

Unico LRP® System Feature



Background Sucker rod pumps occasionally encounter solid particles of debris or “trash” during operation. Oftentimes these solids harmlessly pass through the pump. Other times the debris will cause the pump plunger to stick or the traveling and/or standing valves to not seat properly, causing the pump to malfunction. Occasionally the debris will dislodge or clear as a result of normal operation, with no intervention required. Other times it is necessary to flush the pump, or possibly even pull the pump. Some operators may attempt to “bump down,” where the pump and rod string are dropped from a short distance in an attempt to dislodge the debris through the shock of the pump plunger striking bottom.

Unico Pump Clean™ mode freed a stuck valve with minimal expense and downtime.

Case Study The pump was producing 20 BPD with normal valve action prior to 10/23/12, at which time the travelling valve became stuck open and the fluid flow stopped. In an attempt to solve the problem, the operator varied the pumping speed (both plus and minus), without success.

The patent pending Pump Clean™ algorithm was enabled on the LRP® system. Charts and timeline were available remotely via Unico’s GMC® monitoring system.



Pump Clean™ Mode

LRP® System Feature by Unico®

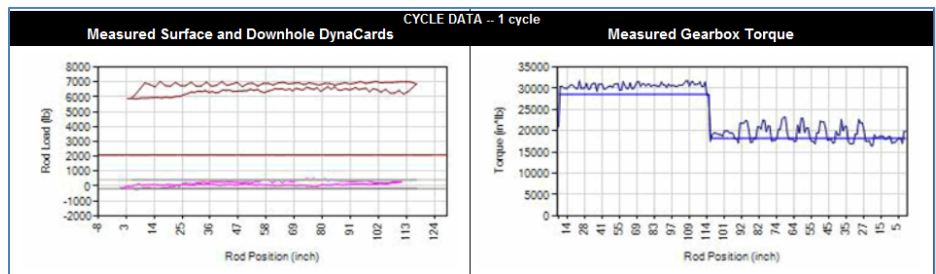
Pump Clean™ Mode

Solution Unico LRP® pumping unit systems employ Pump Clean™ mode to clear debris from the pump. The Pump Clean™ algorithm vibrates the pump at strategic frequencies for approximately two minutes to dislodge debris. This is accomplished entirely with software, not requiring any additional hardware or equipment beyond a standard LRP® unit itself. It can be executed in one of three ways: remotely (through telemetry), at the drive keypad, or automatically.

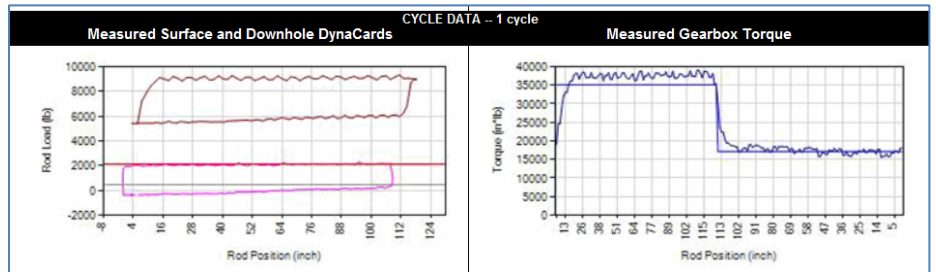
The Unico GMC® remote telemetry system provides operational and diagnostic reports and alarms to your browser or iOS® device.

Result Well reports showed the dynamometer trend leading up to the stuck valve and the subsequent pump cleaning event. The data was collected by the LRP® drive and reported using the Unico iGMC® remote well monitoring tool.

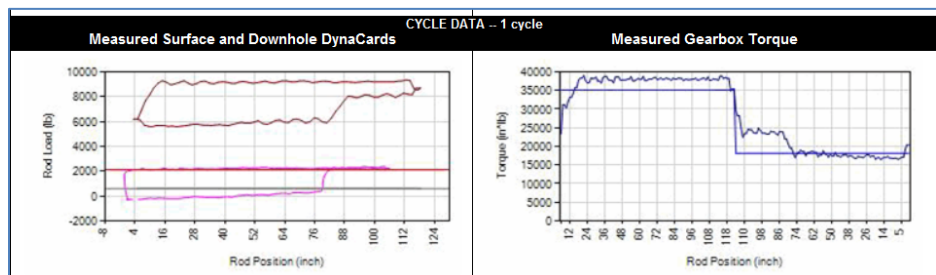
Here we see a well report generated by the drive when the pump travelling valve was stuck. The dynamometer plots reveal that the pumping unit is raising and lowering only the weight of the rod string (no fluid load). This condition is indicated by 0 BPD and -2 pump fill display. The problem could either be a parted rod (near the pump) or a stuck travelling valve. In this case it was a stuck travelling valve.



The Pump Clean™ mode was remotely executed twice, immediately restoring pump operation. Here is the Well Report after the pump cleaning event.



Following is a Well Report on the day after the pump cleaning event. The pump action remains good, and the well has even been pumped off.



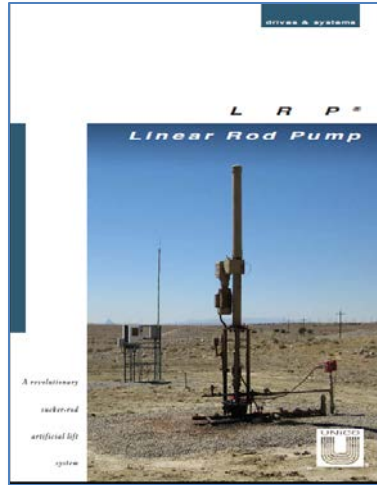
The Pump Clean™ mode was programmed to run automatically (daily) as a future preventative measure.

Conclusion

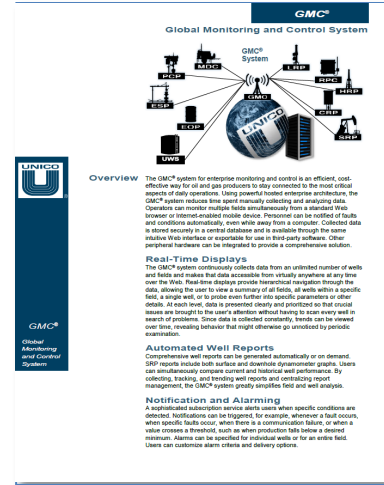
- Avoid Costly and Time Consuming Well Service
- Completes Pump Clean™ Cycle in Minutes
- With Unico GMC® Reporting, See Results Immediately
- No Additional Hardware Required
- For Use with Unico LRP® Linear Rod Pump Systems
- Can be Programmed to Run As Scheduled Maintenance

Additional Information

For more information, see the following brochures:



[LRP®
Linear Rod Pump](#)



[GMC®
Global Monitoring and Control System](#)

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Unico is a leading global innovator of motion-control solutions for industry. Founded in 1967, the company develops, manufactures, and services variable-speed drives, application-engineered drive products, integrated drive systems, and ancillary products that improve operations by increasing productivity, safety, and equipment life while lowering energy and maintenance costs.



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Specifications subject to change without notice.

LRP.20(002) 5/20