

Real-time analysis of mature oil wells

Wellchecker from GPsol with Promass Q and Prosonic Flow G



GPsol is a service provider specializing in process technology and plant engineering. Services in automation and information technology expand the portfolio. The company was founded in Rehden in 2020 and supports customers in the oil and gas industry, the energy sector, and the chemical industry.

“Drawing on many years of experience with a strong team working behind the scenes, we develop attractive all-in-one solutions for our customers. We take an operational approach and, for example, offer clever digital concepts for the oil production industry, where Endress+Hauser supports us with state-of-the-art measuring technology.”

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Thomas Gläser



GPsol Wellchecker

The oil and gas industry in Germany is facing major economic challenges. Due to a decline in hydrocarbon production, increasingly stringent environmental regulations, and significant cost pressure when it comes to mature fields, the oil production industry is having to explore new solutions. For producers to make the right decisions, analyzing the production data of individual extraction wells is of paramount importance, with a focus on breaking down the quantities of gas, water and oil in the well's flow into percentages.

Customer requirements Large-volume separators are traditionally used in the onshore sector. These separate the extracted crude oil into

gas, water and pure oil during a certain retention time. This makes analyzing individual wells time-consuming and expensive. For this reason, wells are often tested for their extracted crude oil quantity and subsequent laboratory analyses are then used to draw conclusions about the individual constituents. It is therefore not possible to analyze the current flow volume in “real time”. Modern measuring technology developed by Endress+Hauser has been combined with clever digital solutions created by GPsol GmbH & Co. KG in order to address this challenge.

Our solution The engineering team at GPsol tackled the challenge by designing a compact, three-phase “Wellchecker”. In collaboration with Endress+Hauser, they developed a



GPsol Wellchecker on a pumpjack

system that individually measures each component and then provides the operational personnel with as much information as possible about the current flow. The oil production industry was consulted beforehand to identify any additional potential requirements.

The specifications could be summarized by using the words “plug and play” and “intelligent”. By using the Coriolis flowmeter Proline Promass Q 300 and applying a sophisticated automation design, the retention time of the products could be significantly reduced. Promass Q 300 correctly measured the pure oil and water quantities after separation of the released gas. For the gas measurement, Endress+Hauser delivered the ultrasonic flowmeter Prosonic Flow G 300 for the precise measurement of wet gas quantities. This combination enabled GPsol to reduce the required space of the Wellchecker to the size of a Euro pallet.

The outcome The Wellchecker demonstrated its effectiveness at various wells on mature German oil fields in 2021 by conducting tests on traditional pumpjacks with a pulsating flow and on progressive cavity pumps with continuous

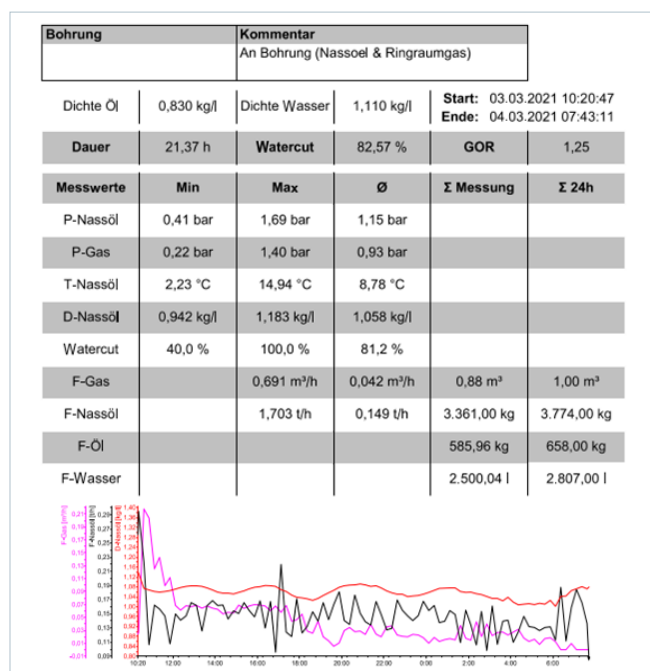
flow. The results were positive across the board and were subsequently included in the feasibility study of the wells.

Operating data

- Permissible pressure: 16 bar (40 bar) / 232 psi (580 psi)
- Permissible temperature: 80 °C (176 °F)
- Maximum volume: 60 m³/day

Devices used

- Prosonic Flow G 300 for the precise measurement of wet gas
- Promass Q 300 for measuring the pure oil and water quantities as well as the density



Report extracted from Wellchecker

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