

# What's New in PM Well Optimization?

## Version 4.03.01



### “Cycle Logs” for plunger cycles and “Gas Lift AVG Periods” in the same format type as the haul logs in Tank Manager

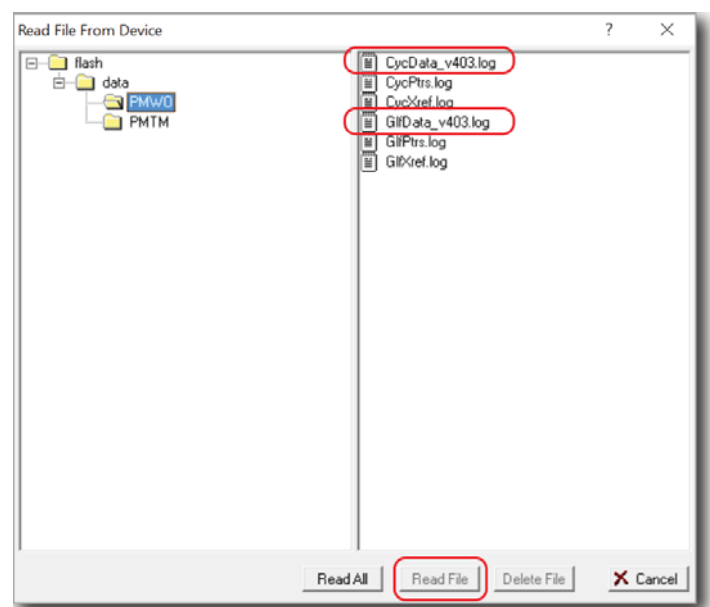
#### ROC800

- Stores 512 cycle logs
- Stores 512 gas lift logs

#### FloBoss™ 107

- Stores 128 cycle logs
- Stores 128 gas lift logs

Using ROCLINK™, the gas lift log can be retrieved from the ROC800 and the FB107, and stored locally on a PC. The file can be imported into the ROC log viewer for viewing, parsing, sorting, printing, running reports, and saving as a CSV file.



# Gas Lift

## Gas lift averaging periods

More information is recorded for each gas lift cycle, allowing for better diagnostics and well analysis:

- Setpoint
- Optimization method
- Total liquids volume
- Average casing pressure
- Average tubing pressure
- Average line pressure
- Average critical flow rate
- Number of stops (injection rate or well closure)
- Stoppage minutes
- Minutes of production no-flow (while well is open)
- Test termination code

## Retrieval mechanism for gas lift logs by global record serial number or well-specific serial number

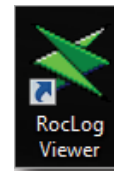
The single record retrieval is intended for ROCLINK viewing or SCADA collection of past records.

Gas lift logs are stored with two serial numbers, global and well-specific. Each log can be retrieved either by global serial number or by a well-specific serial number.

## Gas lift log file can be saved to another computer

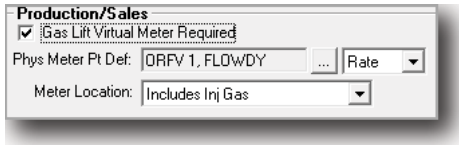
Done via ROCLINK and the contents displayed in sortable/filterable spreadsheet format with Vinson's ROC Log Viewer application.

The ROC Log Viewer is included with PM Well Optimization 4.03.01 and Tank Manager 4.08.01. It can be used to open saved log files and parse them as required. Once the file is imported into the ROC Log Viewer it can be viewed, parsed, sorted, printed, reports ran and saved as a CSV file.

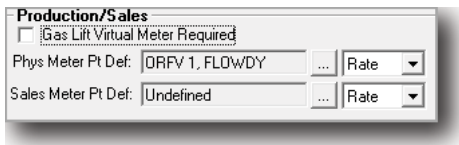


## Browser option for production/sales meter in gas lift

Previous versions only supported the configuration of a single meter and it had to be defined as a sales or production meter. The program then calculated the missing meter.

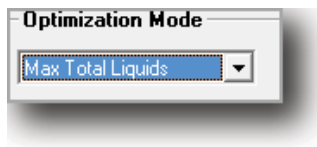


The previous method is still supported, but an additional meter was added in situations where both a sales and a production meter exist.



## Optimize gas lift by total liquids

Previous versions supported liquid production for max oil or max water. It now allows optimization for max total liquids. Oil + water = total liquids.



## Modified gas lift efficiency calculation

Negative values are given when the injection rate exceeds the production rate.

Current Averaging Cycle		Last Averaging Cycle		Averaging Two Cycles Ago	
Cycle Completion Date	08/11/2016	Cycle Completion Date	08/11/2016	Cycle Completion Date	08/10/2016
Cycle Completion Time	11:43:59 AM	Cycle Completion Time	03:43:05 AM	Cycle Completion Time	07:42:48 PM
Optimization Method	5	Optimization Method	5	Optimization Method	5
Cycle Duration	6.72444 Hours	Cycle Duration	8.0 Hours	Cycle Duration	8.0 Hours
Stopped Duration	1.25 Mins	Stopped Duration	1.75 Mins	Stopped Duration	1.75 Mins
Number Of Steps	5	Number Of Steps	7	Number Of Steps	7
Injection Setpoint	295.1081 Mcf/Day	Injection Setpoint	295.1081 Mcf/Day	Injection Setpoint	295.1348 Mcf/Day
Injection	295.1082 Mcf/Day	Injection	295.1082 Mcf/Day	Injection	295.1349 Mcf/Day
Average Tubing	247.584 Psi	Average Tubing	247.584 Psi	Average Tubing	247.584 Psi
Average Casing	754.23 Psi	Average Casing	754.23 Psi	Average Casing	754.23 Psi
Average Line	231.43 Psi	Average Line	231.43 Psi	Average Line	231.43 Psi
Critical Flow	171.6138 Mcf/Day	Critical Flow	171.5673 Mcf/Day	Critical Flow	171.5743 Mcf/Day
Production	523.2305 Mcf/Day	Production	514.7113 Mcf/Day	Production	515.2662 Mcf/Day
Production No Flow	0.0 Mins	Production No Flow	0.0166667 Mins	Production No Flow	0.0166667 Mins
Sales	228.1223 Mcf/Day	Sales	219.6032 Mcf/Day	Sales	220.1513 Mcf/Day
Byback	0.0 Mcf/Day	Byback	0.0 Mcf/Day	Byback	0.0 Mcf/Day
Oil Prod	119.5961 Bbl/Day	Oil Prod	117.5064 Bbl/Day	Oil Prod	118.1613 Bbl/Day
Water Prod	39.16725 Bbl/Day	Water Prod	38.31649 Bbl/Day	Water Prod	38.23938 Bbl/Day
Total Liquid	158.7568 Bbl/Day	Total Liquid	156.2229 Bbl/Day	Total Liquid	156.4006 Bbl/Day
Efficiency	43.59862 Pct	Efficiency	42.6853 Pct	Efficiency	42.72489 Pct
Improvement	1.645131 Pct	Improvement	-0.237872 Pct	Improvement	0.0266824 Pct
<b>Economic Results Per Day</b>		<b>Economic Results Per Day</b>		<b>Economic Results Per Day</b>	
Gas Compression/Recycle Cost	442.6622	Gas Compression/Recycle Cost	442.6623	Gas Compression/Recycle Cost	442.7023
Production (Formation Gas) Cost	456.2446	Production (Formation Gas) Cost	439.2062	Production (Formation Gas) Cost	440.3027
Byback Gas Cost	0.0	Byback Gas Cost	0.0	Byback Gas Cost	0.0
Produced Water Cost	50.52575	Produced Water Cost	49.42827	Produced Water Cost	49.3288
Sales Gas Revenue	684.3669	Sales Gas Revenue	658.8095	Sales Gas Revenue	660.454
Prod Liquid Hydrocarbon Revenue	5740.708	Prod Liquid Hydrocarbon Revenue	5659.506	Prod Liquid Hydrocarbon Revenue	5671.74
Net Revenue	5475.643	Net Revenue	5387.019	Net Revenue	5399.961

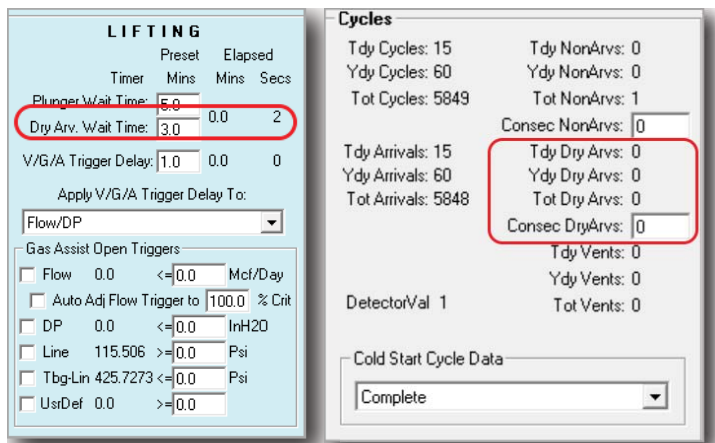
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# Plunger Lift

## Dry arrival timer added to lifting

The timer sends a notification if plunger arrives too quickly. This also happens if a non-arrival occurs.

A dry arrival notification triggers if the plunger arrives before the dry arrival time expires. The action taken by the recording of a dry arrival or consecutive dry arrivals is configurable. Dry arrivals means the plunger did not fall all the way to the bottom and returned without any fluid or “dry”. Because the plunger travels at a high rate of speed, damage to both the plunger and the catcher is very likely.

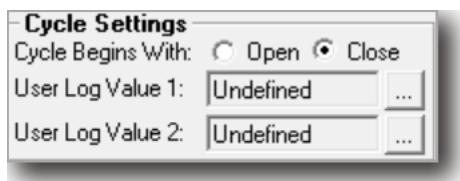


## Well PSDs

A well’s permanent shutdown (PSD) can occur due to X consecutive dry arrivals (similar to the same feature for consecutive non-arrivals). This configurable action closes the production valve and (if configured) the SSD value and requires a manual reset.

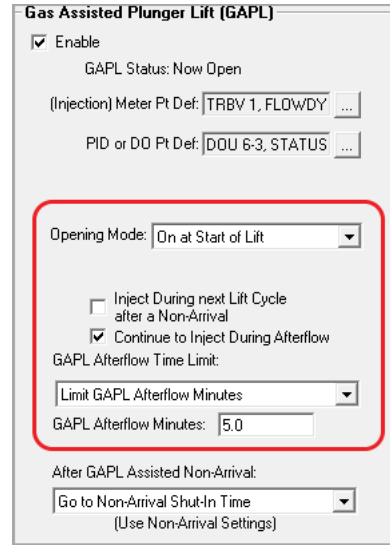
## Manual selection of additional values

Users can manually select two additional values that can be stored in the cycle or gas lift logs.



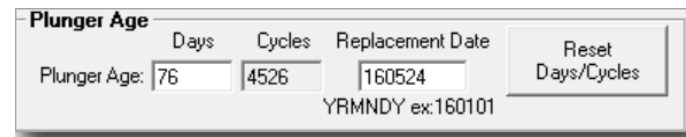
## Timer option for amount of afterflow time to continue GAPL

Gas Injection during a plunger cycle, GAPL, now has more flexibility as when to open the gas inject valve and when to close the gas injection valve.



## Parameter options to display plunger age in days and cycles

Plunger age is now tracked by number of days since installation and number of cycles it has run during that time. A reset days/cycles button resets the days and cycles to zero and stamps down the date at time of the button press.







## Gas lift log file can be saved to another computer

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Well Tag	RTU Wide S/N	Well Instance	Instance Wide S/N	Cycle Type	Cycle Begin at Open/Close	Open Date/Time [Local]	Open Date [CMMMO]	Open Time [MMMMSS]	Open Event Code	Open Event Tag, Trip, Pres	Casing Press at Opening
567	567	2	567	Conventional Plunger	0	140047723	160412	163523	Casing Incr/Time >>	6.000	448.276
566	566	2	566	Conventional Plunger	0	140047687	160412	155447	Casing Incr/Time >>	6.000	450.130
565	565	2	565	Conventional Plunger	0	1400475204	160412	151204	Casing Incr/Time >>	6.000	445.974
563	563	2	563	Conventional Plunger	0	140047308	160412	151216	Casing Incr/Time >>	6.000	449.794
562	562	2	562	Conventional Plunger	0	1400472676	160412	145116	Casing Incr/Time >>	6.000	448.322
561	561	2	561	Conventional Plunger	0	1400471442	160412	143042	Casing Incr/Time >>	6.000	445.160
560	560	1	6	No Plunger	0	1400470106	160412	140026	Unknown/Open Code	0.000	452.954
559	559	2	554	Conventional Plunger	0	1400470006	160412	140006	Casing Incr/Time >>	6.000	550.180
558	558	2	553	Conventional Plunger	0	1400453132	160412	50552	Casing Incr/Time >>	6.000	450.300
557	557	2	552	Conventional Plunger	0	1400451874	160412	36434	Casing Incr/Time >>	6.000	450.530
556	556	2	551	Conventional Plunger	0	1400450601	160412	84321	Casing Incr/Time >>	6.000	446.287
555	555	2	550	Conventional Plunger	0	1400449291	160412	82131	Casing Incr/Time >>	6.000	446.680
554	554	2	549	Conventional Plunger	0	1400447971	160412	79391	Casing Incr/Time >>	6.000	445.862
553	553	2	548	Conventional Plunger	0	1400446704	160412	73264	Casing Incr/Time >>	6.000	446.007
552	552	2	547	Conventional Plunger	0	1400445445	160412	71725	Casing Incr/Time >>	6.000	446.689
551	551	2	546	Conventional Plunger	0	1400444130	160412	69530	Casing Incr/Time >>	6.000	445.051
550	550	2	545	Conventional Plunger	0	1400442874	160412	63434	Casing Incr/Time >>	6.000	446.713
549	549	2	544	Conventional Plunger	0	1400441633	160412	61353	Casing Incr/Time >>	6.000	453.344
548	548	2	543	Conventional Plunger	0	1400440375	160412	59595	Casing Incr/Time >>	6.000	451.954
547	547	2	542	Conventional Plunger	0	1400439005	160412	53125	Casing Incr/Time >>	6.000	450.025
546	546	2	541	Conventional Plunger	0	1400437940	160412	51040	Casing Incr/Time >>	6.000	450.253
545	545	2	540	Conventional Plunger	0	1400436575	160412	44695	Casing Incr/Time >>	6.000	450.141
544	544	2	539	Conventional Plunger	0	1400435301	160412	42821	Casing Incr/Time >>	6.000	445.805
543	543	2	538	Conventional Plunger	0	1400433989	160412	40629	Casing Incr/Time >>	6.000	445.680
542	542	2	537	Conventional Plunger	0	1400432718	160412	38158	Casing Incr/Time >>	6.000	448.959
541	541	2	536	Conventional Plunger	0	1400431473	160412	32433	Casing Incr/Time >>	6.000	444.591
540	540	2	535	Conventional Plunger	0	1400430208	160412	30328	Casing Incr/Time >>	6.000	445.938
539	539	2	534	Conventional Plunger	0	1400428937	160412	24217	Casing Incr/Time >>	6.000	447.971
538	538	2	533	Conventional Plunger	0	1400427682	160412	22132	Casing Incr/Time >>	6.000	444.296
537	537	2	532	Conventional Plunger	0	1400426371	160412	19391	Casing Incr/Time >>	6.000	445.657
536	536	2	531	Conventional Plunger	0	1400425113	160412	13893	Casing Incr/Time >>	6.000	447.770
535	535	2	530	Conventional Plunger	0	1400423848	160412	11728	Casing Incr/Time >>	6.000	446.573
534	534	2	529	Conventional Plunger	0	1400422615	160412	5695	Casing Incr/Time >>	6.000	452.205
533	533	2	528	Conventional Plunger	0	1400421326	160412	2526	Casing Incr/Time >>	6.000	448.927
532	532	2	527	Conventional Plunger	0	1400420065	160412	1420	Casing Incr/Time >>	6.000	450.424
531	531	2	526	Conventional Plunger	0	1400418807	160411	235227	Casing Incr/Time >>	6.000	451.110
530	530	2	525	Conventional Plunger	0	1400417547	160411	233227	Casing Incr/Time >>	6.000	445.961
529	529	2	524	Conventional Plunger	0	1400416279	160411	231119	Casing Incr/Time >>	6.000	449.422
528	528	2	523	Conventional Plunger	0	1400415026	160411	225095	Casing Incr/Time >>	6.000	445.162
527	527	2	522	Conventional Plunger	0	1400413767	160411	222927	Casing Incr/Time >>	6.000	445.951
526	526	2	521	Conventional Plunger	0	1400412504	160411	220824	Casing Incr/Time >>	6.000	447.080
525	525	2	520	Conventional Plunger	0	1400411243	160411	214723	Casing Incr/Time >>	6.000	450.949
524	524	2	519	Conventional Plunger	0	1400410008	160411	212648	Casing Incr/Time >>	6.000	451.861
523	523	2	518	Conventional Plunger	0	1400408732	160411	210532	Casing Incr/Time >>	6.000	446.170
522	522	2	517	Conventional Plunger	0	1400407467	160411	208437	Casing Incr/Time >>	6.000	447.114



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