In the **Armed Shutin** frame, enable the **ArmedTm**. This prompts the program to use the criteria of time spent in the **Armed Shutin** state as a trigger to transition to the next state (Afterflow), and opens the well. In the **Mins** field next to the **ArmedTm** checkbox, enter the **Armed Shutin** state time. This can be as short as a fraction of a minute and as long as several hours.

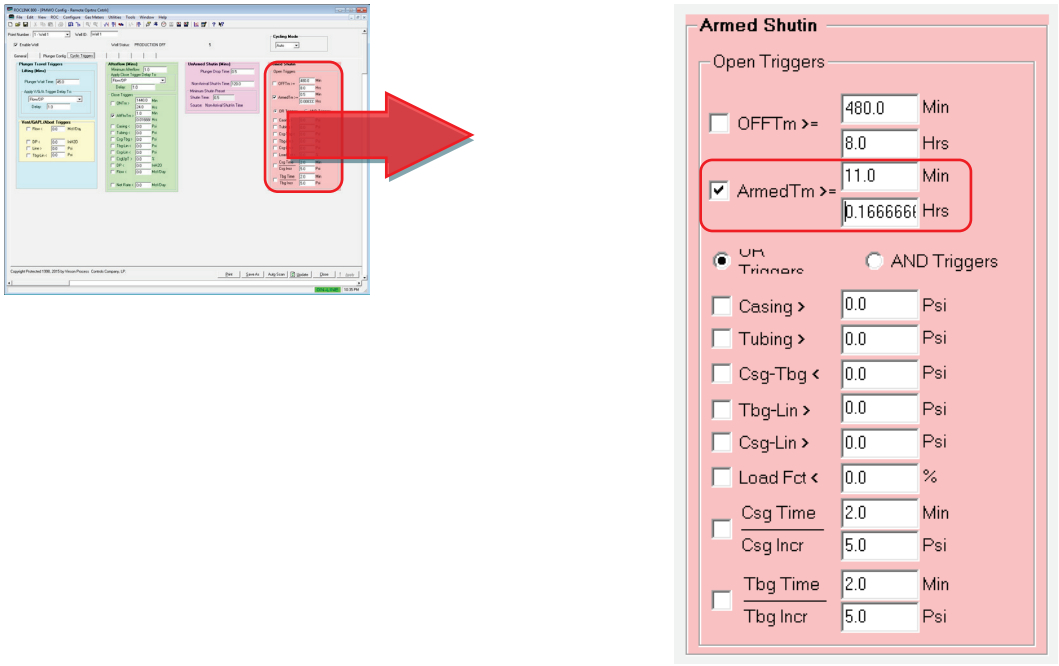


Figure 103. Plunger Lift Configuration – PMWO Configuration - Cyclic Triggers Tab (Armed Shutin (Mins))

11. Proceed to *Section 4.4.2 Simulation Option* if you choose to review a sample simulation configuration.

4.4.2 Plunger Lift Simulation

This section walks you through the manual configuration of the program for simulation of a well using a conventional plunger. Due to the nature of the feature, this is a simple task; however, this requires the manual simulation of the plunger arrival detection input.

1. Configure the well core and enable the well before you proceed with plunger lift simulation See *Section 4.1.2 Well Core Simulation* for more information.

2. Launch the **PMWO Cyclic Operate** screen from the ROCLINK 800 configuration tree (see *Section 3.5 PMWO Cyclic Operate Screen* for more information). The PMWO Cyclic Operate screen displays:

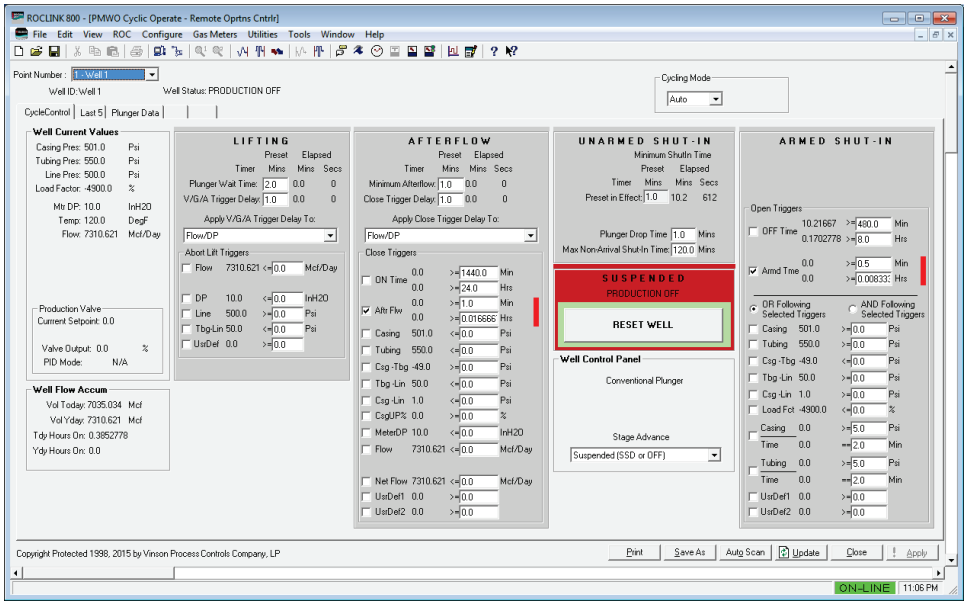


Figure 104. Plunger Lift Simulation – PMWO Cyclic Operate

Note: This screen is similar to the **PMWO Config – Cyclic Trigger** tab. This is done for you to correct or modify the cyclic triggers during normal operation of the well.You can modify the cyclic trigger values though the **PMWO Config –Cyclic Triggers** or the **PMWO Cyclic Operate** displays.

3. If necessary, update the **Aft Flw** (after flow), **Armd Tme** (armed time), and **Preset In Effect** fields, as shown in *Figure 105*. For the simulation, select a low value for each field, for instance, 1 minute. Click **Apply** to save the changes you make.

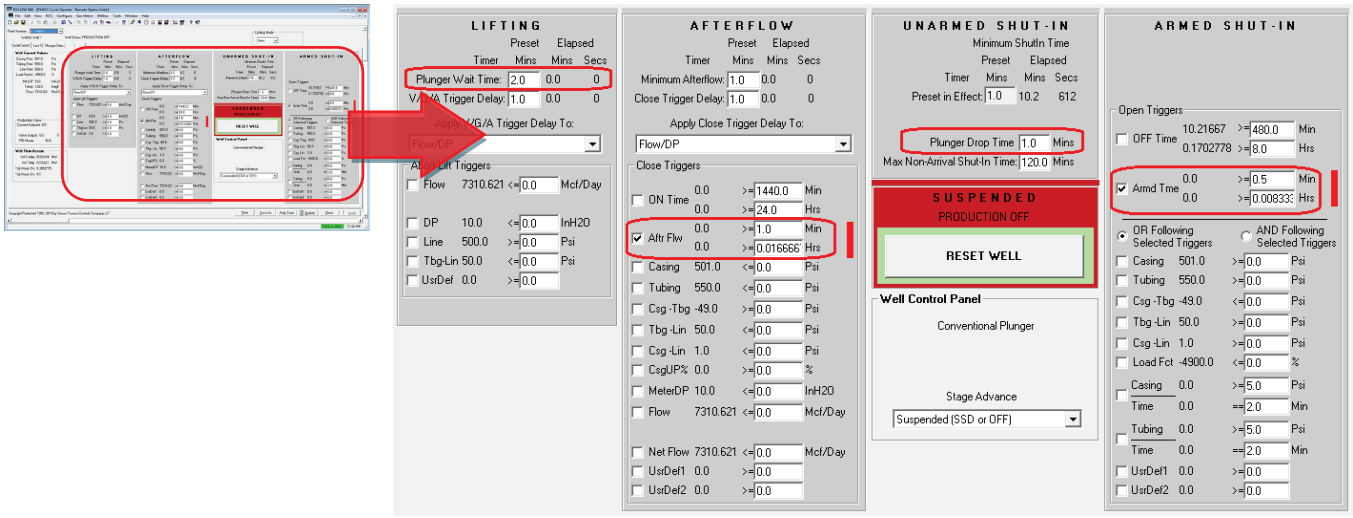


Figure 105. Plunger Lift Simulation – PMWO Cyclic Operate (Plunger Lift Triggers)

Note: The well status shows the message PRODUCTION OFF. This indicates the well is shutin.For this example, PRODUCTION OFF indicates the well is idle. It requires you to open the production valve and reset the well for plunger lift operation to begin.

4. If you use a single solenoid output (discrete) for the production valve, the screen appears as shown in *Figure 105*. Press the **Reset Well** button to open the production valve and begin the cylic operation. The **Armed Shut-in** state goes active.

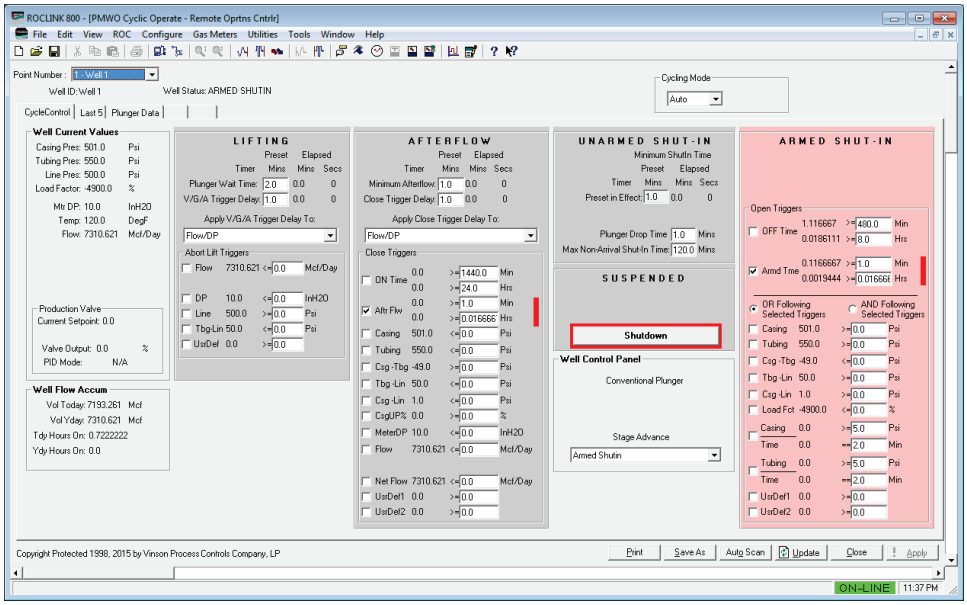


Figure 106. Plunger Lift Simulation – CycleControl tab, Armed Shut-In state highlighted

5. Wait for the Armed Shut-In time trigger to become true, and for the program state to transition to **Lifting**, as shown in *Figure 107*.

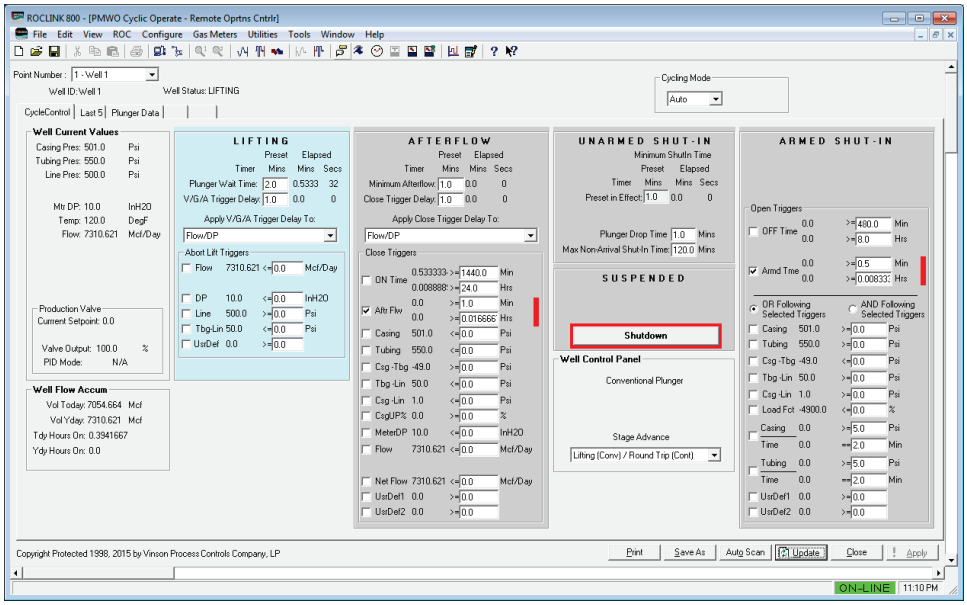


Figure 107. Plunger Lift Simulation – CycleControl tab, with the Lifting State highlighted

6. Once in the **Lifting** state, the program waits for the arrival of the plunger. The discrete sensor determines the plunger arrival. You toggle the dicreet input ON and OFF to simulate the plunger arrival. Go to **Configure > I/O > DI Points** and select the appropriate discrete input point from the drop down list. Set the Scanning option to **Disabled** and press the **Apply** button. To turn the discrete input ON, set **Status** to **ON** and press the **Apply** button. To turn the discrete input OFF, set **Status** to **OFF** and press the **Apply** button.These actions simulate the arrival of a plunger. Press the **OK** button to close the Discrete Input screen.

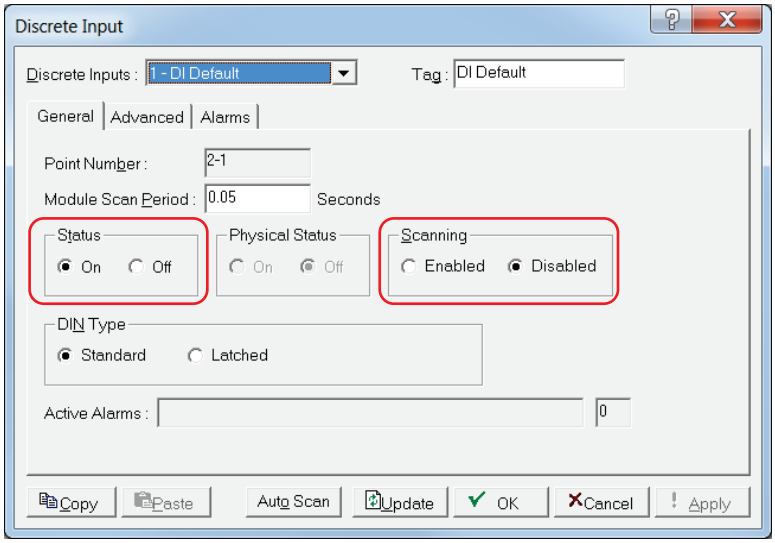


Figure 108. Plunger Lift Simulation ROC800 Discrete Input Screen

7. Return to the **PMWO Cyclic Operate** screen and click the **Update** button. The program detects the plunger arrival and moves the state from **Lifting** to **Afterflow**.

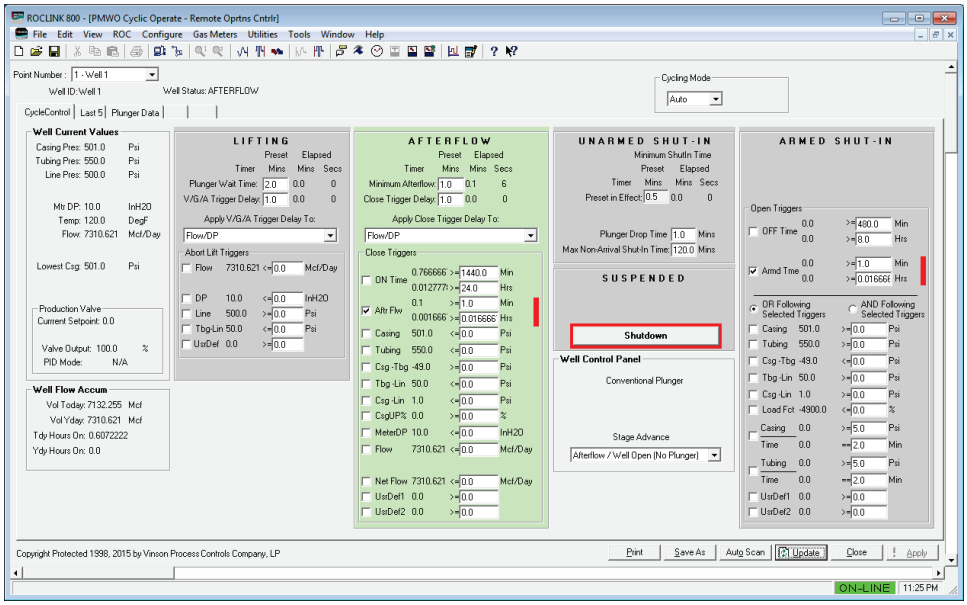


Figure 109. Plunger Lift Simulation – Cyclic Control Tab, with the Afterflow State highlighted

The program continues to cycle the well at this point. The Afterflow begins to count upward. When the time in the state meets the trigger requirement, the program enters to the **Unarmed Shut-In** state (closes the production valve).

8. You may wish to select additional triggers for the Afterflow and Armed Shut-in states at this point, to experiment with the program functionality. The program continues to look for the plunger arrival input when it returns to the lifting state.

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Chapter 5 – Reference

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

For the FB107

- Point Type 178: PMWO Core
- Point Type 179: PMWO Continuous
- Point Type 180: PMWO Cyclic
- Point Type 181: PMWO Statistics
- Point Type 182: PMWO Enhanced Op
- Point Type 183: PMWO Units

For the ROC800

- Point Type 65: PMWO Core
- Point Type 66: PMWO Continuous
- Point Type 67: PMWO Cyclic
- Point Type 69: PMWO Statistics
- Point Type 70: PMWO Enhanced Op
- Point Type 72: PMWO Units

5.1 Point Type 178/65: PMWO Core Parameters

Point type 178 (for FB107) or 65 (for ROC800) contains the parameters for the configuration of the core functions of the program. The program supports 4 logicals of this point type for the FB107 and up to 12 logicals the ROC800.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
0	Well Tag	RW	User	AC	10	x20 → 0x7E for each ASCII character	Well #	4.00.00	Sets the well identifier or name.
1	Enable Instance	RW	User	UINT8	1	0 → 1	0	4.00.00	Enables the selected well.
2	Bumper Spring Depth	R/W	User	FLOAT	4	Any positive floating number	7500.0	4.00.00	Sets the plungers travel distance.
3	Surface Temp	R/W	User	FLOAT	4	0 → 200.0	90.0	4.00.00	Sets the temperature at the top of the well.
4	Fluid Density	R/W	User	FLOAT	4	30.0 → 150.0	67.0	4.00.00	Sets the density of the produced fluid
5	Tubing OD Selection	R/W	User	UINT8	1	0 → 10	3	4.00.00	Selects the tubing size in OD (outer diameter). The available options are: 0 = 1.660” 1 = 1.900” 2 = 2.063” 3 = 2.375” 4 = 2.875” 5 = 3.500” 6 = 4.000” 7 = 4.500” 8 = 5.500” 9 = 7.000 10 = Custom Tubing ID
6	Special Tubing ID	R/W	User	FLOAT	4	0.25 → 7.00	1.995	4.00.00	Sets or calculates the custom tubing ID (internal diameter).

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
7	Config Options 1	R/W	User	UINT16	3	0 → 255 (bitwise)	0	4.00.00	Sets the program options 1: 1 = Gas Lift 2 = Coleman-Turner Critical Flow Calculation 4 = Line Pressure Overrides 8 = Maintain Line Press Minimum (idle mode) 16 = Event History Writes 32 = Process Simulator 64 = Health Check Watchdog 128 = Nominations
8	Config Options 2	R/W	User	UINT16	3	0 → 255 (bitwise)	0	4.00.00	Sets the program options 2: 1 = Scheduled Events 2 = Real-time Value Alerts 4 = Cycle Analysis Alerts 8 = User-defined Triggers 16 = Self-adjustment of Triggers 32 = Soap Sticks 64 = One-time Pressure Buildup 128 = Venting
9	Config Options 3	R/W	User	UINT16	3	0 → 255 (bitwise)	0	4.00.00	Sets the program options 3: 1 = GAPL 2 = Swabbing 4 = Multiple Setpoints for Prod Valve 8 = DP/Tbg Kick Arrivals Detection 16 = Equalize Tubing and Casing 32 = Plunger Catcher Requires Release 64 = Foss and Gaul Calculation 128 = Spare

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
10	Config Options 4	R/W	User	UINT8	1	0 → 255	0	4.00.00	Sets the program options 4: 1 = Spare 2 = Spare 4 = Spare 8 = Spare 16 = Spare 32 = Spare 64 = Spare 128 = Spare
11	Flow Meter Pt Def	R/W	User	TLP	3	Any Flow Rate or Accum Instance	Undefined	1.0.0	Sets the source of the flow or volume data
12	Casing Pres Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	1.0.0	Sets the source of the casing pressure
13	Tubing Pres Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	1.0.0	Sets the source of the tubing pressure
14	Line Pressure is in Absolute	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets the line pressure in either gauge or absolute. 0 = Transducer reports gauge pressure 1 = Transducer reports absolute pressure
15	Use Alt Line Press	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the option of setting an alternate line pressure source. 0 = Use the static pressure from the associated meter run 1 = Use TLP-defined line pressure source
16	Alt Line Prs Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	Sets the alternate line pressure source

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
17	Status message	R/O	System	AC	20	Printable ASCII characters	OUT OF SERVICE	4.00	Displays the status of the well: 0 = PMWO INSUF LICENSING 1 = OUT OF SERVICE 2 = PRODUCTION OFF 3 = WELL OPEN 4 = MANUAL OPEN 5 = MANUAL CLOSE 6 = LIFTING 7 = ASSISTED LIFT 8 = AFTERFLOW 9 = OFF FOR PLUNGER DROP 10 = MINIMUM SHUTIN TIME 11 = NON-ARVL SHUTIN TIME 12 = ARMED SHUTIN 13 = PERM SSD RT USERTLP1 14 = PERM SSD SCOM FAIL 15 = PERM SSD LO LINE PSI 16 = PERM SSD HI LINE PSI 17 = LOW LINE PRES DELAY 18 = HIGH LINE PRES DELAY 19 = CASING PRES COMM ERR 20 = WAIT FOR ROD PUMP OFF 21 = DAILY NOM REACHED 22 = MONTHLY NOM REACHED

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
18	Cur Cycle Stage	R/O	User/System	UINT8	1	0 → 6	0	4.00.00	Displays or sets the current plunger lift status. The available options are: 1 = Lifting (Cov) / Round Trip (Cont) 2 = Venting 3. Afterflow / Well Open (No Plunger) 4 = Unarmed shutin 5 = Suspended (SSD or OFF) 6 = Armed Shutin
19	Target Cycle Stage	R/W	User/System	UINT8	1	0 → 6	0	4.00.00	Sets or Displays the target stage cycle. The available options are: 1 = Lifting (Cov) / Round Trip (Cont) 2 = Venting 3. Afterflow / Well Open (No Plunger) 4 = Unarmed shutin 5 = Suspended (SSD or OFF) 6 = Armed Shutin

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
20	Enumerated Well Status	R/O	System	UINT8	1	0 → 24	0	4.00.00	Well Statuses: 0 = Production Off (Zero Setpoint) 1 = Well Open (No Plunger) 2 = Lifting Plunger / Round Trip 3 = Venting 4 = Afterflow 5 = Off for Plunger Time 6 = Extra Recovery Time 7 = Normal Shutin 8 = SSD in Effect 9 = Manual Open 10 = Manual Closed 11 = Plunger Traveling (Continuous Plunger) 12 = Minimum Shutin Time 13 = Cycstg 14 = High Line Pressure Delay 15 = Low Line Pressure Delay 16 = Shutin –Pressure Buildup 17 = Shutin – CsgTbg Equalize 18 = Shutin – Scheduled Event 19 = Daily Nom Reached 20 = Daily Nom Start Delay 21 = Monthly Nom Reached 22 = Watchdog A Fail Delay 23 = Watchdog B Fail Delay 24 = Wait for Pumpjack to Finish
21	On Side	R/O	System	UINT8	1	0 → 1	0	4.00	Shows if the well is open: 0 = Well is closed 1 = Well is Open
22	Off Side	R/O	System	UINT8	1	0 → 1	1	4.00	Shows if the well is closed: 0 = Well is open 1 = Well is closed
23	Well Flow / DP Setpoint	R/W	User	FLOAT	4	Any positive float	500.0	4.00.00	Sets the salve value operating setpoint.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
24	Energize Solenoid to Open	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables the Energize to Open Sales Valve Option. 0 = Energize DO to Close 1 = Energize DO to Open
25	Production Valve Actuation Type	R/W	User	UINT8	1	0 → 3	0	4.00.00	Sets the production Valve Signal Type: 0 = I/P Analog 1 = Single Solenoid 2 = Dual Solenoid 3 = No Valve
26	Initial Valve Open Pct	R/W	User	FLOAT	4	0.0 → 100.0	0.0	4.00.00	Sets the initial valve opening (in %) for manual.
27	Max Valve Open Pct	R/W	User	FLOAT	4	0.0 → 100.0	100.0	4.00.00	Sets the maximum allowed valve opening (in %).
28	Sales Valve Shutin Outp Pct	R/W	User	FLOAT	4	0.0 → 100.0	0.0	4.00.00	Sets the sales valve shutin (in %).
29	Valve Open Limit Def	R/W	User	TLP	3	Any discrete status	Undefined	4.00.00	Sets the Sales Valve Limit def.
30	Valave Open Limit Switch State	R/W	User	UINT8	1	0 → 1	1	4.00.00	Sets the Limit Switch Open state: 0 = Open When Status Equals Zero 1 = Open When Status Equals One
31	Recirc in Place of Shutin	R/W	User	UINT8	1	0 → 1	1	4.00.00	Shows Recirc in place of Shutin: 0 = Text Shows Shutin When Closed 1 = Text Shows Recirc When Closed
32	Production Valve Position	R/O	System	FLOAT	4	0.0 → 100.0	0.0	4.00.00	Sets the current Production Values
33	Put in Manual Mode -No Cycling	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets the cyclic control in manual mode: 0 = Cycle 1 = Freeze in Current State

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
34	Manual Mode State	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets the Manual Mode state: 0 = Manual Closed 1 = Manual Open
35	PID Loop Pt Def	R/W	User	TLP	3	Any PID Loop Instance	Undefined	4.00.00	Sets the PID Loop instance.
36	Use Throttling Control	R/W	User	UINT8	1	0 → 1	1	4.00	Throttles the Slave Valve while flowing: 0 = Do Not Throttle When Well is Open 1 = Throttle When Well is Open
37	PID Mode	R/W	User	UINT8	1	0 → 3	0	4.00	Sets the current PID Mode: 0 = None 1 = Disabled 2 = Manual 3 = Auto
38	Open DO Pt Def	R/W	User	TLP	3	Any Discrete Instance	Undefined	4.00.00	Selects the DO for Production Valve Open
39	Close DO Pt Def	R/W	User	TLP	3	Any Discrete Instance	Undefined	4.00.00	Selects DO for Production Valve Close
40	Two DO PID - AsOpen Preset Travels	R/W	User	FLOAT	4	Positive Float Number	2.0	4.00.00	Sets the maximum assumed travels to Full Open.
41	Two DO PID - AsOpen Consec Pulses	R/O	System	UINT16	4	0 → 65535	0	4.00.00	Shows the current Consec Open Pulses
42	Two DO Stop Pulsing When Open	R/W	User	UINT8	0	0 → 1	0	4.00.00	Enables or Disables Pulsing when Assumed Open: 0 = Never Disable Open Pulsing 1 = Disable Pulsing when Assumed Open
43	Two DO PID AsOp Target Op Pulses	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Shows the maximum Consec Open Pulses
44	High Line Pres SSD Option	R/W	User	UINT8	1	0 → 1	1	4.00	Enables the use of High Line Override for SSD: 0 = Do not Use for SSD (PSD) 1 = Use for SSD (PSD)

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
45	Low Line Pres SSD Option	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of Low Line Override for SSD: 0 = Do not Use for SSD (PSD) 1 = Use for SSD (PSD)
46	Aux/Alerts Shutdown	RW	System	UINT8	1	0 → 1	0	4.00.00	Displays Aux SSD or Alert SSD in Effect: 0 = No Aux SSD or Alert SSD is in Effect 1 = An Aux SSD or Alert SSD is in Effect
47	Status Message Locked - FirstOut	R/W	System	UINT8	1	0 → 1	0	4.00.00	Dispalys SSD Message Hold Enforcement: 0 = Status Message is Held (First Out Indication) 1 = Status Message is not Held
48	Well Ready for Restart	R/W	System	UINT8	1	0 → 1	0	4.00.00	Displays Well Ready for Restart message: 0 = Not in Waiting for Restart State 1 = Waiting for Restart
49	Action Block First Out SD	R/W	System	UINT16	2	0 → 148	0	4.00.00	Shows the First Out Indicator from PMSC: 0 = No PMSC Block Listed 1 – 144 = Number of PMSC Block that Tripped Well
50	Remote Restart	R/W	System	UINT8	1	0 → 1	0	4.00.00	Enables/Disables PMSC Restart: 0 = No Restart Attempted 1 = Restart Attempted from PMSC
51	Prev Setpt State *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Displays Setpoint Positive at Last Scan: 0 = Setpoint was Not Positive – Prev Scan 1 = Setpoint was Positive – Prev Scan

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
52	Coleman Turner Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables/Disables Critical Flow Calculation: 0 = Critical Flow Calc Disabled 1 = Critical Flow Calc Enabled
53	Minimum Critical Flow	R/W	User	FLOAT	4	Positive Float Number	200.0	4.00.00	Sets the minimum critical flow.
54	Maximum Critical Flow	R/W	User	FLOAT	4	Positive Float Number	600.0	4.00.00	Sets the maximum critical flow.
55	CT Calculated Critical Flow	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the Calculated critical flow rate.
56	CT Current Velocity per Minute	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the current flow velocity per minute.
57	CT Critical Velocity per Minute	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the current critical velocity per minute.
58	Cur Pct of Crit Flow	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the percent of current flow rate with respect to critical rate.
59	Calculated Tubing Z *Var*	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the compressibility at the tubing pressure.
60	HLPO Turn Off Line GT	R/W	User	FLOAT	4	Positive Float Number	300.0	4.00.00	Sets the High Line Pressure Closure GT
61	Use HLPO Off	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of High Line Pressure Closure: 0 = Do not close well for High Line Pressure 1 = Close well for High Line Pressure
62	LLPO Turn Off Line LT	R/W	User	FLOAT	4	Positive Float Number	50.0	4.00.00	Sets the Line Pressure Closure LT.
63	Use LLPO Off	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of Low Line Pressure Closure: 0 = Do not close well for Low Line Pressure 1 = Close well for Low Line Pressure

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
64	HLPO Allow On Line LT	R/W	User	FLOAT	4	Positive Float Number	290.0	4.00.00	Sets the High Line Pressure Allow On LT.
65	Use HLPO	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of High Line Pressure Allow on LT: 0 = Do not block opening for High Line Pressure 1 = Block opening for High Line Pressure
66	LLPO Allow On Line GT	R/W	User	FLOAT	4	Positive Float Number	60.0	4.00.00	Sets the Low Line Allow On GT
67	Use LLPO On	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables or Disables the use of Low Line Pressure Allow ON GT: 0 = Do Not Block Opening for Low Line Pressure 1 = Block Opening forLow Line Pressure
68	Idle Mode Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables or disables Idle Mode opening: 0 = Disable Idle Mode 1 = Enable Idle Mode Well Opening
69	Idle Mode – Low Pressure Psi	R/W	User	FLOAT	4	Positive Float Number	60.0	4.00.00	Sets the Idle Mode Activation pressure LT.
70	Idle Mode – Deadband Psi	R/W	User	FLOAT	4	Positive Float Number	10.0	4.00.00	Sets the Idle Mode Deadband Pressure increase.
71	Idle Mode – Press Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	Sets the pressure source for the Idle Mode Monitor.
72	Flow Rate per Day	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Displays the current well flow rate.
73	Meter DP	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the current sales meter DP.
74	Line Pressure Gauge or Absolute	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Displays the current line pressure.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
75	Current Temperature	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Display the current meter temperature.
76	Flow Volume Today	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Displays the well flow volume of the current day.
77	Flow Volume Prev Day	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Displays the well flow volume of the previous day.
78	Well ON Hours Today	R/O	System	FLOAT	4	0.0 → 24.0	0.0	4.00.00	Displays the well flowing hours of the current day.
79	Well ON Hours Prev Day	R/O	System	FLOAT	4	0.0 → 24.0	0.0	4.00.00	Displays the well flowing hours of the previous day.
80	Casing Pressure	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Displays the current casing pressure.
81	Tubing Pressure	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Displays the current tubing pressure.
82	Line Pressure Gauge	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Displays the current line pressure in gauge.
83	Cur Well ON Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the elapsed time in minutes for the current ON cycle.
84	Cur Well OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the elapsed time in minutes for the current OFF cycle.
85	Well Current State Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the elapsed time in minutes for the current state.
86	Well Previous ON Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the elapsed time in minutes for the previous ON cycle.
87	Well Previous OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the elapsed time in minutes for the previous OFF cycle.
88	Volume Cur ON Cycle	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the volume of the current ON cycle.
89	Volume Prev ON Cycle	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the volume of the previous ON cycle.
90	Well ON Hours	R/O	System	FLOAT	4	0.0 → 24.0	0.0	4.00.00	Displays the elapsed time in hours of the current ON cycle.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
91	Well OFF Hours	R/O	System	FLOAT	4	0.0 → 24.0	0.0	4.00.00	Displays the elapsed time in hours of the current OFF cycle.
92	1st Date at Opening	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the first date when the well opened in month and day.
93	2nd Date at Opening	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the second date when the well opened in month and day.
94	3rd Date at Opening	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the third date when the well opened in month and day.
95	4th Date at Opening	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the fourth date when the well opened in month and day.
96	5th Date at Opening	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the fifth date (oldest) when the well opened in month and day.
97	1st Time at Opening	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the first time when the well opened in hour and minute.
98	2nd Time at Opening	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the second time when the well opened in hour and minute.
99	3rd Time at Opening	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the third time when the well opened in hour and minute.
100	4th Time at Opening	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the fourth time when the well opened in hour and minute.
101	5th Time at Opening	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the fifth time (oldest) when the well opened in hour and minute.
102	1st Date at Closing	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the first date when the well closed in month and day.
103	2nd Date at Closing	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the second date when the well closed in month and day.
104	3rd Date at Closing	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the third date when the well closed in month and day.
105	4th Date at Closing	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the fourth date when the well closed in month and day.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
106	5th Date at Closing	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the fifth date (oldest) when the well closed in month and day.
107	1st Time at Closing	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the first time when the well closed in hour and minute.
108	2nd Time at Closing	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the second time when the well closed in hour and minute.
109	3rd Time at Closing	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the third time when the well closed in hour and minute.
110	4th Time at Closing	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the fourth time when the well closed in hour and minute.
111	5th Time at Closing	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the fifth time (oldest) when the well closed in hour and minute.
112	1st Open Code	R/O	System	UINT16	2	3001 → 3012	0	4.00.00	Displays the first (newest) open code.
113	2nd Open Code	R/O	System	UINT16	2	3001 → 3012	0	4.00.00	Shows the second open code.
114	3rd Open Code	R/O	System	UINT16	2	3001 → 3012	0	4.00.00	Shows the third open code.
115	4th Open Code	R/O	System	UINT16	2	3001 → 3012	0	4.00.00	Shows the fourth open code.
116	5th Open Code	R/O	System	UINT16	2	3001 → 3012	0	4.00.00	Shows the fifth open code.
117	1st Close Code	R/O	System	UINT16	2	1 → 148; 4001 → 4033	0	4.00.00	Shows the first (newest) close code.
118	2nd Close Code	R/O	System	UINT16	2	1 → 148; 4001 → 4033	0	4.00.00	Shows the second close code.
119	3rd Close Code	R/O	System	UINT16	2	1 → 148; 4001 → 4033	0	4.00.00	Shows the third close code.
120	4th Close Code	R/O	System	UINT16	2	1 → 148; 4001 → 4033	0	4.00.00	Shows the fourth close code.
121	5th Close Code	R/O	System	UINT16	2	1 → 148; 4001 → 4033	0	4.00.00	Shows the fifth close code.
122	1st Open Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the first (newest) reference value at opening.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
123	2nd Open Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the second reference value at opening.
124	3rd Open Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the third reference value at opening.
125	4th Open Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the fourth reference value at opening.
126	5th Open Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the fifth reference value at opening.
127	1st Close Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the first (newest) reference value at closing.
128	2nd Close Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the second reference value at closing.
129	3rd Close Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the third reference value at closing.
130	4th Close Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the fourth reference value at closing.
131	5th Close Reference Value	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the fifth reference value at closing.
132	1st Total ON Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) total ON minutes.
133	2nd Total ON Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second total ON minutes.
134	3rd Total ON Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third total ON minutes.
135	3rd Total ON Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth total ON minutes.
136	5th Total ON Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth total ON minutes.
137	1st Total OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) total OFF minutes.
138	2nd Total OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second total OFF minutes.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
139	3rd Total OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third total OFF minutes.
140	4th Total OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth total OFF minutes.
141	5th Total OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth total OFF minutes.
142	1st Casing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) casing pressure at opening.
143	2nd Casing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second casing pressure at opening.
144	3rd Casing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third casing pressure at opening.
145	4th Casing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth casing pressure at opening.
146	5th Casing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth casing pressure at opening.
147	1st Casing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) casing pressure at closing.
148	2nd Casing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second casing pressure at closing.
149	3rd Casing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third casing pressure at closing.
150	4th Casing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth casing pressure at closing.
151	5th Casing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth casing pressure at closing.
152	1st Tubing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) tubing pressure at opening.
153	2nd Tubing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second tubing pressure at opening.
154	3rd Tubing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third tubing pressure at opening.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
155	4th Tubing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth tubing pressure at opening.
156	5th Tubing Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth tubing pressure at opening.
157	1st Tubing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) tubing pressure at closing.
158	2nd Tubing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second tubing pressure at closing.
159	3rd Tubing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third tubing pressure at closing.
160	4th Tubing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth tubing pressure at closing.
161	5th Tubing Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth tubing pressure at closing.
162	1st Line Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) line pressure at opening.
163	2nd Line Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second line pressure at opening.
164	3rd Line Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third line pressure at opening.
165	4th Line Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth line pressure at opening.
166	5th Line Pres at Opening	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth line pressure at opening.
167	1st Line Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) line pressure at closing.
168	2nd Line Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second line pressure at closing.
169	3rd Line Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third line pressure at closing.
170	4th Line Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth line pressure at closing.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
171	5th Line Pres at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth line pressure at closing.
172	1st Flow Rate at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) flow rate at closing.
173	2nd Flow Rate at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second flow rate at closing.
174	3rd Flow Rate at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third flow rate at closing.
175	4th Flow Rate at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth flow rate at closing.
176	5th Flow Rate at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth flow rate at closing.
177	1st Cycle Volume	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first (newest) cycle volume at closing.
178	2nd Cycle Volume	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second cycle volume at closing.
179	3rd Cycle Volume	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third cycle volume at closing.
180	4th Cycle Volume	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth cycle volume at closing.
181	5th Cycle Volume	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth cycle volume at closing.
182	Daily Avg Sample Count *Var*	R/O	System	UINT32	4	0 → 86400	0	4.00.00	Shows the sample count for daily averages.
183	Well Current ON Second *Var*	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows the elapsed time ON in seconds.
184	Well Current OFF Second *Var*	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows the elapsed time OFF in seconds.
185	Average Casing Pres Tdy	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the average casing pressure of the current day.
186	Average Tubing Pres Tdy	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the average tubing pressure of the current day.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
187	Average Line Pres Tdy	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the average line pressure of the current day.
188	Average Casing Pres Ydy	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the average casing pressure of the previous day.
189	Average Tubing Pres Ydy	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the average tubing pressure of the previous day.
190	Average Line Pres Ydy	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Shows the average line pressure of the previous day.
191	Avg Daily Volume This Month	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the average daily volume of the current month.
192	Avg Daily Volume Prev Month	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the average daily volume of the previous month.
193	Reset Daily Averages	R/W	User	UINT8	1	0 → 1	0	4.00.00	Resets the daily average values: 0 = Idle 1 = Flush daily averages (casing, tubing, and line)
194	Sec ON Today *Var*	R/O	System	UINT32	4	0 → 86400	0	4.00.00	Shows the elapsed time ON for the current day in seconds.
195	Sec Elapsed This Month *Var*	R/O	System	UINT32	4	0 → 2678400	0	4.00.00	Shows the elapsed time ON for the current month in seconds.
196	Bulk Flow Rate Sum *Var*	R/O	System	FLOAT	8	Double Float Number	0.0	4.00.00	Shows the total bulk flow rate.
197	Bulk Casing Pres Sum *Var*	R/O	System	FLOAT	8	Double Float Number	0.0	4.00.00	Shows the total bulk casing pressure.
198	Bulk Tubing Pres Sum *Var*	R/O	System	FLOAT	8	Double Float Number	0.0	4.00.00	Shows the total bulk tubing pressure.
199	Bulk Line Pres Sum *Var*	R/O	System	FLOAT	8	Double Float Number	0.0	4.00.00	Shows the total bulk line pressure.
200	AccVol at Cycle Begin *Var*	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the volume accumulation mark at the start of the cycle.
201	First of 11 Event Hist Pts	R/W	User	UINT8	1	0 → 230	0	4.00.00	Sets the first event history point.
202	Event History Segment	R/W	User	UINT8	1	0 → 12	0	4.00.00	Sets the event history segment.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
203	EH Index (Hist Log Number)	R/W	User	UINT16	1	0 → 839	0	4.00.00	Sets the current event history period.
204	EH Sequence Num	R/W	User	UINT32	1	0 → 4294967295	0	4.00.00	Sets the next event history sequence number.
205	Well Display Data TLPs Update Rate	R/W	User	UINT8	1	0 → 60	0	4.00.00	Sets the display data update rate: 1 = Every second 2 = Every 2 seconds 3 = Every 3 seconds 4 = Every 4 seconds 5 = Every 5 seconds 6 = Every 6 seconds 10 = Every 10 seconds 12 = Every 12 seconds 15 = Every 15 seconds 20 = Every 20 seconds 30 = Every 30 seconds 60 = Every 60 seconds
206	LPO Delay Preset Sec	R/W	User	UINT8	1	0 → 255	0	4.00.00	Enables the line pressure over delay preset in seconds.
207	LPO Delay Elap Sec	R/O	System	UINT8	1	0 → 255	0	4.00.00	Shows the line pressure over delay elapsed in seconds.
208	PMSC External PSD Set	R/W	System	UINT8	1	0 → 1	0	4.00.00	Enables the Production Manager Surface Control (PMSC) external (permanent shutdown) PSD. 0 = No PMSC PSD in Effect 1 = PMSC PSD is in Effect
209	PMSC External TSD Set	R/W	System	UINT8	1	0 -> 1	0	4.00.00	Enables the Production Manager Surface Control (PMSC) external (temporary shutdown) TSD. 0 = No PMSC TSD in Effect 1 = PMSC TSD is in Effect
210	PMSC External Tag	R/W	System	AC10	10	Any PMSC Tag Field	0	4.00.00	Sets a 10-character PMSC External Action BlockTag
211	PMSC Ext FirstOut Inst	R/W	System	UINT8	1	0 → 148		4.00.00	Sets the PMSC external first out instance

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
212	PSD is in Effect	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the PSD in effect: 0 = No PSD in Effect 1 = PSD in Effect
213	TSD is in Effect	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the TSD in effect: 0 = No TSD in Effect 1 = TSD in Effect
214	SSD is in Effect	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the SSD in effect 0 = No SSD in Effect 1 = SSD (PSD or TSD) in Effect
215	Alerts PSD is in Effect	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the PSD alerts is in effect: 0 = No PSD alerts in Effect 1 = PSD alerts in Effect
216	Aux PSD is in Effect	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the Aux PSD in effect: 0 = No Aux PSD in Effect 1 = Aux (special stops) PSD in Effect
217	Trip Trig Ref	R/W	System	FLOAT	4	Any Float Number	0.0	4.00.00	Sets the setpoint value of tripped block.
218	Trip Code	R/W	System	UINT8	1	0 → 5128	0	4.00.00	Shows the Trip Code.
219	Well Contract Hour	R/W	User	UINT8	1	0→ 23	0	4.00.00	Shows the well contract hour.
220	Cur Contracted Day	R/W	System	UINT8	1	1 → 31	0	4.00.00	Shows the current contract day.
221	Cur Contracted Month	R/W	System	UINT8	1	1 → 12	0	4.00.00	Shows the current contract month.
222	Timer Numbers Running	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Sets the bitwise pack of the active timers (for power cycle).
223	Max Logicals	R/O	System	UINT8	1	4 → 12	12	4.00.00	Shows the maximum logical.
224	User Prog Watchdog Timer	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Shows the user program watchdog timer.
225	SSD Valve Pt Def	R/W	User	TLP	3	Any Discrete Instance	Undefined	4.00.00	Defines the SSD Valve Point Type.

Point Type 178/65: PMWO Core Parameters

Parm #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of functionality and meaning of values
226	SSD Valve Behavior	R/W	User	UINT8	1	0 → 2	0	4.00.00	Sets the SSD Valve behavior: 0 = Closed While in Suspended Stage (includes PROD OFF) 1 = Closed While SSD in Effect 2 = Closed For SSds Only; Until Reset
227	Prev ON Hours	R/O	System	FLOAT	4	Any Positive Float Number	0	4.00.00	Shows the previous ON hours.
228	Prev OFF Hours	R/O	System	FLOAT	4	Any Positive Float Number	0	4.00.00	Shows the previous OFF hours.
229	SSD Valve Output	R/O	System	UINT8	1	0 -> 1	0	4.00.00	Sets the SSD valve output

5.2 Point Type 179/66: PMWO Continuous Parameters

Point type 179 (for FB107) or 66 (for ROC800) contains the parameters related to the continuous functions of the program. The program supports four logicals of this point type for the FB107 or up to 12 logicals for the ROC800.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Gas Lift for Prod Oil/Gas	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets the well production mode into either liquid or gas production. 0 = Gas Prod/Eff Mode 1 = Liquid Production Mode
1	Injection Gas Meter TLP	R/W	User	TLP	3	Any Flow Rate or Accum Instance	Undefined	4.00.00	Defines the TLP of the injection gas meter.
2	Prod/Sales Gas Meter TLP	R/W	User	TLP	3	Any Flow Rate or Accum Instance	Undefined	4.00.00	Defines the TLP of the Production/Sales Gas meter.
3	Liquid HC Prod Meter TLP	R/W	User	TLP	3	Any Tank or Accum Instance	Undefined	4.00.00	Defines the TLP of the Hydrocarbon Liquid Production meter.
4	Buyback Gas Meter TLP	R/W	User	TLP	3	Any Flow Rate or Accum Instance	Undefined	4.00.00	Defines the TLP of the Buyback Gas meter.
5	Injection Def is Acc/Rate	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets whether the injection def is shown in terms of accumulation or rate. 0 = Injection Def is an Accum 1 = Injection Def is a Rate
6	Prod/Sales Def is Acc/Rate	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets whether the production/sales def is shown in terms of accumulation or rate. 0 = Prod/Sales Def is an Accum 1 = Prod/Sales Def is a Rate

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
7	Liquid HC Prod Def is Acc/Rate	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets whether the liquid hydrocarbon production def is shown in terms of accumulation or rate. 0 = Liquid HC Def is an Accum 1 = Liquid HC Def is a Rate
8	Buyback Gas Def is Acc/Rate	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets whether the buyback gas def is shown in terms of accumulation or rate. 0 = Buyback Def is an Accum 1 = Buyback Def is a Rate
9	Gas Lift Prod/Sales Meter Select	R/W	User	UINT8	1	0 → 1	0	4.00.00	Select the Production or Sales Meter. 0 = Prod; Meter includes Inj Gas 1 = Sales; Meter excludes Inj Gas
10	Compressor Run / Discrete Status TLP	R/W	User	TLP	3	Any Status Parameter	Undefined	4.00.00	Define the TLP for the compressor run / discrete def
11	Injection PID TLP	R/W	User	TLP	3	Any PID Instance	Undefined	4.00.00	Define the TLP for the Injection PID.
12	Startup Delay Hours	R/W	User	FLOAT	4	Any Positive Float Number	0.0	4.00.00	Sets the delay before start in hours.
13	Averaging Cycle Period Hours	R/W	User	FLOAT	4	Any Positive Float Number	8.0	4.00.00	Sets the averaging cycle or testing period in hours.
14	Negative Effect Deadband	R/W	User	FLOAT	4	Any Positive Number	2.0	4.00.00	Sets the deadband for reversal.
15	Eff% Change Before Step	R/W	User	FLOAT	4	Any Positive Number	1.0	4.00.00	Sets the deadband for forward change.
16	Compressor Down Method Index	R/W	User	UINT8	1	0 → 2	0	4.00.00	Sets the injection OFF detection. 0 = Disabled 1 = Run Status / Discrete Status 2 = Zero Inj Flow Rate
17	Injection PID Setpoint	R/W	User	FLOAT	4	Any Positive Float Number	0.0	4.00.00	Sets the injection rate setpoint.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
18	Apply Starting Setpoint Flag	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables critical flow rate detection or flagging. 0 = Do Not Apply 1 = Apply Pct Above Critical Rate
19	Starting Pct Above Critical Flow	R/W	User	FLOAT	4	Any Positive Float Number	5.0	4.00.00	Sets the percent above critical flow rate.
20	Offset Step Value	R/W	User	FLOAT	4	Any Positive Float Number	25.0	4.00.00	Setpoint changes EU
21	Setpoint High Limit	R/W	User	FLOAT	4	Any Positive Float Number	600.0	4.00.00	Sets the maximum injection setpoint.
22	Setpoint Low Limit	R/W	User	FLOAT	4	Any Positive Float Number	200.0	4.00.00	Sets the minimum injection setpoint.
23	PID/SP Mode	R/W	User	UINT8	1	0 → 3	0	4.00.00	Select the Injection Control Mode. 0 = Apply GasLift Adjustments 1 = SetPt is Critical Rate + XX% 2 = Fixed SetPt 3 = Manual Output Pct
24	Use Gas Lift	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the gas lift 0 = Gas Lift is Disabled 1 = Gas Lift is Enabled
25	Max Injection Off Mins	R/W	User	UINT16	1	0 → 65535	0	4.00.00	Sets the maximum injection off time in minutes.
26	Max Well Prod Off Mins	R/W	User	UINT16	1	0 → 65535	0	4.00.00	Sets the maximum production off time in minutes.
27	Early Closure Tests	R/W	User	UINT8		0 → 2	0		Cleans the test history. 0 = Flush Test in Progress Only 1 = Flush All Tests 2 = Flush All - Use Starting SetPt
28	Early Closure Direction	R/W	User	UINT8		0 → 1	0		Sets the early closure direction. 0 = Set to Default Decreasing 1 = Maintain Cur Direction

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
29	Inj Valve SSD Options	R/W	User	UINT8	1	0 → 2	0	4.00.00	Sets the injection valve action when the program trips and SSD. 0 = Close Inj for Any SSD 1 = Close Inj for PSDs Only 2 = Stay Open During SSDs
30	SSD Clearance	R/W	User	UINT8	1	0 → 1	0	4.00.00	Selects an action to clear an SSD. 0 = No Automatic Action 1 = Auto Open Inj Valve
31	Buyback Gas Compression	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables buyback gas compression. 0 = Does Not Go Through Compressor 1 = Goes Through Compressor
32	Oscillations Before Alarm	R/W	User	UINT16	2	0 → 65535	10	4.00.00	Shows oscillations before alarm.
33	Compressor Run Status Value	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the compressor run status. 0 = Not Running 1 = Running
34	Optimize Mode	R/W	User	UINT8	1	0 → 4	1	4.00.00	Sets the gas lift optimization mode. 0 = Max Gas Production 1 = Max Efficiency 2 = Max Gas Sales 3 = Max Liquid Production 4 = Max Water Production 5 = Max Revenue
35	GL Pos Efficiency Reversal Option	R/W	User	UINT8	1	0 → 2	0	4.00.00	Selects the Pos efficiency reversal options. 0 = If Production Drops 1 = If Production Drops GT XX 2 = If Sales Drops
36	GL Pos Efficiency Rev DBand	R/W	User	FLOAT	4	Any Positive Float Number	50.0	4.00.00	Sets the efficiency reversal deadband.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
37	Restart Sequence	R/W	User	UINT8	1	0 → 1	0	4.00.00	Restarts the tests. 0 = Idle 1 = Start/Restart Test
38	Log Alarms Flag	R/W	User	UINT8	1	0 → 1	0	4.00.00	Logs alarms/events in alarm log. 0 = No Logging 1 = Log Alarms/Events to Alarm Log
39	Oscillation Alarm	R/O	System	UINT8	1	0 → 1	0	4.00.00	Activates the oscillation alarm. 0 = No Oscillation Alarm 1 = Oscillation Alarm in Effect
40	Injection PID Output Value	R/W	Both	FLOAT	4	0.0 → 100.0	0.0	4.00.00	Sets the percent for the PID valve output.
41	Startup Delay Hours Remaining	R/O	System	FLOAT	4	Any Positive Float Number	0.0	4.00.00	Shows the remaining startup delay hours.
42	Test Hours Remaining	R/O	System	FLOAT	4	Any Positive Float Number	0.0	4.00.00	Shows the remaining test hours.
43	Total Averaging Cycles	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Cycles Competed since Restart
44	PID DI Open Detection	R/O	System	UINT8	1	0 → 1	0	4.00.00	Detects when an injection valve opens. 0 = Not Fully Open 1 = Fully Open
45	PID DI Close Detection	R/O	System	UINT8	1	0 → 1	0	4.00.00	Detects when an injection valve close. 0 = Not Fully Closed 1 = Fully Closed

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
46	Gas Lift Status Code	R/O	System	UINT8	1	0 → 26	0	4.00.00	Shows the gas lift status code. 0 = GasLift Not in Service 1 = Injection Off Time Exceeded 2 = Production Off Time Exceeded 3 = Gas Lift Stop for SSD 4 = Injection Setpoint High Limit 5 = Injection Setpoint Low Limit 6 = Waiting for Start 7 = In Startup Delay 8 = In First Averaging Period 9 = Forward Direction SetPt Change 10 = Negative Direction SetPt Change 11 = No SetPt Change (Within Deadband) 12 = Positive Eff Reversal SetPt Change 13 = GL Valve Sequencing Delay 14 = Stop Command Received
47	Initial Test Posting Elapsed Time Pct	R/W	User	FLOAT	4	0.0 → 50.0	25.0	4.00.00	Sets the initial test posting elapsed time percent.
48	GL Injection Cur Flow Rate	R/O	System	FLOAT	4	Any Positive Float Number	0.0	4.00.00	Shows the current injection flow rate.
49	GL Injection Vol Today	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the injection volume of the current day.
50	GL Injection Vol Prev Day	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the injection volume of the previous day.
51	GL Injection Vol This Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the injection volume of the current month.
52	GL Injection Vol Prev Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the injection volume of the previous month.
53	GL Gas Production Cur Flow Rate	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the current gas production flow rate.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
54	GL Gas Production Vol Today	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas production volume of the current day.
55	GL Gas Production Vol Prev Day	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas production volume of the previous day.
56	GL Gas Production Vol This Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas production volume of the current month.
57	GLGas Production Vol Prev Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas production volume of the previous month.
58	GL Gas Sales Cur Flow Rate	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the current gas sales flow rate.
59	GL Gas Sales Vol Today	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas sales volume of the current day.
60	GL Gas Sales Vol Prev Day	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas sales volume of the previous day.
61	GL Gas Sales Vol This Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas sales volume of the current month.
62	GL Gas Sales Vol Prev Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the gas sales volume of the previous month.
63	GL Buyback Cur Flow Rate	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the current buyback gas flow rate
64	GL Buyback Vol Today	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the buyback volume of the current day.
65	GL Buyback Vol Prev Day	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the buyback volume of the previous day.
66	GL Buyback Vol This Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the buyback volume of the current month.
67	GL Buyback Vol Prev Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the buyback volume of the previous month.
68	GL Liquid HC Cur Flow Rate	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the current liquid hydrocarbon flow rate
69	GL Liquid HC Vol Today	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Show the liquid hydrocarbon volume of the current day.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
70	GL Liquid HC Vol Prev Day	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Show the liquid hydrocarbon volume of the previous day.
71	GL Liquid HC Vol This Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Show the liquid hydrocarbon volume of the current month.
72	GL Liquid HC Vl Prev Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Show the liquid hydrocarbon volume of the previous month.
73	GL Water Cur Flow Rate	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the current water flow rate.
74	GL Water Vol Today	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the water volume of the current day.
75	GL Water Vol Prev Day	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the water volume of the previous day.
76	GL Water Vol This Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the water volume of the current month.
77	GLWater Vol Prev Month	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the water volume of the previous month.
78	Instantaneous Efficiency Pct	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the spot efficiency in percent
79	Injection Vol per Day - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time injection volume per day
80	Production Vol per Day - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time production volume per day.
81	Sales Vol per Day - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time sales volume per day.
82	Buyback Vol per Day - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time buyback volume per day.
83	Liquid HC Vol per Day - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time liquid volume per day.
84	Water Vol per Day - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time water volume per day.
85	Efficiency Pct - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time efficiency.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
86	Improvement Pct - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real time percent improvement.
87	Elapsed Hours - Testing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the real-time elapsed test hours.
88	Injection Vol per Day - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the injection volume per day from the last test.
89	Production Vol per Day - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the production volume per day from the last test.
90	Sales Vol per Day - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the sales volume per day from the last test.
91	Buyback Vol per Day - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the buyback volume per day from the last test.
92	Liquid HC Vol per Day - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the liquid hydrocarbon volume per day from the last test.
93	Water Vol per Day - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the water volume per day from the last test.
94	Efficiency Pct - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the percent efficiency from the last test.
95	Improvement Pct - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the percent improvement from the last test.
96	Elapsed Hours - Last Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the total hours elapsed from the last test.
97	Injection Vol per Day - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the injection volume per day from the previous test.
98	Production Vol per Day - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the production volume per day from the previous test.
99	Sales Vol per Day - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the sales volume per day from the previous test.
100	Buyback Vol per Day - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the buyback volume per day from the previous test.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
101	Liquid HC Vol per Day - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the liquid hydrocarbon volume per day from the previous test.
102	Water Vol per Day - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the water volume per day from the previous test.
103	Efficiency Pct - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the percent efficiency from the previous test.
104	Improvement Pct - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the percent improvement from the previous test.
105	Elapsed Hours - Prev Test	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the total hours elapsed from the previous test.
106	Completion Date In Test	R/O	System	UINT32	4	140101 → 991231	0.0	4.00.00	Shows the real-time completion date.
107	Completion Time In Test	R/O	System	UINT32	4	0 → 235959	0.0	4.00.00	Shows the real-time completion time.
108	Completion Date Last Test	R/O	System	UINT32	4	140101 → 991231	0.0	4.00.00	Shows the completion date of the last test.
109	Completion Time Last Test	R/O	System	UINT32	4	0 → 235959	0.0	4.00.00	Shows the completion time of the last test.
110	Completion Date Prev Test	R/O	System	UINT32	4	140101 → 991231	0.0	4.00.00	Shows the completion date of the previous test.
111	Completion Time Prev Test	R/O	System	UINT32	4	0 → 235959	0.0	4.00.00	Shows the completion time of the previous test.
112	Water Accum TLP	R/W	User	TLP	3	Any Tank or Accum Instance	Undefined	4.00.00	Defines the TLP of the water production meter.
113	Water Def is Acc/Rate	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets whether the water def is shown in terms of accumulation or rate. 0 = Water Def is an Accum 1 = Water Def is a Rate

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
114	Buyback Compression	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables buyback compression. 0 = NO Compression Costs Added 1 = Add Compression Cost
115	Gas Compression Cost / EU	R/W	User	FLOAT	4	Float Number	0.0	4.00.00	Sets the gas compression cost / EU.
116	Production Gas Cost / EU	R/W	User	FLOAT	4	Float Number	0.0	4.00.00	Sets the production gas cost / EU.
117	Sales Gas Revenue / EU	R/W	User	FLOAT	4	Float Number	0.0	4.00.00	Shows the sales gas revenue / EU.
118	Buyback Gas Cost / EU	R/W	User	FLOAT	4	Float Number	0.0	4.00.00	Sets the buyback gas cost / EU.
119	Crude Oil Revenue / EU	R/W	User	FLOAT	4	Float Number	0.0	4.00.00	Shows the crude oil revenue / EU.
120	Water Cost / EU	R/W	User	FLOAT	4	Float Number	0.0	4.00.00	Sets the water cost / EU.
121	Compression Cost - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real-time compression cost.
122	Production Gas Cost - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real-time production gas cost.
123	Sales Gas Revenue - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real-time sales gas revenue.
124	Buyback Gas Cost - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real-time buyback gas cost
125	Liquid HC Revenue - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real-time liquid hydrocarbon revenue
126	Prod Water Cost - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real time production water cost.
127	Net Revenue - Testing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the real-time net revenue.
128	Compression Cost - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the compression cost from the last test
129	Production Gas Cost - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the production gas cost from the last test.
130	Sales Gas Revenue - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the sales gas revenue from the last test.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
131	Buyback Gas Cost - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the buyback gas cost from the last test.
132	Liquid HC Revenue - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the liquid hydrocarbon revenue from the last test.
133	Prod Water Cost - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the production water cost from the last test.
134	Net Revenue - Last Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the net revenue from th last test.
135	Compression Cost - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the compression cost from the previous test.
136	Production Gas Cost - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the production gas cost from the previous test.
137	Sales Gas Revenue - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the production gas cost from the previous test.
138	BUyback Gas Cost - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the buyback gas cost from the previous test.
139	Liquid HC Revenue - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the liquid hydrocarbon revenue from the previous test.
140	Water Cost - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the water cost from te previous test.
141	Net Revenue - Prev Test	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	Shows the net revenue from the previous test.
142	Stop Command	R/O	System	UINT8	1	0 → 1	0	4.00.00	Aborts the gas lift. 0 = Idle 1 = Stop Testing Command
143	Start Initialize Latch	R/O	System	UINT8	1	0 → 1	0	4.00.00	Starts the gas lift initialization. 0 = Idle 1 = First Test Started and Initialized
144	Start Delay Elapsed Seconds	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows the delay elapsed in seconds.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
145	Start Average Period *Var*	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows the starting mark of the second test.
146	First Average Flag *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the first test period. 0 = Not in First Test Period 1 = Initial Test Period
147	Program Sequence *Var*	R/O	System	UINT16	2	0 → 4	0	4.00.00	**Shows the gas lift stage.** 0 = Post Starting Inj SetPoint 1 = Enter Start Delay Period 2 = In Start Delay Period 3 = Initiate Test 4 = Test in Progress
148	Injection Test Accumulator	R/O	System	Double	8	Non-Negative Float Number	0.0	4.00.00	Enables the injection test accumulator.
149	Prod Gas Test Accumulator	R/O	System	Double	8	Non-Negative Float Number	0.0	4.00.00	Enables the production gas test accumulator.
150	Sales Test Accumulator	R/O	System	Double	8	Non-Negative Float Number	0.0	4.00.00	Enables the sales test accumulator.
151	Buyback Test Accumulator	R/O	System	Double	8	Non-Negative Float Number	0.0	4.00.00	Enables the buyback gas test accumulator.
152	Liquid HC Test Accumulator	R/O	System	Double	8	Non-Negative Float Number	0.0	4.00.00	Enables the liquid hydrocarbon test accumulator.
153	Prod Water Test Accumulator	R/O	System	Double	8	Non-Negative Float Number	0.0	4.00.00	Enables the production water test accumulator.
154	Elap Seconds Test Counter	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows elapsed test counter in seconds.
155	Elap Seconds Inj Off	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows the amount of time the injection goes off in seconds.
156	Elap Second Prod Off	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Shows the amount of time the production goes off in seconds.
157	Offset Direction	R/W	Both	S8	1	-1 → 1	-1	4.00.00	Shows the current injection setpoint offset. -1 = Decreasing Inj Setpoints 1 = Increasing Inj Setpoints

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
158	Last Osc State *Var*	R/O	System	S8	1	-1 → 1	0	4.00.00	Shows the injection setpoint offset during the last test. -1 = Decreasing Inj Setpoints 1 = Increasing Inj Setpoints
159	Osc Reverse Count *Var*	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Shows the number of oscillations the program detects.
160	Osc Pattern Count *Var*	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Shows the number of similar oscillation patterns.
161	Compr Run Flow Event Num *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the log of no flow events. 0 = No Event Logged 1 = Cur No Flow Event Logged
162	Compr Run Status Event Num *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the log of run status Off event. 0 = No Event Logged 1 = Cur Run Status Off Event Logged
163	Gas Lift Status Message	R/O	System	AC20	20	Printable ASCII Characters	0	4.00.00	Shows the gas lift status message.
164	Cur Injection Setpoint	R/W	Both	FLOAT	4	Non-Negative Float Number	0	4.00.00	Sets the current injection setpoint.
165	Valve Sequencing Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables valve sequencing. 0 = Disabled 1 = Enabled
166	Valve Sequencing Rate SetPt	R/W	User	FLOAT	4	Non-Negative Float Number	200.0	4.00.00	Sets the setpoint of the valve sequencing rate.
167	Valve Seq Term Condition	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets the valve sequencing term condition. 0 = Test Tubing <= Trip Value 1 = Test Csg-Tbg Diff >= Trip Value
168	Valve Seq Term Trip Point	R/W	User	FLOAT	4	Non-Negative Float Number	200.0	4.00.00	Sets the valve sequencing term trip point.

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
169	Valve Seq Timer Preset Mins	R/W	User	FLOAT	4	Positive Float Number	60.0	4.00.00	Sets the valve sequencing timer preset in minutes.
170	Valve Seq Elapsed Mins	R/O	System	FLOAT	4	Non-Negative Float Number	0	4.00.00	Sets the valve sequencing elapse time in minutes.
171	Sim Resevoir Press	R/W	User	UINT16	2	0 → 65535	1000	4.00.00	Sets the sim reservoir pressure.
172	Sim Resev Frac Cv	R/W	User	FLOAT	4	Non-Negative Float Number	3	4.00.00	Sim Resev Frac Cv
173	Sim Well GOR	R/W	User	FLOAT	4	Non-Negative Float Number	10	4.00.00	Sim Well GOR
174	Sim Well GWR	R/W	User	FLOAT	4	Non-Negative Float Number	10	4.00.00	Sim Well GWR
175	Sim Prod, Inj, BuyB Cv	R/W	User	FLOAT	4	Non-Negative Float Number	6	4.00.00	Sim Prod, Inj, BuyB Cv
176	Sim Surf, Inj Line Length	R/W	User	UINT16	2	0 → 65535	200	4.00.00	Sim Surf, Inj Line Length
177	Gath Sys Buck Press	R/W	User	UINT16	2	0 → 65535	200	4.00.00	Gath Sys Buck Press
178	Gath Sys Qv Demand per Day	R/W	User	UINT16	2	0 → 65535	1000	4.00.00	Gath Sys Qv Demand per Day
179	Compressor Run Cmd	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets the compressor run command. 0 = Compressor is OFF 1 = Compressor is ON
180	Compr Capacity Qv per Day	R/W	User	UINT16	2	0 → 65535	8000	4.00.00	Compr Capacity Qv per Day
181	Sim BuyBack SetPt Press	R/W	User	UINT16	2	0 → 65535	110	4.00.00	Sim BuyBack SetPt Press
182	Sim BH Temperature	R/W	User	UINT16	2	0 → 65535	165	4.00.00	Sim BH Temperature
183	Sim Use Compressor	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sim Use Compressor 0 = No Compressor at Facility 1 = Compressor at Facility
184	Sim Cmpr Suction SetPt (from Line)	R/W	User	UINT16	2	0 → 65535	120	4.00.00	Sim Cmpr Suction SetPt (from Line)
185	Sim Cmpr Max Disch Pres	R/W	User	UINT16	2	0 → 65535	1000	4.00.00	Sim Cmpr Max Disch Pres

Point Type 179/66: PMWO Continuous Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
186	Sim Cmpr Has Recirc	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sim Cmpr Has Recirc 0 = No Recirc to Suction 1 = Gas is Recirculable to Suction

5.3 Point Type 180/67: PMWO Cyclic Parameter

Point type 180 (for FB107) or 67 (for ROC800) contains the parameters related to cyclic control. The program supports 4 logicals of this point type for the FB107 and up to 12 logicals for the ROC800.

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Continuous or Cyclic Production	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables cyclic production. 0 = Do not use Cyclic Production 1 = Use Cyclic Production
1	Cycle Type	R/W	User	UINT8	1	0 → 3	2	4.00.00	Select the cyclic production type. 0 = No Plunger (Optimize) 1 = Continuous Plunger 2 = Conventional Plunger 3 = Rodpump
2	Monitor Plunger Arrivals	R/W	Both	UINT8	1	0 → 1	1	4.00.00	Monitors plunger arrivals. 0 = Do Not Monitor; No Log 1 = Monitor Plunger Arrivals
3	Plunger Detect Pt Def	R/W	User	TLP	3	Any Accum Parameter	Undefined	4.00.00	Sets the TLP for plunger arrival detection.
4	Plunger Release Pt Def	R/W	User	TLP	3	Any DO Status	Undefined	4.00.00	Sets the TLP for plunder release.
5	NonArrival Options	R/W	User	UINT8	1	0 → 4	1	4.00.00	Selects the action for every non-arrival of the plunger. 0 = Open Vent & Continue 1 = Go to Afterflow 2 = Go to Normal Shutin 3 = Go to Mandatory Extra SI 4 = Go to Progressive MESI
6	Use Mandatory Extra Override	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables the use of extra recovery override. 0 = Do Not Overide (0-2) 1 = Override Choices (0-2)
7	Extra Recovery Non-Arrivals Reqd	R/W	User	UINT8	1	0 → 255	3	4.00.00	Sets the extra recovery non-arrivals.

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
8	Detector Accumulator	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Enables detector accumulator.
9	DP Tbg Kick Detect Value	R/W	User	FLOAT	4	Positive Float Number	30.0	4.00.00	Sets the DP Tbg Kick Detect value.
10	DP Tbg Kick Ignore 1st X Mins	R/W	User	FLOAT	4	Non-Negative Float Number	3.0	4.00.00	Sets the DP Tbg Kick Ignore 1st X Mins.
11	DP Tbg Kick Enable	R/W	User	UINT8	1	0 → 3	0	4.00.00	Enables DP Tbg Kick. 0 = Do Not Use 1 = Use DP Kick 2 = Use Tubing Kick 3 = Use Both DP & Tbg
12	DP Tbg Kick Delay Secs Preset	R/W	User	UINT16	2	0 → 65535	5	4.00.00	Sets the DP Tbg Kick Delay Preset in seconds.
13	DP Tbg Kick Delay Secs Elapsed	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Shows the DP Tbg Kick Delay elapse time in seconds.
14	Lowest DP During Lift	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the lowest DP during the lift.
15	Lowest Tubing Prs During Lift	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the lowest tubing pressure during the lift.
16	Log Aborted Lifts	R/W	User	UINT8	1	0 → 1	1	4.00.00	Enables the log of the aborted lifts. 0 = Do Not Log 1 = Log All Lifts
17	Code or Time NonArrivals	R/W	User	UINT8	1	0 → 1	1	4.00.00	Sets whether to log the code or the maximum waiting time of the non-arrivals. 0 = Log Code Numbers 1 = Log Max Wait Mins
18	Use Diff Lift Setpoint	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of different lift setpoint. 0 = Do Not Use 1 = Use Separate Lift SetPt

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
19	Lift Setpoint	R/W	User	FLOAT	4	Non-Negative Float Number	500.0	4.00.00	Sets the setpoint of the lift.
20	Use Diff Drop Setpoint	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of different drop setpoint. 0 = Do Not Use 1 = Use Separate Drop SetPt
21	Drop Setpoint	R/W	User	FLOAT	4	Positive Float Number	500.0	4.00.00	Sets the drop setpoint.
22	Drop Setpoint Mode	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the drop setpoint mode. 0 = Actual EU 1 = Dev EU from Main SetPt 2 = Pct of Main SetPt 3 = Pct of Critical Rate
23	Drop Setpoint Duration	R/W	User	FLOAT	4	Positive Float Number	66.7	4.00.00	Sets the duration of the drop setpoint.
24	Drop Setpoint Duration Mode	R/W	User	UINT8	1	0 → 2	2	4.00.00	Selects the drop setpoint duration mode. 0 = Minutes After Drop 1 = Pct of Max Wait Minutes 2 = Pct of Last X UnAsst Arrivals
25	RoundTrip SetPt in Effect	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows if the round trip setpoint is in effect.
26	RoundTrip SetPt Mode	R/W	User	UINT8	1	0 → 2	0	4.00.00	Sets the round trip setpoint mode. 0 = Using Main SetPt 1 = Using Lifting SetPt 2 = Using Dropping SetPt
27	RoundTrip Transition Arrivals	R/W	User	UINT8	1	1 → 10	3	4.00.00	Sets the round trip transition arrivals.
28	Lift Setpoint Mode	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the lift setpoint mode. 0 = Actual EU 1 = Dev EU from Main SetPt 2 = Pct of Main SetPt 3 = Pct of Critical Rate

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
29	Use CT Max ON Mins GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Max ON Mins GE 0 = Not in Consideration 1 = Put in Play
30	Use CT Max Afterflow Mins GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Max Afterflow Mins GE 0 = Not in Consideration 1 = Put in Play
31	Use CT Casing LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Casing LE 0 = Not in Consideration 1 = Put in Play
32	Use CT Tubing LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Tubing LE 0 = Not in Consideration 1 = Put in Play
33	Use CT Csg-Tbg GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Csg-Tbg GE 0 = Not in Consideration 1 = Put in Play
34	Use CT Tbg-Line LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Tbg-Line LE 0 = Not in Consideration 1 = Put in Play
35	Use CT Csg-Line LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Csg-Line LE 0 = Not in Consideration 1 = Put in Play
36	Use CT Flow Rate LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Flow Rate LE 0 = Not in Consideration 1 = Put in Play
37	Use CT Meter DP LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Meter DP LE 0 = Not in Consideration 1 = Put in Play
38	Use CT Casing UpPct GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Casing UpPct GE 0 = Not in Consideration 1 = Put in Play

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
39	Use CT Net Rate (Prd-Inj) LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT Net Rate (Prd-Inj) LE 0 = Not in Consideration 1 = Put in Play
40	Use CT UserDef1	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT UserDef1 0 = Not in Consideration 1 = Process & Put in Play
41	Use CT UserDef2	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use CT UserDef2 0 = Not in Consideration 1 = Process & Put in Play
42	CT Use Adjusted Critical Rate	R/W	User	UINT8	1	0 → 1	0	4.00.00	CT Use Adjusted Critical Rate 0 = Keep Fixed Flow Rate CT 1 = Use Adjusted Critical Rate CT
43	CT Press/UD Observe Delay	R/W	User	UINT8	1	0 → 3	0	4.00.00	CT Press/UD Observe Delay 0 = Do Not Use Delay 1 = Use on Pressures 2 = Use on User-Def Only 3 = Use on Both Press & UD
44	CT Casing Prs LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Casing Prs LE
45	CT Tubing Prs LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Tubing Prs LE
46	CT Csg-Tbg Dp GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Csg-Tbg Dp GE
47	CT Tbg-Lne Dp LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Tbg-Lne Dp LE
48	CT Csg-Lne Dp LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Csg-Lne Dp LE
49	CT Flow Rate LE	R/W	Both	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Flow Rate LE
50	CT Meter DP LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Meter DP LE
51	CT Casing Upturn Pct	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Casing Upturn Pct

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
52	CT Net Rate (Prd-Inj) LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Net Rate (Prd-Inj) LE
53	UserDef CTrig1 SetPt	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	UserDef CTrig1 SetPt
54	UserDef CTrig2 SetPt	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	UserDef CTrig2 SetPt
55	CT Critical Rate Pct	R/W	User	FLOAT	4	Non-Negative Float Number	100.0	4.00.00	CT Critical Rate Pct
56	Adjusted Crit Flow	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the adjusted critical flow.
57	Lowest Casing Press in Afterflow	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Shows the lowest casing pressure in the Afterflow.
58	Casing Upturn Pct	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Casing Upturn Pct
59	UserDef CTrig1 PV	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	UserDef CTrig1 PV
60	UserDef CTrig2 PV	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	UserDef CTrig2 PV
61	UserDef CTrig Tag1	R/W	User	String7	7	Printable ASCII Characters	UsrDef1	4.00.00	UserDef CTrig Tag1
62	UserDef CTrig Def1	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	UserDef CTrig Def1
63	UserDef CTrig Opr1	R/W	User	UINT8	1	0 → 3	0	4.00.00	UserDef CTrig Opr1 0 = (>=) GE 1 = (<=) LE 2 = (==) Equal To 3 = (!=) Not Equal To
64	UserDef CTrig Tag2	R/W	User	String7	7	Printable ASCII Characters	UsrDef2	4.00.00	UserDef CTrig Tag2
65	UserDef CTrig Def2	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	UserDef CTrig Def2

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
66	UserDef CTrig Opr2	R/W	User	UINT8	1	0 → 3	0	4.00.00	UserDef CTrig Opr2 0 = (>=) GE 1 = (<=) LE 2 = (==) Equal To 3 = (!=) Not Equal To
67	Cur Casing-Tubing Pres Diff	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Cur Casing-Tubing Pres Diff
68	Cur Tubing-Line Pres Diff	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Cur Tubing-Line Pres Diff
69	Cur Casing-Line Pres Diff	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Cur Casing-Line Pres Diff
70	Cur Load Factor %	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Cur Load Factor %
71	Net Flow Rate (Prd-Inj)	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	Net Flow Rate (Prd-Inj)
72	Num Cycles in Swab	R/W	User	UINT8	1	1 → 255	3	4.00.00	Num Cycles in Swab
73	Demand Swab Command	R/W	User	UINT8	1	0 → 1	0	4.00.00	Demand Swab Command 0 = No Action 1 = Put into Swab Mode
74	Swab After Every X Cycles	R/W	User	UINT16	2	1 → 65535	0	4.00.00	Swab After Every X Cycles
75	Swabbing Status	R/O	System	UINT8	1	0 → 1	0	4.00.00	Shows the swabbing status. 0 = Not in Swab Mode 1 = Currently in Swab Mode
76	Cycles Remaining in Swab	R/W	System	UINT8	1	0 → 255	0	4.00.00	Shows the cycles remaining in swab
77	Cycles Since Last Swab	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Cycles Since Last Swab
78	AND Open Triggers	R/W	User	UINT8	1	0 → 1	0	4.00.00	AND Open Triggers 0 = OR Open Triggers 1 = AND Selected Open Triggers

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
79	Use OT Max OFF Mins GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Max OFF Mins GE 0 = Not in Consideration 1 = Put in Play
80	Use OT Max Armed Shutin Mins GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Max Armed Shut Mins GE 0 = Not in Consideration 1 = Put in Play
81	Use OT Casing GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Casing GE 0 = Not in Consideration 1 = Put in Play
82	Use OT Tubing GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Tubing GE 0 = Not in Consideration 1 = Put in Play
83	Use OT Csg-Tbg LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Csg-Tbg LE 0 = Not in Consideration 1 = Put in Play
84	Use OT Tbg-Line GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Tbg-Line GE 0 = Not in Consideration 1 = Put in Play
85	Use OT Csg-Line GE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Csg-Line GE 0 = Not in Consideration 1 = Put in Play
86	Use OT Load Factor LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Load Factor LE 0 = Not in Consideration 1 = Put in Play
87	Use OT Csg Incr/Time	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Csg Incr/Time 0 = Not in Consideration 1 = Put in Play
88	Use OT Tbg incr/Time	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT Tbg incr/Time 0 = Not in Consideration 1 = Put in Play

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
89	Use OT UserDef1	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT UserDef1 0 = Not in Consideration 1 = Process & Put in Play
90	Use OT UserDef2	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use OT UserDef2 0 = Not in Consideration 1 = Process & Put in Play
91	OT Casing Prs GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Casing Prs GE
92	OT Tubing Prs GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Tubing Prs GE
93	OT Csg-Tbg Dp LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Csg-Tbg Dp LE
94	OT Tbg-Lne Dp GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Tbg-Lne Dp GE
95	OT Csg-Lne Dp GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Csg-Lne Dp GE
96	OT Load Factor GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Load Factor GE
97	OT Csg Inc Pres LE	R/W	User	FLOAT	4	Non-Negative Float Number	5.0	4.00.00	OT Csg Inc Pres LE
98	OT Tbg Inc Pres LE	R/W	User	FLOAT	4	Non-Negative Float Number	5.0	4.00.00	OT Tbg Inc Pres LE
99	OT UserDef SetPt1	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	OT UserDef SetPt1
100	OT UserDef SetPt2	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	OT UserDef SetPt2
101	OT Casing Start Pres *Var*	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Casing Start Pres
102	OT Tubing Start Pres *Var*	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	OT Tubing Start Pres
103	Casing Over Time Psi Increase	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Casing Over Time Psi Increase

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
104	Tubing Over Time Psi Increase	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Tubing Over Time Psi Increase
105	OT UserDef PV1	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	OT UserDef PV1
106	OT UserDef PV2	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	OT UserDef PV2
107	OT UserDef Tag1	R/W	User	String7	7	Printable ASCII Characters	UsrDef1	4.00.00	OT UserDef Tag1
108	OT UserDef Def1	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	OT UserDef Def1
109	OT UserDef Opr1	R/W	User	UINT8	1	0 → 3	0	4.00.00	OT UserDef Opr1 0 = (>=) GE 1 = (<=) LE 2 = (==) Equal To 3 = (!=) Not Equal To
110	OT UserDef Tag2	R/W	User	String7	7	Printable ASCII Characters	UsrDef2	4.00.00	OT UserDef Tag2
111	OT UserDef Def2	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	OT UserDef Def2
112	OT UserDef Opr2	R/W	User	UINT8	1	0 → 3	0	4.00.00	OT UserDef Opr2 0 = (>=) GE 1 = (<=) LE 2 = (==) Equal To 3 = (!=) Not Equal To
113	Max Plunger Wait Mins	R/W	User	FLOAT	4	Non-Negative Float Number	45.0	4.00.00	Max Plunger Wait Mins
114	VT Delay Time Mins	R/W	User	FLOAT	4	Non-Negative Float Number	1.0	4.00.00	VT Delay Time Mins
115	Min Vent Time Mins	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Min Vent Time Mins
116	Max Vent Time Mins	R/W	User	FLOAT	4	Non-Negative Float Number	20.0	4.00.00	Max Vent Time Mins

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
117	Vent After Arrival Mins	R/W	User	FLOAT	4	Non-Negative Float Number	2.0	4.00.00	Vent After Arrival Mins
118	Minimum Afterflow Mins	R/W	User	FLOAT	4	Non-Negative Float Number	1.0	4.00.00	Minimum Afterflow Mins
119	CT Max ON Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	1440.0	4.00.00	CT Max ON Minutes
120	CT Max AfterFlow Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	1440.0	4.00.00	CT Max AfterFlow Minutes
121	CT Delay Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	1.0	4.00.00	CT Delay Minutes
122	OT Max OFF Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	480.0	4.00.00	OT Max OFF Minutes
123	OT Max Armed Shutin Mins	R/W	User	FLOAT	4	Non-Negative Float Number	480.0	4.00.00	OT Max Armed Shutin Mins
124	OT Csg Inc Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	2.0	4.00.00	OT Csg Inc Minutes
125	OT Tbg Inc Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	2.0	4.00.00	OT Tbg Inc Minutes
126	Min Shutin Preset Mins	R/W	User	FLOAT	4	Non-Negative Float Number	45.0	4.00.00	Min Shutin Preset Mins
127	Extra Recovery Minutes	R/W	User	FLOAT	4	Non-Negative Float Number	120.0	4.00.00	Extra Recovery Minutes
128	Shutin for Drop Secs	R/W	User	UINT16	2	0 → 65535	30	4.00.00	Shutin for Drop Secs
129	Actual Miminum Shutin Preset Mins	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Min Shutin Preset Mins Now

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
130	Min Shutin Preset Source	R/O	System	UINT8	1	0 → 7	3	4.00.00	Min Shutin Preset Source 0 = Pressure BuildUp 1 = Csg-Tbg Equalize 2 = Plunger Drop Time 3 = Min Shutin Time 4 = Non-Arrival Shut-In 5 = Progressive Non-Arrival Shut-In 6 = Minimum Rod Pump Run Time 7 = Target Rod Pump Run Time
131	CT Max ON Hours	R/W	Both	FLOAT	4	Non-Negative Float Number	24.0	4.00.00	CT Max ON Hours
132	CT Max AfterFlow Hours	R/W	Both	FLOAT	4	Non-Negative Float Number	24.0	4.00.00	CT Max AfterFlow Hours
133	OT Max OFF Hours	R/W	Both	FLOAT	4	Non-Negative Float Number	8.0	4.00.00	OT Max OFF Hours
134	OT Max Armed Shutin Hours	R/W	Both	FLOAT	4	Non-Negative Float Number	8.0	4.00.00	OT Max Armed Shutin Hours
135	Catcher Release Delay Secs	R/W	User	UINT8	1	0 → 255	10	4.00.00	Catcher Release Delay Secs
136	Release Act Secs	R/W	User	UINT8	1	1 → 255	5	4.00.00	Release Act Secs
137	Plunger Wait Mins Elapsed	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Plunger Wait Mins Elapsed
138	VT Dly Mins Elapsed	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	VT Dly Mins Elapsed
139	Vent Mins Elapsed	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Vent Mins Elapsed
140	After Arrival Vent Mins Elp	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	After Arrival Vent Mins Elp
141	Min Afterflow Elapsed Minutes	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Min Afterflow Elapsed Minutes
142	Afterfow Minutes Elapsed	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Afterfow Minutes Elapsed

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
143	CT Delay Mins Elp	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	CT Delay Mins Elp
144	Min Shutin Minutes Elp	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Min Shutin Minutes Elp
145	Armed Shutin Mins Elap	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Armed Shutin Mins Elap
146	Casing Over Time Mins Elp	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Casing Over Time Mins Elp
147	Tubing Over Time Mins Elp	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Tubing Over Time Mins Elp
148	Afterflow Hours Elapsed	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Afterflow Hours Elapsed
149	Armed Shutin Hours Elapsed	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Armed Shutin Hours Elapsed
150	Venting Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables venting. 0 = No Venting 1 = Venting is Allowed
151	Vent Valve Solenoid Type	R/W	User	UINT8	1	0 → 1	0	4.00.00	Select vent valve solenoid type. 0 = Single Solenoid 1 = Dual Solenoids
152	Venting Pt Def	R/W	User	TLP	3	Any DO Status or Mom	Undefined	4.00.00	Venting Pt Def
153	Venting Pulse Close Pt Def	R/W	User	TLP	3	Any DO Mom	Undefined	4.00.00	Venting Pulse Close Pt Def
154	Open FCV During Vent	R/W	User	UINT8	1	0 → 1	0	4.00.00	Opens the FCV during venting. 0 = FCV is Closed During Vent 1 = FCV is Open During Vent
155	Path After Vent NonArv	R/W	User	UINT8	1	1 → 4	3	4.00.00	Path After Vent NonArv 1 = Go to Afterflow 2 = Go to Normal Shutin 3 = Go to Mandatory Extra SI 4 = Go to Progressive MESI

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
156	Vent Curtail Enab	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables vent curtailment. 0 = Not Enabled 1 = Curtailment is Enabled
157	Vent Curtail Start Hour	R/W	User	UINT8	1	0 → 23	17	4.00.00	Vent Curtail Start Hour
158	Vent Curtail End Hour	R/W	User	UINT8	1	0 → 23	7	4.00.00	Vent Curtail End Hour
159	Vent Curtail Options	R/W	User	UINT8	1	1 → 4	3	4.00.00	Selects the vent curtailment option. 1 = Go to Afterflow 2 = Go to Normal Shutin 3 = Go to Mandatory Extra SI 4 = Go to Progressive MESI
160	Vented This Cycle *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Show the test vented from the current cycle. 0 = No Vent This Cycle 1 = Well Vented This Cycle
161	Post Arrival Venting This Cycle *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Post Arrival Venting This Cycle 0 = No Post-Arv Vent This Cycle 1 = Post-Arv Vent This Cycle
162	Prev Scan Vent Minutes *Var*	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Prev Scan Vent Minutes
163	Start Each Lift in Vent	R/W	User	UINT8	1	0 → 1	0	4.00.00	Start Each Lift in Vent 0 = Do Not Start in Vent Mode 1 = Start Each Lift in Vent Mode
164	Force Vent Now	R/W	User	UINT8	1	0 → 1	0	4.00.00	Forces the vent mode 0 = Idle 1 = Go to Vent Mode Now
165	Use VT Flow Rate LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use VT Flow Rate LE 0 = Not in Consideration 1 = Put in Play
166	Use VT Meter DP LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use VT Meter DP LE 0 = Not in Consideration 1 = Put in Play

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
167	Use VT Line Pres LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use VT Line Pres LE 0 = Not in Consideration 1 = Put in Play
168	Use VT Tbg-Lin LE	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use VT Tbg-Lin LE 0 = Not in Consideration 1 = Put in Play
169	Use VT User-Def	R/W	User	UINT8	1	0 → 1	0	4.00.00	Use VT User-Def 0 = Not in Consideration 1 = Put in Play
170	VT Lift Rate LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	VT Lift Rate LE
171	VT Mtr DP LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	VT Mtr DP LE
172	VT Line Psig GE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	VT Line Psig GE
173	VT Tbg-Line LE	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	VT Tbg-Line LE
174	VT UserDef SetPt	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	VT UserDef SetPt
175	VT UserDef PV	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	VT UserDef PV
176	VT UserDef Tag	R/W	User	String7	7	Printable ASCII Characters	UsrDef	4.00.00	VT UserDef Tag
177	VT UserDef Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	VT UserDef Def
178	VT UserDef Opr	R/W	User	UINT8	1	0 → 3	0	4.00.00	VT UserDef Opr 0 = (>=) GE 1 = (<=) LE 2 = (==) Equal To 3 = (!=) Not Equal To

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
179	VT Press/UD Observe Delay	R/W	User	UINT8	1	0 → 3	0	4.00.00	VT Press/UD Observe Delay 0 = Do Not Use Delay 1 = Use on Pressures 2 = Use on User-Def Only 3 = Use on Both Press & UD
180	VT Adjust Rate with Critical	R/W	User	UINT8	1	0 → 1	0	4.00.00	VT Adjust Rate with Critical 0 = Do Not Adjust Flow Rate VT 1 = Adjust Flow Rate VT
181	VT Critical Rate Pct	R/W	User	FLOAT	1	Positive Float Number	100.0	4.00.00	VT Critical Rate Pct
182	VT Action Enum (V/A/G)	R/O	System	UINT8	1	0 → 2	1	4.00.00	VT Action Enum (V/A/G) 0 = Open Vent Valve 1 = Abort Lift 2 = Open Gas Assist
183	Use Gas Assist (GAPL)	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables the use of Gas Assisted Plunger Lift (GAPL). 0 = GAPL Disabled 1 = GAPL Enabled
184	GAPL Opening Mode	R/W	User	UINT8	1	0 → 2	0	4.00.00	Selects a GAPL opening mode. 0 = On at Each Opening 1 = Observe Delay Timer 2 = Observe VT Triggers
185	GAPL ON During Afterflow	R/W	User	UINT8	1	0 → 1	0	4.00.00	GAPL ON During Afterflow 0 = Not on During Afterflow 1 = ON During Afterflow
186	GAPL Limit to Non-Arrivals	R/W	User	UINT8	1	0 → 1	0	4.00.00	GAPL Limit to Non-Arrivals 0 = Do Not Limit 1 = Only Active After Non-Arvs
187	GAPL (Injection) Meter Pt Def	R/W	User	TLP	3	Any Flow Rate or Accum Instance	Undefined	4.00.00	GAPL (Injection) Meter Pt Def
188	GAPL PID/DO Pt Def	R/W	User	TLP	3	Any PID or DO Instance	Undefined	4.00.00	GAPL PID/DO Pt Def

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
189	GAPL DO Close Pt Def	R/W	User	TLP	3	Any DO Mom	Undefined	4.00.00	GAPL DO Close Pt Def
190	GAPL Status	R/O	System	UINT8	1	0 → 6	0	4.00.00	Shows the GAPL Status. 0 = Disabled 1 = Now Open 2 = Opening Delayed 3 = Waiting for V Trigger 4 = Off for Afterflow 5 = Waiting for Non-Arrival 6 = Well is Closed
191	GAPL PID SetPt	R/W	User	FLOAT	4	Non-Negative Float Number	400.0	4.00.00	GAPL PID SetPt
192	Rod Pump DO Type	R/W	User	UINT8	1	0 → 2	0	4.00.00	Rod Pump DO Type 0 = Latched Single Solenoid 1 = Dual Pulse Solenoids 2 = Pulse to Start; POC Stops
193	Rod Pump Control DO Pt Def	R/W	User	TLP	3	Any DO Status or Mom	Undefined	4.00.00	Rod Pump Control DO Pt Def
194	Rod Pump Pulse Stop Pt Def	R/W	User	TLP	3	Any DO Mom	Undefined	4.00.00	Rod Pump Pulse Stop Pt Def
195	POC Run Status DI Pt Def	R/W	User	TLP	3	Any DI Status	Undefined	4.00.00	POC Run Status DI Pt Def
196	Rod Pump Stops	R/W	User	UINT8	1	0 → 1	1	4.00.00	Rod Pump Stops 0 = Do Not Stop for Well Ready 1 = Stop When Well is Ready
197	Well Opening Permissive	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets well opening permission when pumping. 0 = Open Well When Pumping 1 = Do Not Open When Pumping
198	Rod Pump Status	R/O	System	UINT8	1	0 → 4	0	4.00.00	Shows the rod pump status. 0 = OFF 1 = ON for Minimum Time 2 = ON Until True Open Trigger 3 = ON for Maximum Time 4 = ON - POC Controlled

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
199	Rod Pump Min Time On Mins	R/W	User	FLOAT	4	Non-Negative Float Number	60.0	4.00.00	Sets the rod pump minimum time ON in minutes.
200	Rod Pump Max Time On Mins	R/W	User	FLOAT	4	Non-Negative Float Number	240.0	4.00.00	Sets the rod pump maximum time ON in minutes.
201	Rod Pump ON Elapsed Minutes	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Rod Pump ON Elapsed Minutes
202	Rod Pump ON Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Rod Pump ON Elapsed Secs
203	Soap Stick Launch Every X Cycles	R/W	User	UINT16	2	1 → 65535	1	4.00.00	Soap Stick Launch Every X Cycles
204	Soap Stick DO TLP	R/W	User	TLP	3	Any DO Status	Undefined	4.00.00	Soap Stick DO TLP
205	Soap Stick Launch Delay Sec	R/W	User	UINT16	2	0 → 65535	10	4.00.00	Soap Stick Launch Delay Sec
206	Soap Stick Launch Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Enables soap stick launch. 0 = Disabled 1 = Soap Sticks Enabled
207	Cycles Since Prev Soap Stick	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Cycles Since Prev Soap Stick
208	Plunger Wait Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Plunger Wait Elapsed Secs
209	VT Delay Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	VT Delay Elapsed Secs
210	Vent Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Vent Elapsed Secs
211	AftArival Vent Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	AftArival Vent Elapsed Secs
212	Min Afterflow Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Min Afterflow Elapsed Secs
213	Max Afterflow Elapsed Sec	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Max Afterflow Elapsed Sec

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
214	CT Delay Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	CT Delay Elapsed Secs
215	Min Shutin Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Min Shutin Elapsed Secs
216	Armed Shutin Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Armed Shutin Elapsed Secs
217	CT Casing/Time Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	CT Casing/Time Elapsed Secs
218	CT Tubing/Time Elapsed Secs	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	CT Tubing/Time Elapsed Secs
219	Arrival Sw Acc Value At Opening	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	Arrival Sw Acc Value At Opening
220	Arrival This Cycle *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Arrival This Cycle 0 = No Arrival 1 = Plunger Has Arrived
221	Conseq NonArrivals	R/O	System	UINT16	2	0 → 65535	0	4.00.00	Conseq NonArrivals
222	Mandatory OFF Accum NonArv *Var*	R/O	System	UINT8	1	0 → 255	0	4.00.00	Mandatory OFF Accum NonArv
223	Mandatory Extra OFF Mode *Var*	R/O	System	UINT8	1	0 → 1	0	4.00.00	Mandatory Extra OFF Mode 0 = Not in Mandatory OFF Mode 1 = Currently in Mand OFF Mode
224	GAPL Delay Timer Preset	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.33	GAPL Delay Timer Preset

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
225	Close Trigger Status Overview	R/O	System	UINT16	2	0 → 65535	0	4.00.34	Shows the summary of the close trigger status. 1 = ON Minutes >= Preset 2 = Afterflow Minutes >= Preset 4 = Casing Pres <= Preset 8 = Tubing Pres <= Preset 16 = Csg-Tbg >= Preset 32 = Tbg-Line <= Preset 64 = Csg-Line <= Preset 128 = Csg Upturn% >= Preset 256 = Meter Dp <= Preset 512 = Flow Rate <= Preset 1024 = Net Flow Rate <= Preset 2048 = User-Defined #1 is TRUE 4096 = User-Defined #2 is TRUE
226	Open Trigger Status Overview	R/O	System	UINT16	2	0 → 65535	0	4.00.34	Shows the summary of the open trigger status. 1 = OFF Minutes >= Preset 2 = Armed SI Minutes >= Preset 4 = Casing Pres >= Preset 8 = Tubing Pres >= Preset 16 = Csg-Tbg <= Preset 32 = Tbg-Line >= Preset 64 = Csg-Line >= Preset 128 = Load Factor% <= Preset 256 = Casing Incr Time Expired 512 = Tubing Incr Time Expired 1024 = User-Defined #1 is TRUE 2048 = User-Defined #2 is TRUE
227	Lift Trigger Status Overview	R/O	System	UINT16	2	0 → 65535	0	4.00.34	Shows the lift trigger status summary. 1 = Flow Rate <= Preset 2 = Meter DP <= Preset 4 = Line Pres >= Preset 8 = Tbg-Line <= Preset 16 = User-Defined #1 is TRUE

Point Type 180/67: PMWO Cyclic Parameters

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
228	Lift TriggerMode	R/W	User	UINT8	1	0 → 2	0	4.00.34	Selects a lift trigger mode. 0 = Lift Triggers Abort Lift 1 = Lift Triggers Open Vent 2 = Lift Triggers Start GAPL
229	Lift Trigger NonArrival Effect	R/O	System	UINT8	1	3 → 4	0	4.00.34	Lift Trigger NonArrival Effect
230	GAPL Flow Rate	R/O	System	FLOAT	4	Non-Negative Float Number	0	4.00.40	GAPL Flow Rate

5.4 Point Type 181/69: PMWO Statistics Parameters

Point type 181 (for FB107) or 69 (for ROC800) contains the well optimization history and statistics. The program supports 4 logicals of this point type for the FB107 and up to 12 logicals for the ROC800.

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	1st Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the first plunger arrival date.
1	2nd Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the second plunger arrival date.
2	3rd Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the third plunger arrival date.
3	4th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the fourth plunger arrival date.
4	5th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the fifth plunger arrival date.
5	6th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the sixth plunger arrival date.
6	7th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the seventh plunger arrival date.
7	8th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the eighth plunger arrival date.
8	9th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the ninth plunger arrival date.
9	10th Arrival Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	Shows the tenth plunger arrival date.
10	1st Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the first plunger arrival time.
11	2nd Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the second plunger arrival time.
12	3rd Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the third plunger arrival time.

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
13	4th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the fourth plunger arrival time.
14	5th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the fifth plunger arrival time.
15	6th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the sixth plunger arrival time.
16	7th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the seventh plunger arrival time.
17	8th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the eighth plunger arrival time.
18	9th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the ninth plunger arrival time.
19	10th Arrival Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	Shows the tenth plunger arrival time.
20	1st Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the first lift vent in minutes.
21	2nd Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the second lift vent in minutes.
22	3rd Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the third lift vent in minutes.
23	4th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fourth lift vent in minutes.
24	5th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the fifth lift vent in minutes.
25	6th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the sixth lift vent in minutes.
26	7th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the seventh lift vent in minutes.
27	8th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the eighth lift vent in minutes.
28	9th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the ninth lift vent in minutes.

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
29	10th Lift Vent Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Shows the tenth lift vent in minutes.
30	1st Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Arrival Minutes
31	2nd Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Arrival Minutes
32	3rd Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Arrival Minutes
33	4th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Arrival Minutes
34	5th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Arrival Minutes
35	6th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	6th Arrival Minutes
36	7th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	7th Arrival Minutes
37	8th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	8th Arrival Minutes
38	9th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	9th Arrival Minutes
39	10th Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	10th Arrival Minutes
40	Rise Velocity 1 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 1 ft/min
41	Rise Velocity 2 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 2 ft/min
42	Rise Velocity 3 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 3 ft/min
43	Rise Velocity 4 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 4 ft/min
44	Rise Velocity 5 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 5 ft/min

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
45	Rise Velocity 6 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 6 ft/min
46	Rise Velocity 7 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 7 ft/min
47	Rise Velocity 8 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 8 ft/min
48	Rise Velocity 9 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 9 ft/min
49	Rise Velocity 10 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity 10 ft/min
50	1st Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	1st Enum Arrival Type 0 = Unitialized 1 = UnAssisted Arrival 2 = UnAssisted NonArrival 3 = Vented Arrival 4 = Vented NonArrival 5 = Gas Assisted Arrival 6 = Gas Assisted NonArrival 7 = Aborted Lift 8 = SSD During Lift 9 = Well Turned Off in Lift 10 = User Advanced Out of Lift
51	2nd Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	2nd Enum Arrival Type
52	3rd Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	3rd Enum Arrival Type
53	4th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	4th Enum Arrival Type
54	5th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	5th Enum Arrival Type
55	6th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	6th Enum Arrival Type
56	7th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	7th Enum Arrival Type
57	8th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	8th Enum Arrival Type
58	9th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	9th Enum Arrival Type
59	10th Enum Arrival Type	R/O	System	UINT8	1	1 → 9	0	4.00.00	10th Enum Arrival Type

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
60	Rise Velocity Avg 1 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity Avg 1 ft/min
61	Rise Velocity Avg 2 ft/min	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Rise Velocity Avg 2 ft/min
62	ReInitialize Cycle Data	R/W	User	UINT8	1	0 → 4	0	4.00.00	ReInitialize Cycle Data 0 = Idle 1 = Reset Cycle Stats 2 = Prev Plus Last10 Arrival Data 3 = Prev Plus Last5 Data 4 = Prev Plus Vent Minutes
63	Tdy Vent Minutes	R/W	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Tdy Vent Minutes
64	Ydy Vent Minutes	R/W	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Ydy Vent Minutes
65	This Month Vent Minutes	R/W	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	This Month Vent Minutes
66	Prev Month Vent Minutes	R/W	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Prev Month Vent Minutes
67	Arrivals Today	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Arrivals Today
68	Arrivals Yesterday	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Arrivals Yesterday
69	Non-Arrivals Today	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Non-Arrivals Today
70	Non-Arrivals Yesterday	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Non-Arrivals Yesterday
71	Cycles Today	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Cycles Today
72	Cycles Yesterday	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Cycles Yesterday
73	Vents Today	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Vents Today
74	Vents Yesterday	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Vents Yesterday
75	Total Cycles	R/W	System	U32	4	0 → 65535	0	4.00.00	Total Cycles
76	Total Arrivals	R/W	System	U32	4	0 → 65535	0	4.00.00	Total Arrivals
77	Total NonArrivals	R/W	System	U32	4	0 → 65535	0	4.00.00	Total NonArrivals
78	Total Vents	R/W	System	U32	4	0 → 65535	0	4.00.00	Total Vents

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
79	Consecutive NonArrivals	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Consecutive NonArrivals
80	Consecutive Vents	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Consecutive Vents
81	Consecutive Fast Arrivals	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Consecutive Fast Arrivals
82	Consecutive Slow Arrivals	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Consecutive Slow Arrivals
83	Consecutive Normal Arrivals	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Consecutive Normal Arrivals
84	Consecutive Vented Arrivals	R/W	System	UINT16	2	0 → 65535	0	4.00.00	Consecutive Vented Arrivals
85	1st Load Factor Pct at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	1st Load Factor Pct at Opening
86	2nd Load Factor Pct at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	2nd Load Factor Pct at Opening
87	3rd Load Factor Pct at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	3rd Load Factor Pct at Opening
88	4th Load Factor Pct at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	4th Load Factor Pct at Opening
89	5th Load Factor Pct at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	5th Load Factor Pct at Opening
90	1st Armed OFF Time Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Armed OFF Time Minutes
91	2nd Armed OFF Time Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Armed OFF Time Minutes
92	3rd Armed OFF Time Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Armed OFF Time Minutes
93	4th Armed OFF Time Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Armed OFF Time Minutes
94	5th Armed OFF Time Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Armed OFF Time Minutes
95	1st Csg-Tbg Psid at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	1st Csg-Tbg Psid at Opening

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
96	2nd Csg-Tbg Psid at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	2nd Csg-Tbg Psid at Opening
97	3rd Csg-Tbg Psid at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	3rd Csg-Tbg Psid at Opening
98	4th Csg-Tbg Psid at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	4th Csg-Tbg Psid at Opening
99	5th Csg-Tbg Psid at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	5th Csg-Tbg Psid at Opening
100	1st Casing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	1st Casing-Line at Opening
101	2nd Casing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	2nd Casing-Line at Opening
102	3rd Casing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	3rd Casing-Line at Opening
103	4th Casing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	4th Casing-Line at Opening
104	5th Casing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	5th Casing-Line at Opening
105	1st Tubing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	1st Tubing-Line at Opening
106	2nd Tubing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	2nd Tubing-Line at Opening
107	3rd Tubing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	3rd Tubing-Line at Opening
108	4th Tubing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	4th Tubing-Line at Opening
109	5th Tubing-Line at Opening	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	5th Tubing-Line at Opening
110	1st Meter DP at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	1st Meter DP at Closing
111	2nd Meter DP at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	2nd Meter DP at Closing

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
112	3rd Meter DP at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	3rd Meter DP at Closing
113	4th Meter DP at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	4th Meter DP at Closing
114	5th Meter DP at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	5th Meter DP at Closing
115	1st Critical Flow at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	1st Critical Flow at Closing
116	2nd Critical Flow at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	2nd Critical Flow at Closing
117	3rd Critical Flow at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	3rd Critical Flow at Closing
118	4th Critical Flow at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	4th Critical Flow at Closing
119	5th Critical Flow at Closing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	5th Critical Flow at Closing
120	1st Crit Flow Pct at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Crit Flow Pct at Closing
121	2nd Crit Flow Pct at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Crit Flow Pct at Closing
122	3rd Crit Flow Pct at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Crit Flow Pct at Closing
123	4th Crit Flow Pct at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Crit Flow Pct at Closing
124	5th Crit Flow Pct at Closing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Crit Flow Pct at Closing
125	1st Afterflow Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Afterflow Minutes
126	2nd Afterflow Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Afterflow Minutes
127	3rd Afterflow Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Afterflow Minutes

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
128	4th Afterflow Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Afterflow Minutes
129	5th Afterflow Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Afterflow Minutes
130	1st Lowest Casing Psig in Aftflw	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Lowest Casing Psig in Aftflw
131	2nd Lowest Casing Psig in Aftflw	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Lowest Casing Psig in Aftflw
132	3rd Lowest Casing Psig in Aftflw	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Lowest Casing Psig in Aftflw
133	4th Lowest Casing Psig in Aftflw	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Lowest Casing Psig in Aftflw
134	5th Lowest Casing Psig in Aftflw	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Lowest Casing Psig in Aftflw
135	1st Flow Rate at Low Casing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Flow Rate at Low Casing
136	2nd Flow Rate at Low Casing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Flow Rate at Low Casing
137	3rd Flow Rate at Low Casing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Flow Rate at Low Casing
138	4th Flow Rate at Low Casing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Flow Rate at Low Casing
139	5th Flow Rate at Low Casing	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Flow Rate at Low Casing
140	1st Low Csg Aftflow Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	1st Low Csg Aftflow Mins
141	2nd Low Csg Aftflow Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	2nd Low Csg Aftflow Mins
142	3rd Low Csg Aftflow Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	3rd Low Csg Aftflow Mins
143	4th Low Csg Aftflow Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	4th Low Csg Aftflow Mins

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
144	5th Low Csg Aftflow Mins	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	5th Low Csg Aftflow Mins
145	1st Csg-Line Psid at Closing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	1st Csg-Line Psid at Closing
146	2nd Csg-Line Psid at Closing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	2nd Csg-Line Psid at Closing
147	3rd Csg-Line Psid at Closing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	3rd Csg-Line Psid at Closing
148	4th Csg-Line Psid at Closing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	4th Csg-Line Psid at Closing
149	5th Csg-Line Psid at Closing	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	5th Csg-Line Psid at Closing
150	LZ Log Num Command	R/W	User	UINT16	2	0 → 65535	0	4.00.00	LZ Log Num Command
151	LZ Fetch Older Log	R/W	User	UINT8	1	0 → 1	0	4.00.00	LZ Fetch Older Log 0 = Idle 1 = Fetch Next Oldest Log
152	LZ Fetch Newer Log	R/W	User	UINT8	1	0 → 1	0	4.00.00	LZ Fetch Newer Log 0 = Idle 1 = Fetch Next Newest Log
153	LZ Log Num Display	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Log Num Display
154	LZ Opn Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	LZ Opn Date
155	LZ Opn Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	LZ Opn Time
156	LZ Opn Event Code	R/O	System	UINT16	2	3001 - > 3012	0	4.00.00	LZ Opn Event Code
157	LZ Opn Event Ref	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	LZ Opn Event Ref
158	LZ Opn Casing	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Opn Casing
159	LZ Opn Tubing	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Opn Tubing
160	LZ Opn Line	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Opn Line
161	LZ Opn Load Factor	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	LZ Opn Load Factor

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
162	LZ OFF Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	LZ OFF Minutes
163	LZ Armed OFF Minutes	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	LZ Armed OFF Minutes
164	LZ Opn Csg-Line	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Opn Csg-Line
165	LZ Opn Tbg-Line	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Opn Tbg-Line
166	LZ Opn Csg-Tbg	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Opn Csg-Tbg
167	LZ Cls Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	LZ Cls Date
168	LZ Cls Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	LZ Cls Time
169	LZ Cls Event Code	R/O	System	UINT16	2	1 → 148; 4001 → 4033	0	4.00.00	LZ Cls Event Code
170	LZ Cls Event Ref	R/O	System	FLOAT	4	Float Number	0.0	4.00.00	LZ Cls Event Ref
171	LZ Cls Casing	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls Casing
172	LZ Cls Tubing	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls Tubing
173	LZ Cls Line	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls Line
174	LZ Cls ON Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	LZ Cls ON Minutes
175	LZ Cls Afterflow Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	LZ Cls Afterflow Minutes
176	LZ Cls Cycle Volume	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	LZ Cls Cycle Volume
177	LZ Cls Meter DP	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	LZ Cls Meter DP
178	LZ Cls Flow Rate	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls Flow Rate
179	LZ Cls Critical Rate	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls Critical Rate
180	LZ Cls Rate % of Critical	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	LZ Cls Rate % of Critical
181	LZ Cls AF Lowest Csg	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls AF Lowest Csg
182	LZ Cls AF Low Csg Rate	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls AF Low Csg Rate

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
183	LZ Cls AF Low Csg Mins	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	LZ Cls AF Low Csg Mins
184	LZ Cls Csg-Line	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Cls Csg-Line
185	LZ Arv Date	R/O	System	UINT16	2	101 → 1231	0	4.00.00	LZ Arv Date
186	LZ Arv Time	R/O	System	UINT16	2	0 → 2359	0	4.00.00	LZ Arv Time
187	LZ Arv Arrival Minutes	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	LZ Arv Arrival Minutes
188	LZ Arv Rise Velocity	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Arv Rise Velocity
189	LZ Arv Arrival Type	R/O	System	UINT8	1	1 → 11	0	4.00.00	LZ Arv Arrival Type
190	LZ Arv Vent Minutes	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	LZ Arv Vent Minutes
191	LZ Arv Lowest Tbg	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Arv Lowest Tbg
192	LZ Arv LowTbg-OpnLine	R/O	System	UINT16	2	0 → 65535	0	4.00.00	LZ Arv LowTbg-OpnLine
193	Low Casing Afterflow Mins	R/W	System	FLOAT	4	Positive Float Number	0	4.00.00	Low Casing Afterflow Mins
194	Low Casing Flow Rate	R/W	System	FLOAT	4	Positive Float Number	0	4.00.00	Low Casing Flow Rate
195	Well Ready Minutes	R/O	System	FLOAT	4	Positive Float Number	0	4.00.00	Well Ready Minutes
196	Well Ready - Plunger Drop Min	R/O	System	FLOAT	4	Any Float Number	0	4.00.00	Well Ready - Plunger Drop Min
197	Csg Incr EU/Hour at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0	4.00.00	Csg Incr EU/Hour at Opening
198	Tbg Incr EU/Hour at Opening	R/O	System	FLOAT	4	Non-Negative Float Number	0	4.00.00	Tbg Incr EU/Hour at Opening
199	UsrDef1 OT PV at Opening	R/O	System	FLOAT	4	Any Float Number	0	4.00.00	UsrDef1 OT PV at Opening
200	UsrDef2 OT PV at Opening	R/O	System	FLOAT	4	Any Float Number	0	4.00.00	UsrDef2 OT PV at Opening

Point Type 181/69: PMWO Statistics

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
201	UsrDef1 CT PV at Closing	R/O	System	FLOAT	4	Any Float Number	0	4.00.00	UsrDef1 CT PV at Closing
202	UsrDef2 CT PV at Closing	R/O	System	FLOAT	4	Any Float Number	0	4.00.00	UsrDef2 CT PV at Closing

5.5 Point Type 182/70: PMWO Enhanced Operate Parameters

Point type 182 (for FB107) or 70 (for ROC800) contains the parameters related to the advanced features of the Well Optimization Manager. The program supports 4 logicals of this point type for the FB107 and up to 12 logicals for the ROC800.

Point Type 182/70: PMWO Enhanced Operate

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Pres Buildup Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Pres Buildup Enable 0 = Press BuildUp Disabled 1 = Press BuildUp Enabled
1	Pres Buildup Hours	R/W	User	FLOAT	4	Positive Float Number	8.0	4.00.00	Pres Buildup Hours
2	BuildupMode	R/O	System	UINT8	1	0 → 1	0	4.00.00	BuildupMode 0 = Not in Bulidup Mode 1 = Currently OFF for BuildUp
3	Equalizer Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Equalizer Enable 0 = Equalize Disabled 1 = Equalize Enabled
4	Equalizer Pt Def	R/W	User	TLP	3	Any DO Status Parameter	Undefined	4.00.00	Equalizer Pt Def
5	Eq Consec Non Arrivs	R/W	User	UINT8	1	1 → 255	4	4.00.00	Eq Consec Non Arrivs
6	Eq Casing Pr Trig GE	R/W	User	FLOAT	4	Positive Float Number	800.0	4.00.00	Eq Casing Pr Trig GE
7	Eq CsgTbg Diff GE	R/W	User	FLOAT	4	Positive Float Number	600.0	4.00.00	Eq CsgTbg Diff GE
8	Equaliz Time Hours	R/W	User	FLOAT	4	Positive Float Number	4.0	4.00.00	Equaliz Time Hours
9	Equaliz Next Off Cycle	R/W	User	UINT8	1	0 → 1	0	4.00.00	Equaliz Next Off Cycle 0 = Not in Effect 1 = Equalize at Next Shutin
10	EqMode	R/O	System	UINT8	1	0 → 1	0	4.00.00	EqMode 0 = Not in Equalize Mode 1 = Currently OFF for Equalize

Point Type 182/70: PMWO Enhanced Operate

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
11	Comm WDog Enable A (OR)	R/W	User	UINT8	1	0 → 1	0	4.00.00	Comm WDog Enable A (OR) 0 = Watchdog A Disabled 1 = Watchdog A Enabled
12	Comm WDog Enable B (AND)	R/W	User	UINT8	1	0 → 1	0	4.00.00	Comm WDog Enable B (AND) 0 = Watchdog B Disabled 1 = Watchdog B Enabled
13	1 Mon Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	1 Mon Pt Def
14	2 Mon Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	2 Mon Pt Def
15	3 Mon Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	3 Mon Pt Def
16	4 Mon Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	4 Mon Pt Def
17	5 Mon Pt Def	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	5 Mon Pt Def
18	No Comm Preset Mins A	R/W	User	FLOAT	4	Positive Float Number	3.0	4.00.00	No Comm Preset Mins A
19	No Comm Preset Mins B	R/W	User	FLOAT	4	Positive Float Number	5.0	4.00.00	No Comm Preset Mins B
20	No Comm Elap Mins A	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	No Comm Elap Mins A
21	No Comm Elap Mins B	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	No Comm Elap Mins B
22	No Comm Shutin Msg A	R/W	User	String20	20	Printable ASCII Characters	BRISTOL COMM FAIL	4.00.00	No Comm Shutin Msg A
23	No Comm ActionA	R/W	User	UINT8	1	0 → 2	0	4.00.00	No Comm ActionA 0 = None (Can Alert) 1 = Shutin Until restored 2 = Permanent SSD (PSD)

Point Type 182/70: PMWO Enhanced Operate

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
24	No Comm ActionB	R/W	User	UINT8	1	0 → 3	0	4.00.00	No Comm ActionB 0 = None (Can Alert) 1 = Shutin Until restored 2 = Permanent SSD (PSD) 3 = Cycle-Use Last Aft & Shut Min
25	No Comm Elap Secs A	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	No Comm Elap Secs A
26	No Comm Elap Secs B	R/O	System	UINT32	4	0 → 4294967295	0	4.00.00	No Comm Elap Secs B
27	No Comm TT A	R/O	System	UINT8	1	0 → 1	0	4.00.00	No Comm TT A 0 = Not Timing 1 = Currently Delay Timing
28	No Comm TT B	R/O	System	UINT8	1	0 → 1	0	4.00.00	No Comm TT B 0 = Not Timing 1 = Currently Delay Timing
29	Prod Vol Cycle Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Prod Vol Cycle Enable 0 = Cycle Nom Disabled 1 = Cycle Nom Enabled
30	Prod Vol Daily Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Prod Vol Daily Enable 0 = Daily Nom Disabled 1 = Daily Nom Enabled
31	Prod Vol Monthly Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	Prod Vol Monthly Enable 0 = Monthly Nom Disabled 1 = Monthly Nom Enabled
32	Prod Vol Cycle Accum	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Prod Vol Cycle Accum
33	Prod Vol Daily Accum	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Prod Vol Daily Accum
34	Prod Vol Monthly Accum	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Prod Vol Monthly Accum
35	Prod Vol Cycle Limit	R/W	User	FLOAT	4	Positive Float Number	10000.0	4.00.00	Prod Vol Cycle Limit

Point Type 182/70: PMWO Enhanced Operate

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
36	Prod Vol Daily Limit	R/W	User	FLOAT	4	Positive Float Number	10000.0	4.00.00	Prod Vol Daily Limit
37	Prod Vol Monthly Limit	R/W	User	FLOAT	4	Positive Float Number	100000.0	4.00.00	Prod Vol Monthly Limit
38	Prod Vol Cycle LNP	R/W	User	FLOAT	4	Positive Float Number	10000.0	4.00.00	Prod Vol Cycle LNP
39	Prod Vol Daily LNP	R/W	User	FLOAT	4	Positive Float Number	10000.0	4.00.00	Prod Vol Daily LNP
40	Prod Vol Monthly LNP	R/W	User	FLOAT	4	Positive Float Number	100000.0	4.00.00	Prod Vol Monthly LNP
41	Starting Flow Hour of Day	R/W	User	UINT8	1	0 → 23	0	4.00.00	Starting Flow Hour of Day
42	Start Flow Offset Min	R/W	User	UINT8	1	0 → 59	5	4.00.00	Start Flow Offset Min
43	Scheduled Event1	R/W	User	UINT8	1	0 → 12	0	4.00.00	Scheduled Event1 0 = None 1 = Shutin (#hours) 2 = To Manual Open 3 = To Manual Closed 4 = Production OFF 5 = Stroke Sales Valve (#secs) 6 = Swab Routine (#cycles) 7 = Start FST 1 8 = Start FST 2 9 = Start FST 3 10 =Start FST 4 11 = Start FST 5 12 = Start FST 6
44	SEvt Day of Month1	R/W	User	UINT8	1	1 → 31	1	4.00.00	SEvt Day of Month1
45	SEvt Hour of Day1	R/W	User	UINT8	1	0 → 23	13	4.00.00	SEvt Hour of Day1
46	SEvt Hours Duration1	R/W	User	FLOAT	4	Positive Float Number	1.0	4.00.00	SEvt Hours Duration1
47	SEvt Cycles Duration1	R/W	User	UINT8	1	1 → 255	1	4.00.00	SEvt Cycles Duration1

Point Type 182/70: PMWO Enhanced Operate

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
48	SEvt ReOccur1	R/W	User	UINT8	1	0 → 1	0	4.00.00	SEvt ReOccur1 0 = Event is NOT Reccuring 1 = Event is Recurring
49	Scheduled Event2	R/W	User	UINT8	1	0 → 12	0	4.00.00	Scheduled Event2 See 13 Selections at Event 1
50	SEvt Day of Month2	R/W	User	UINT8	1	1 → 31	5	4.00.00	SEvt Day of Month2
51	SEvt Hour of Day2	R/W	User	UINT8	1	0 → 23	0	4.00.00	SEvt Hour of Day2
52	SEvt Hours Duration2	R/W	User	FLOAT	4	Positive Float Number	1.0	4.00.00	SEvt Hours Duration2
53	SEvt Cycles Duration2	R/W	User	UINT8	1	1 → 255	13	4.00.00	SEvt Cycles Duration2
54	SEvt ReOccur2	R/W	User	UINT8	1	0 → 1	1	4.00.00	SEvt ReOccur2 0 = Event is NOT Reccuring 1 = Event is Recurring
55	Sched Event In Proc1	R/O	System	UINT8	1	0 → 1	1	4.00.00	Sched Event In Proc1 0 = Event is NOT in Progress 1 = Event is in Progress
56	Sched Event In Proc2	R/O	System	UINT8	1	0 → 1	0	4.00.00	Sched Event In Proc2 0 = Event is NOT in Progress 1 = Event is in Progress
57	Casing ID	R/W	User	FLOAT	4	Positive Float Number	4.09	4.00.00	Casing ID
58	Plunger Weight Lbs	R/W	User	FLOAT	4	Positive Float Number	8.13	4.00.00	Plunger Weight Lbs
59	FG Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	FG Enable 0 = Foss & Gaul is Disabled 1 = Foss & Gaul is Enabled
60	FG Diagnostic SoftPt	R/W	User	UINT8	1	0 → 32	0	4.00.00	FG Diagnostic SoftPt
61	Target Rise Velocity	R/W	User	FLOAT	4	Positive Float Number	750.0	4.00.00	Target Rise Velocity
62	Liquid Spec Gravity	R/W	User	FLOAT	4	Positive Float Number	0.9	4.00.00	Liquid Spec Gravity

Point Type 182/70: PMWO Enhanced Operate

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
63	Avg Well Flowing Temp	R/W	User	FLOAT	4	Non-Negative Float Number	150.00	4.00.00	Avg Well Flowing Temp
64	Avg Daily Prod in Lift	R/W	User	FLOAT	4	Non-Negative Float Number	100.00	4.00.00	Avg Daily Prod in Lift
65	Avg Daily Leak in Lift	R/W	User	FLOAT	4	Non-Negative Float Number	10.00	4.00.00	Avg Daily Leak in Lift
66	Low Tubing Value in Lift	R/W	User	FLOAT	4	Non-Negative Float Number	300.00	4.00.00	User Low Tubing Value in Lift
67	Low Tubing Source	R/W	User	UINT8	1	0 → 2	1	4.00.00	Low Tubing Source 0 = Last5 Low Tubing in Lift 1 = Line+Last5 (LoTbg-OpenLine) 2 = Manual Value
68	Low Tubing L5 Qty to Avg	R/W	User	UINT8	1	1 → 5	3	4.00.00	Low Tubing L5 Qty to Avg
69	Casing Pres Bias Psi	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	Casing Pres Bias Psi
70	1st Lowest Tbg Pres	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	1st Lowest Tbg Pres
71	2nd Lowest Tbg Pres	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	2nd Lowest Tbg Pres
72	3rd Lowest Tbg Pres	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	3rd Lowest Tbg Pres
73	4th Lowest Tbg Pres	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	4th Lowest Tbg Pres
74	5th Lowest Tbg Pres	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	5th Lowest Tbg Pres
75	1st Lo Tbg-Line at Arv	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	1st Lo Tbg-Line at Arv
76	2nd Lo Tbg-Line at Arv	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	2nd Lo Tbg-Line at Arv
77	3rd Lo Tbg-Line at Arv	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	3rd Lo Tbg-Line at Arv

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
78	4th Lo Tbg-Line at Arv	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	4th Lo Tbg-Line at Arv
79	5th Lo Tbg-Line at Arv	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	5th Lo Tbg-Line at Arv
80	Load Fact at TargVal	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Load Fact at TargVal
81	Casing Pres at TargVal	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Casing Pres at TargVal
82	Tubing Pres at TargVal	R/O	System	FLOAT	4	Positive Float Number	0.0	4.00.00	Tubing Pres at TargVal
83	Liq Load BBL in Tubing	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Liq Load BBL in Tubing
84	Liq Column Height Ft	R/O	System	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	Liq Column Height Ft
85	SelfAdj OpenTrig Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	SelfAdj OpenTrig Enable 0 = Self-Adjustment is Disabled 1 = Self-Adjustment is Enabled
86	SelfAdj OTrig Def	R/W	User	UINT8	1	0 → 10	5	4.00.00	SelfAdj Open Trig Def 0 = Max OFF Minutes 1 = Max Armed Shutin Minutes 2 = Casing Press GE 3 = Tubing Press GE 4 = Casing - Tubing Press LE 5 = Load Factor Pct LE 6 = Casing Press Chg / Time Window 7 = Tubing Press Chg / Time Window 8= User-Defined Trig1 9 = User-Defined Trig2
87	SelfAdl OTrig Cur Val	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	SelfAdl OTrig Cur Val
88	SelfAdj OTrig Min Val	R/W	User	FLOAT	4	Any Float Number	20.0	4.00.00	SelfAdj OTrig Min Val

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
89	SelfAdj OTrig Max Val	R/W	User	FLOAT	4	Any Float Number	50.0	4.00.00	SelfAdj OTrig Max Val
90	SelfAdj Close Trig Enable	R/W	User	UINT8	1	0 → 1	0	4.00.00	SelfAdj Close Trig Enable 0 = Self-Adjustment is Disabled 1 = Self-Adjustment is Enabled
91	SelfAdj CTrig Def	R/W	User	UINT8	1	0 → 13	6	4.00.00	SelfAdj Close Trig Def 0 = Max ON Minutes 1 = Max Afterflow Minutes 2 = Casing Pres LE 3 = Tubing Pres LE 4 = Casing - Tubing Press GE 5 = Casing - Line Pres LE 6 = Tubing - Line Pres LE 7 = Casing Increase Pct GE 8 = Meter DP LE 9 = Flow Rate LE 10 = Pct of Critical Flow Rate 11 = User-Defined Trig1 12 = User-Defined Trig2
92	SelfAdj CTrig Cur Val	R/O	System	FLOAT	4	Any Float Number	0.0	4.00.00	SelfAdj CTrig Cur Val
93	SelfAdj CTrig Min Val	R/W	User	FLOAT	4	Any Float Number	85.0	4.00.00	SelfAdj CTrig Min Val
94	SelfAdj CTrig Max Val	R/W	User	FLOAT	4	Any Float Number	115.0	4.00.00	SelfAdj CTrig Max Val
95	SelfAdj OTrig Incr Step	R/W	User	FLOAT	4	Positive Float Number	2.0	4.00.00	SelfAdj OTrig Incr Step
96	SelfAdj OTrig Decr Strp	R/W	User	FLOAT	4	Positive Float Number	2.0	4.00.00	SelfAdj OTrig Decr Strp
97	SelfAdj CTrig Incr Step	R/W	User	FLOAT	4	Positive Float Number	2.0	4.00.00	SelfAdj CTrig Incr Step
98	SelfAdj CTrig Decr Step	R/W	User	FLOAT	4	Positive Float Number	2.0	4.00.00	SelfAdj CTrig Decr Step

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
99	SelfAdj OTrig Incr Def	R/W	User	UINT8	1	0 → 27	18	4.00.00	SelfAdj OTrig Incr Def 0 = ON Minutes 1 = Afterflow Minutes 2 = Casing Pres at Closing 3 = Casing Increase Pct at Closing 4 = Meter DP at Closing 5 = Flow Rate at Closing 6 = Rate Pct of Critical at Closing 7 = Actual Rate - Crit Rate at Close 8 = User-Defined1 CT at Closing 9 = User-Defined2 CT at Closing 10 = OFF Minutes 11 = Armed Shutin Minutes 12 = Well Ready - Plngr Drop Min 13 = Casing Pres at Opening 14 = Tubing Press at Opening 15 = Casing - Tubing at Opening 16 = Casing - Line at Opening 17 = Tubing - Line at Opening 18 = Load Factor Pct at Opening 19 = Casing ROC EU/Hr at Opening 20 = Tubing ROC Eu/Hr at Opening 21 = User-Defined1 OT at Opening 22 = User-Defined2 OT at Opening 23 = Arrival Type 24 = Arrival Minutes 25 = Rise Velocity EU/Minute 26 = Avg of Last 3 Rise Velocities 27 = Avg of Last 6 Rise Velocities
100	SelfAdj OTrig Decr Def	R/W	User	UINT8	1	0 → 27	18	4.00.00	SelfAdj OTrig Decr Def See 28 Otrig Incr Def Selections
101	SelfAdj CTrig Incr Def	R/W	User	UINT8	1	0 → 27	21	4.00.00	SelfAdj CTrig Incr Def See 28 Otrig Incr Def Selections

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
102	SelfAdj CTrig Decr Def	R/W	User	UINT8	1	0 → 27	21	4.00.00	SelfAdj CTrig Decr Def See 28 Otrig Incr Def Selections
103	SelfAdj OTrig Incr Oper	R/W	User	UINT8	1	0 → 5	1	4.00.00	SelfAdj OTrig Incr Oper 0 = Less Than (<) 1 = Less Than Equal To (<=) 2 = Equal To (==) 3 = Not Equal To (!=) 4 = Greater Than (>) 5 = Greater Than Equal To (>=)
104	SelfAdj OTrig Decr Oper	R/W	User	UINT8	1	0 → 5	5	4.00.00	SelfAdj OTrig Decr Oper See 6 Otrig Incr Opr Selections
105	SelfAdj CTrig Incr Oper	R/W	User	UINT8	1	0 → 5	5	4.00.00	SelfAdj CTrig Incr Oper See 6 Otrig Incr Opr Selections
106	SelfAdj CTrig Decr Oper	R/W	User	UINT8	1	0 → 5	1	4.00.00	SelfAdj CTrig Decr Oper See 6 Otrig Incr Opr Selections
107	SelfAdj OTrig Incr SetPt	R/W	User	FLOAT	4	Any Float Number	600.0	4.00.00	SelfAdj OTrig Incr SetPt
108	SelfAdj OTrig Decr SetPt	R/W	User	FLOAT	4	Any Float Number	900.0	4.00.00	SelfAdj OTrig Decr SetPt
109	SelfAdj CTrig Incr SetPt	R/W	User	FLOAT	4	Any Float Number	5.0	4.00.00	SelfAdj CTrig Incr SetPt
110	SelfAdj CTrig Decr SetPt	R/W	User	FLOAT	4	Any Float Number	-5.0	4.00.00	SelfAdj CTrig Decr SetPt
111	SelfAdj OTrig Incr Conseq Targ	R/W	User	UINT8	1	1 → 255	1	4.00.00	SelfAdj OTrig Incr Conseq Targ
112	SelfAdj OTrig Decr Conseq Targ	R/W	User	UINT8	1	1 → 255	1	4.00.00	SelfAdj OTrig Decr Conseq Targ
113	SelfAdj CTrig Incr Conseq Targ	R/W	User	UINT8	1	1 → 255	1	4.00.00	SelfAdj CTrig Incr Conseq Targ
114	SelfAdj CTrig Decr Conseq Targ	R/W	User	UINT8	1	1 → 255	1	4.00.00	SelfAdj CTrig Decr Conseq Targ

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
115	SelfAdj OTrig Incr Conseq Cur	R/O	System	UINT8	1	0 → 255	1	4.00.00	SelfAdj OTrig Incr Conseq Cur
116	SelfAdj OTrig Decr Conseq Cur	R/O	System	UINT8	1	0 → 255	1	4.00.00	SelfAdj OTrig Decr Conseq Cur
117	SelfAdj CTrig Incr Conseq Cur	R/O	System	UINT8	1	0 → 255	1	4.00.00	SelfAdj CTrig Incr Conseq Cur
118	SelfAdj CTrig Decr Conseq Cur	R/O	System	UINT8	1	0 → 255	1	4.00.00	SelfAdj CTrig Decr Conseq Cur
119	SelfAdj OTrig Incr ArvType Val	R/W	User	UINT8	1	0 → 3	4	4.00.00	SelfAdj OTrig Incr ArvType Val 0 = Assisted NonArrival 1 = UnAssisted NonArrival 2 = Assisted Arrival 3 = UnAssisted Arrival
120	SelfAdj OTrig Decr ArvType Val	R/W	User	UINT8	1	0 → 3	4	4.00.00	SelfAdj OTrig Decr ArvType Val See 4 Otrig Incr ArvType selections
121	SelfAdj CTrig Incr ArvType Val	R/W	User	UINT8	1	0 → 3	4	4.00.00	SelfAdj CTrig Incr ArvType Val See 4 Otrig Incr ArvType selections
122	SelfAdj CTrig Decr ArvType Val	R/W	User	UINT8	1	0 → 3	4	4.00.00	SelfAdj CTrig Decr ArvType Val See 4 Otrig Incr ArvType selections
123	SelfAdj OTrig Inc when Vent	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	SelfAdj OTrig Inc when Vent
124	SelfAdj OTrig Dec when Vent	R/W	User	FLOAT	4	Non-Negative Float Number	3.5	4.00.00	SelfAdj OTrig Dec when Vent
125	SelfAdj CTrig Inc when Vent	R/W	User	FLOAT	4	Non-Negative Float Number	3.5	4.00.00	SelfAdj CTrig Inc when Vent
126	SelfAdj CTrig Dec when Vent	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	SelfAdj CTrig Dec when Vent
127	SelfAdj OTrig Inc when NonArrival	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	SelfAdj OTrig Inc when NonArrival

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
128	SelfAdj OTrig Dec when NonArrival	R/W	User	FLOAT	4	Non-Negative Float Number	5.0	4.00.00	SelfAdj OTrig Dec when NonArrival
129	SelfAdj CTrig Inc when NonArrival	R/W	User	FLOAT	4	Non-Negative Float Number	5.0	4.00.00	SelfAdj CTrig Inc when NonArrival
130	SelfAdj CTrig Dec when NonArrival	R/W	User	FLOAT	4	Non-Negative Float Number	0.0	4.00.00	SelfAdj CTrig Dec when NonArrival
131	GAPL Self-Adjust (Y/N)	R/W	User	UINT8	1	0 → 1	0	4.00.00	GAPL Self-Adjust (Y/N) 0 = GAPL Disabled 1 - GAPL Eanbled
132	GAPL Max Inj Setpt	R/W	User	UINT16	2	0 → 65535	600	4.00.00	GAPL Max Inj Setpt
133	GAPL Min Inj SetPt	R/W	User	UINT16	2	0 → 65535	200	4.00.00	GAPL Min Inj SetPt
134	GAPL OFF If Adj Below Min	R/W	User	UINT8	1	0 → 1	1	4.00.00	GAPL OFF If Adj Below Min 0 = Do NOT Turn GAPL OFF < Min 1 = Turn GAPL OFF Adj < Min
135	GAPL Target Rise Velocity	R/W	User	UINT16	2	1 → 65535	750	4.00.00	GAPL Target Rise Velocity
136	GAPL SA Max Deviation%	R/W	User	FLOAT	4	Positive Float Number	33.33	4.00.00	GAPL SA Max Deviation%
137	GAPL Self-Adjust Gain Factor	R/W	User	FLOAT	4	Positive Float Number	0.16	4.00.00	GAPL Self-Adjust Gain Factor
138	GAPL Max EU Adjustment	R/W	User	UINT16	2	1 → 65535	40	4.00.00	GAPL Max EU Adjustment
139	GAPL Non-Arrival Ovrd EU	R/W	User	UINT16	2	1 → 65535	50	4.00.00	GAPL Non-Arrival Ovrd EU
140	RunTime Alerts Enab1	R/W	User	UINT8	1	0 → 1	0	4.00.00	RunTime Alerts Enable1 0 = RunTime Alerts 1 Disabled 1 = RunTime Alerts 1 Enabled
141	RA WInstance1	R/W	User	UINT8	1	1 → 12	1	4.00.00	RA WInstance1

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
142	RA Section Type1	R/W	User	UINT8	1	0 → 1	0	4.00.00	RA Section Type1 0 = Pre-Defined Selection 1 = Browseable TLP
143	RA Selections1	R/W	User	UINT8	1	1 → 18	0	4.00.00	RA Selections1 1 = Well in SSD 2 = Production OFF 3 = Health Check A Failed 4 = Health Check B Failed 5 = SelfAdjust Trigger at High Limit 6 = SelfAdjust Trigger at Low Limit 7 = Cur OFF Minutes 8 = Cur ON Minutes 9 = Cur Afterflow Minutes 10 = Cur Armed Shutin Minutes 11 = Prev Day Cycles 12 = Prev Day Arrivals 13 = Prev Day NonArrivals 14 = Consec NonArrivals 15 = Prev Day Vents 16 = Prev Day Vent Minutes 17 = Prev Day Avg Casing Pres 18 = Prev Day Avg Tubing Pres 19 = Prev Day Avg Line Pres
144	RA TLP Input1	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	RA TLP Input1
145	RA Operator1	R/W	User	UINT8	1	0 → 5	0	4.00.00	RA Operator1 0 = Less Than (<) 1 = Less Than Equal To (<=) 2 = Equal To (==) 3 = Not Equal To (!=) 4 = Greater Than (>) 5 = Greater Than Equal To (>=)
146	RA TripPoint1	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	RA TripPoint1

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
147	RA Notification Mtd1	R/W	User	UINT8	1	0 → 4	0	4.00.00	RA Notification Method1 0 = Alert Status Only 1 = Log in Alarm Log 2 = Send SRBX and Log 3 = PSD Well and Log 4 = All of the Above
148	RA Status1	R/O	System	UINT8	1	1 → 21	0	4.00.00	RA Status1 1 = Well in SSD 2 = Production OFF 3 = Health Check A Failed 4 = Health Check B Failed 5 = SelfAdjust Trigger at High Limit 6 = SelfAdjust Trigger at Low Limit 7 = Cur OFF Minutes 8 = Cur ON Minutes 9 = Cur Afterflow Minutes 10 = Cur Armed Shutin Minutes 11 = Prev Day Cycles 12 = Prev Day Arrivals 13 = Prev Day NonArrivals 14 = Consec NonArrivals 15 = Prev Day Vents 16 = Prev Day Vent Minutes 17 = Prev Day Avg Casing Pres 18 = Prev Day Avg Tubing Pres 19 = Prev Day Avg Line Pres\ 20 = TLP1 Condition is True 21 = TLP2 Condition is True 22 = TLP3 Condition is True
149	RunTime Alerts Enab2	R/W	User	UINT8	1	0 → 1	0	4.00.00	RunTime Alerts Enable2 0 = RunTime Alerts 2 Disabled 1 = RunTime Alerts 2 Enabled
150	RA WInstance2	R/W	User	UINT8	1	1 → 12	1	4.00.00	RA WInstance2
151	RA Section Type2	R/W	User	UINT8	1	0 → 1	0	4.00.00	RA Section Type2 0 = Pre-Defined Selection 1 = Browseable TLP

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
152	RA Selections2	R/W	User	UINT8	1	1 → 18	0	4.00.00	RA Selection2 See 18 RA Selections1
153	RA TLP Input2	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	RA TLP Input2
154	RA Operator2	R/W	User	UINT8	1	0 → 5	0	4.00.00	RA Operator2 See 6 RA Operators1
155	RA TripPoint2	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	RA TripPoint2
156	RA Notification Mtd2	R/W	User	UINT8	1	0 → 4	0	4.00.00	RA Notification Method2 See 5 RA Notification Methods1
157	RA Status2	R/O	System	UINT8	1	1 → 21	0	4.00.00	RA Status2 See 21 RA Status1 Statuses
158	RunTime Alerts Enab3	R/W	User	UINT8	1	0 → 1	0	4.00.00	RunTime Alerts Enable3 0 = RunTime Alerts 3 Disabled 1 = RunTime Alerts 3 Enabled
159	RA WInstance3	R/W	User	UINT8	1	1 → 12	1	4.00.00	RA WInstance3
160	RA Section Type3	R/W	User	UINT8	1	0 → 1	0	4.00.00	RA Section Type3 0 = Pre-Defined Selection 1 = Browseable TLP
161	RA Selections3	R/W	User	UINT8	1	1 → 18	0	4.00.00	RA Selection3 See 18 RA Selections1
162	RA TLP Input3	R/W	User	TLP	3	Any Numeric Parameter	Undefined	4.00.00	RA TLP Input3
163	RA Operator3	R/W	User	UINT8	1	0 → 5	0	4.00.00	RA Operator3 See 6 RA Operators1
164	RA TripPoint3	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	RA TripPoint3
165	RA Notification Mtd3	R/W	User	UINT8	1	0 → 4	0	4.00.00	RA Notification Metodd3 See 5 RA Notification Methods1

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
166	RA Status3	R/O	System	UINT8	1	1 → 21	0	4.00.00	RA Status3 See 21 RA Status1 Statuses
167	CycAnal Alerts Enab1	R/W	User	UINT8	1	0 → 1	0	4.00.00	Cycle Analysis Alerts Enable1 0 = Cycle Analysis Alerts 1 Disabled 1 = Cycle Analysis Alerts 1 Enabled
168	CA WInstance1	R/W	User	UINT8	1	1 → 12	1	4.00.00	CA WInstance1

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
169	CA Selections1	R/W	User	UINT8	1	1 → 25	0	4.00.00	CA Selection1 1 = ON Minutes 2 = Afterflow Minutes 3 = Casing Pres at Closing 4 = Casing Pres Incr Pct at Closing 5 = Meter DP at Closing 6 = Flow Rate at Closing 7 = Rate Pct of Critical at Closing 8 = Cur Rate - Crit Rate at Closing 9 = UserDef1 CT PV at Closing 10 UserDef2 CT PV at Closing 11 = OFF Minutes 12 = Armed Shutin Minutes 13 = Casing Pres at Opening 14 = Tubing Press at Opening 15 = Casing - Tubing at Opening 16 = Casing - Line at Opening 17 = Tubing - Line at Opening 18 = Load Factor Pct at Opening 19 = Casing ROC EU/Hr at Opening 20 = Tubing ROC Eu/Hr at Opening 21 = User-Def1 OT PV at Opening 22 = User-Def2 OT PV at Opening 23 = Arrival Type 24 = Arrival Minutes 25 = Rise Velocity EU/Minute
170	CA Operator1	R/W	User	UINT8	1	0 → 5	0	4.00.00	CA Operator1 0 = Less Than (<) 1 = Less Than Equal To (<=) 2 = Equal To (==) 3 = Not Equal To (!=) 4 = Greater Than (>) 5 = Greater Than Equal To (>=)

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
171	CA TripPoint1	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	CA TripPoint1
172	CA Arrival Type1	R/W	User	UINT8	1	0 → 3	0	4.00.00	CA Arrival Type1 0 = Assisted NonArrival 1 = UnAssisted NonArrival 2 = Assisted Arrival 3 = UnAssisted Arrival
173	CA Conseq Cycles1	R/W	User	UINT8	1	1 → 255	1	4.00.00	CA Conseq Cycles1
174	CA Notification Mtd1	R/W	User	UINT8	1	0 → 4	0	4.00.00	CA Notification Method1 0 = Alert Status Only 1 = Log in Alarm Log 2 = Send SRBX and Log 3 = PSD Well and Log 4 = All of the Above
175	CA Cycles Streak1	R/O	System	UINT8	1	0 → 255	0	4.00.00	CA Cycles Streak1

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
176	CA Status1	R/O	System	UINT8	1	0 → 25	0	4.00.00	CA Status1 1 = ON Minutes 2 = Afterflow Minutes 3 = Casing Pres at Closing 4 = Casing Pres Incr Pct at Closing 5 = Meter DP at Closing 6 = Flow Rate at Closing 7 = Rate Pct of Critical at Closing 8 = Cur Rate - Crit Rate at Closing 9 = UserDef1 CT PV at Closing 10 UserDef2 CT PV at Closing 11 = OFF Minutes 12 = Armed Shutin Minutes 13 = Casing Pres at Opening 14 = Tubing Press at Opening 15 = Casing - Tubing at Opening 16 = Casing - Line at Opening 17 = Tubing - Line at Opening 18 = Load Factor Pct at Opening 19 = Casing ROC EU/Hr at Opening 20 = Tubing ROC Eu/Hr at Opening 21 = User-Def1 OT PV at Opening 22 = User-Def2 OT PV at Opening 23 = Arrival Type 24 = Arrival Minutes 25 = Rise Velocity EU/Minute
177	CycAnal Alerts Enab2	R/W	User	UINT8	1	0 → 1	0	4.00.00	Cycle Analysis Alerts Enable2 0 = Cycle Analysis Alerts 2 Disabled 1 = Cycle Analysis Alerts 2 Enabled
178	CA WInstance2	R/W	User	UINT8	1	1 → 12	1	4.00.00	CA WInstance2

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
179	CA Selections2	R/W	User	UINT8	1	1 → 25	0	4.00.00	CA Selection2 See 25 CA Selections1
180	CA Operator2	R/W	User	UINT8	1	0 → 5	0	4.00.00	CA Operator2 See 6 CA Operator1 Selections
181	CA TripPoint2	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	CA TripPoint2
182	CA Arrival Type2	R/W	User	UINT8	1	0 → 3	0	4.00.00	CA Arrival Types2 See 4 CA Arrival Types1
183	CA Conseq Cycles2	R/W	User	UINT8	1	1 → 255	1	4.00.00	CA Conseq Cycles2
184	CA Notification Mtd2	R/W	User	UINT8	1	0 → 4	0	4.00.00	CA Notification Method2 See 5 CA Notification Methods1
185	CA Cycles Streak2	R/O	System	UINT8	1	0 → 255	0	4.00.00	CA Cycles Streak2
186	CA Status2	R/O	System	UINT8	1	0 → 25	0	4.00.00	CA Status2. See 25 CA Status1 Statuses
187	CycAlal Alerts Enab3	R/W	User	UINT8	1	0 → 1	0	4.00.00	Cycle Alalysis Alerts Enable3 0 = Cycle Analysis Alerts 3 Disabled 1 = Cycle Analysis Alerts 3 Enable
188	CA WInstance3	R/W	User	UINT8	1	1 → 12	1	4.00.00	CA WInstance3
189	CA Selections3	R/W	User	UINT8	1	1 → 25	0	4.00.00	CA Selection3. See 25 CA Selections1
190	CA Operator3	R/W	User	UINT8	1	0 → 5	0	4.00.00	CA Operator3. See 6 CA Operator1 Selections
191	CA TripPoint3	R/W	User	FLOAT	4	Any Float Number	0.0	4.00.00	CA TripPoint3
192	CA Arrival Type3	R/W	User	UINT8	1	0 → 3	0	4.00.00	CA Arrival Type3. See 4 CA Arrival Types1
193	CA Conseq Cycles3	R/W	User	UINT8	1	1 → 255	1	4.00.00	CA Conseq Cycles3

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Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
194	CA Notification Mtd3	R/W	User	UINT8	1	0 → 4	0	4.00.00	CA Notification Method3. See 5 CA Notification Methods1
195	CA Cycles Streak3	R/O	System	UINT8	1	0 → 255	0	4.00.00	CA Cycles Streak3
196	CA Status3	R/O	System	UINT8	1	0 → 25	0	4.00.00	CA Status3. See 25 CA Status1 Statuses
197	Nominations Delay Status	R/W	System	UINT8	1	0 → 3 (bitwise)	0	4.00.00	Nominations Delay Status 1 = Daily Nom is Met; Waiting 2 = Monthly Nom is met; Waiting
198	Low Tubing Pres During Lift	R/W	System	FLOAT	4	Any Float Number	0.0	4.00.00	Low Tubing Pres During Lift

5.6 Point Type 183/72: PMWO Units

Point type 183 (for FB107) or 72 (for ROC800) contains the parameters you use to configure or select the primary units of measure. The program supports one logical of this point type for both the FB107 and the ROC800.

Point Type 183/72: PMWO Units

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
0	Units Point Tag	R/W	User	String10	10	Printable ASCII Characters	Prog Units	4.00.00	Sets a 10-character point tag.
1	Time General	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the general time units. 0 = Day 1 = Hour 2 = Minute 3 = Second
2	Pressure	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the pressure unit of measure. 0 = Psi 1 = kPa 2 = Bar 3 = Kilograms/Cubic Meter
3	Temperature	R/W	User	UINT8	1	0 → 1	0	4.00.00	Selects the temperature unit of measure. 0 = DegF 1 = DegC
4	Short Linear	R/W	User	UINT8	1	0 → 2	0	4.00.00	Sets a unit for short linear measurements. 0 = Inches 1 = MilliMeters 2 = CentiMeters
5	Long Linear	R/W	User	UINT8	1	0 → 1	0	4.00.00	Sets a unit for long linear measurements. 0 = feet 1 = Meters

Point Type 183/72: PMWO Units

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
6	Gas Volume	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the gas volume unit of measure. 0 = Mcf 1 = Cubic Kilometers 2 = Cubic Feet 3 = Cubic Meters
7	Gas Rate Time	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the gas rate time unit of measure. 0 = Day 1 = Hour 2 = Minute 3 = Second
8	Liquid Volume	R/W	User	UINT8	1	0 → 5	0	4.00.00	Selects the liquid volume unit of measure. 0 = Barrels 1 = Cubic Kilometers 2 = US Gallons 3 = Cubic Feet 4 = Cubic Meters 5 = Liters
9	Liquid Rate Time	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the liquid rate time unit of measure. 0 = Day 1 = Hour 2 = Minute 3 = Second
10	Mass Volume	R/W	User	UINT8	1	0 → 3	0	4.00.00	Selects the mass unit of measure. 0 = Lbs 1 = Kilograms 2 = Tons 3 = Tonnes
11	Mass Rate Time	R/W	User	UINT8	1	0 → 3	1	4.00.00	Selects the mass rate time unit of measure. 0 = Day 1 = Hour 2 = Minute 3 = Second

Point Type 183/72: PMWO Units

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
12	Density	R/W	User	UINT8	1	0 → 7	2	4.00.00	Selects the unit of measure for density.
13	Velocity	R/W	User	UINT8	1	0 → 3	2	4.00.00	Selects the unit of measure for velocity.
14	Time General Tag	R/O	System	String7	7	Time Units List	Day	4.00.00	Shows the name of the time general unit you select.
15	Pressure Tag	R/O	System	String7	7	Pressure Units List	Psi	4.00.00	Shows the name of the pressure unit you select.
16	Temperature Tag	R/O	System	String7	7	Temp Units List	DegF	4.00.00	Shows the name of the temperature unit you select.
17	Short Linear Tag	R/O	System	String7	7	Short Linear Units List	In	4.00.00	Shows the name of the short linear unit you select.
18	Long Linear Tag	R/O	System	String7	7	Long Linear Units List	Ft	4.00.00	Shows the name of the long linear unit you select.
19	Gas Volume Tag	R/O	System	String7	7	Gas Volume Units List	Mcf	4.00.00	Shows the name of the gas volume unit you select.
20	Gas Rate Tag	R/O	System	String7	7	Gas Rate Units List	Mcf/day	4.00.00	Shows the name of the gas rate unit you select.
21	Liquid Volume Tag	R/O	System	String7	7	Liquid Volume Units List	Bbl	4.00.00	Shows the name of the liquid volume unit you select.
22	Liquid Rate Tag	R/O	System	String7	7	Liquid Rate Units List	Bbl/Day	4.00.00	Shows the name of the liquid rate unit you select.
23	Mass Volume Tag	R/O	System	String7	7	Mass Volume Units List	Lb	4.00.00	Shows the name of the mass unit you select.
24	Mass Rate Tag	R/O	System	String7	7	Mass Rate Units List	Lb/Hr	4.00.00	Shows the name of the mass rate unit you select.
25	Density Tag	R/O	System	String7	7	Density Units List	Lb/Ft3	4.00.00	Shows the name of the density unit you select.
26	Velocity Tag	R/O	System	String7	7	Velocity Units List	Ft/Min	4.00.00	Shows the name of the velocity unit you select.
27	Meter Diff Press	R/W	User	UINT8	1	0 → 2	0	4.00.00	Selects the unit of measure for the meter diff pressure.

Point Type 183/72: PMWO Units

Param #	Name	Access	System or User Update	Data Type	Length	Range	Default	Version	Description of Functionality and Meaning of Values
28	Meter Diff Press Tag	R/O	System	String7	7	Meter Diff Pres Units List	InH2O	4.00.00	Shows the name of the meter diff pressure unit you select.
29	Legal Description	R/W	User	String40	40			4.00.00	Sets a site-wide legal description.

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