

**Society of Petroleum Engineers
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**Production Optimisation of Conventional and Unconventional Wells with
ESP Real Time Data**

**Lawrence Camilleri
Schlumberger**

Abstract:

Optimising production has always been important, but there is naturally a greater focus on high rate wells, such as those produced with ESPs (Electrical Submersible Pumps). A key driver is arresting decline while minimising infill drilling, which is often achieved by identifying wells with skin to identify stimulation candidates and increasing drawdown on wells with good pressure support. With unconventional, accelerating production while minimising power consumption become dominant goals. This presentation explains how real-time gauge data enables high-frequency, high-resolution downhole flow rate measurements on ESP wells. Thereby providing both rate and pressure, which are essential to enabling inflow characterisation and thereby identifying optimisation opportunities without the need for traditional buildups, which cause production deferment.

Fortunately, technology advances have improved real time data quality in terms of both sampling frequency and metrology. There has also been a reduction in the cost of measurement, transmission and storage, which signals the true dawn of the digital age. The presentation therefore also reviews how real time data enables increases in well uptime and ESP run life as well as minimising power consumption. Using material from recent SPE papers, both theoretical methodology and real case studies are presented to illustrate the value of real time data for both conventional vertical wells and unconventional multifracked horizontal wells. While the case studies are based on ESP applications, the lessons learnt on how to extract value from real-time data can be applied to other artificial lift techniques, especially since inflow characterisation is generic.

Biography:

Lawrence has over 33 years of experience in production operations of which 27 years have been focused on artificial lift in a variety of roles ranging from field and application engineer to his current role as Global Domain Head, which is Schlumberger's most senior technical position in the Artificial Lift Division. He has published over 16 SPE conference papers and 3 patents covering all aspects of ESP operation such as inflow characterization and advanced completions. This body of work is particularly noteworthy as it combines theoretical explanations and field case studies using real time data.