

LEVERAGING AUTOMATION SYSTEMS

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There are three components to a successful rod lift surveillance and analysis program. One, a rod pump off controller is needed to match inflow to outflow, reduce fluid pound when configured properly, and to shut the well down in the event of a downhole failure. Secondly, a host system is needed to provide immediate identification of downed wells, remote surveillance, and the ability to monitor and analyze hundreds of wells per day, enabling quicker identification of variances and solutions. And lastly, and of equal importance is to establish and implement business rules, work processes, and best practices that leverage the pump off controllers and host systems. In today's world of 'do more with less', all three steps are needed to realize the full benefit of automation, and to achieve full optimization.

Operators tend to spend the upfront dollars, which is by far the majority, for the hardware and software, but oftentimes never realize the full benefit due to not dedicating the resources, training the employees on technical Well Analysis, and implementing the supporting business rules, work processes, and best practices.

The presentation will describe a situation in which a company utilized pump off controllers and a host system, but were lacking the business rules, work processes, and best practices to complement the hardware and software. The company leadership recognized gaps in skillsets, missed opportunities, and basic lack of understanding of the value of automation, and engaged ChampionX to do an assessment, or 'health check' of their fields and wells. A clear before and after picture of the metrics will be shown in the final paper. Below were the initial steps.

1. Both parties met to determine which metrics were to be measured, and acceptable targets/ranges. Below is a sampling of the individual metrics to be measured.
 - a. Number of wells in some state of alarm.
 - b. Wells cycling excessively.
 - c. Wells with low volumetric efficiency due to over pumping or loss of displacement.
 - d. Wells in need of additional lift capacity.
 - e. Wells running with excessive SPM.
2. ChampionX Consultant mined, assembled, and presented the data to core team within said company. Each metric received a score.
3. Company Leadership presented findings and results to broader audience within Company operations.
4. The metrics and targets were adjusted where needed.
5. Workflows were built for each metric outlining the specific steps to take describing 'how' to improve the score.
6. Business rules were established for each metric describing 'who' and 'when' various steps are to be taken.
7. Each metric was assigned an 'owner'.
8. The status of each metric is publicized daily via internal dashboard.

With this exercise, it was immediately apparent to the company's leadership team, and other personnel that the ROI on their automation system was significantly lacking. The presentation will show the value gained from implementing the third piece of the process.