**CASE STUDY**

**Production Accurately Measured for Fields with Varying Water Cuts and GOR**

PhaseTester multiphase flowmeters efficiently test more than 100 wells

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**CHALLENGE**

Obtain accurate and consistent oil, water, and gas flow rate measurements from naturally flowing and artificially lifted wells.

**SOLUTION**

Use PhaseTester* multiphase well testing equipment with Vx* technology to measure the production rates.

**RESULTS**

Monitored and evaluated the multiphase flow rates of over 100 wells, enabling consistent production optimization and back allocation.

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**Accurate flow rate measurements needed to optimize production**

For Petroleum Development Oman (PDO), obtaining accurate and consistent oil rates, water cut, and GOR measurements from naturally flowing and artificially lifted wells for its fields in the Qarn Al Alam area proved to be particularly challenging. Production characteristics of the wells tested varied widely and included the following:

- produced fluid ranging from low- to high-GOR production streams
- horizontal wells containing both natural flow and artificial lift systems
- gas and water reinjection for pressure maintenance
- low and high water cut (0 to 100%)
- viscosity ranging from 5 to 150 cP
- density ranging from 850 to 950 kg/m³.

Using conventional separation methods and flowmetering equipment, PDO encountered multiple problems concerning back allocation and performance monitoring.

**Comprehensive, portable multiphase flowmeters provide confidence in production data**

After a trial run, PDO decided to use PhaseTester portable multiphase flowmeters with Vx technology. The highly mobile flowmeters would measure production rates from a large number of wells in the client’s main oil fields. These wells included a variety of lift systems, such as ESPs and gas lift. In some of the fields, produced water was reinjected for pressure maintenance. Comprehensive validation of production data would come from NODAL* production system analysis, fluid properties, and field knowledge.

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Water-cut samples from some of the wells tested in Oman. Schlumberger tested various production characteristics for the PDO wells, including fluid viscosity, density, and GOR.
CASE STUDY: Over 100 wells tested accurately to optimize production, Oman

PhaseTester equipment set up in the remote Qarn Al Alam area. This portable well testing equipment was used to accurately test more than 100 wells from outlying locations.

Quantity and quality of tests exceeds client’s expectations
PDO used PhaseTester flowmeters to accurately measure the output and performance of the wells in their main oil fields and wells in adjacent, smaller oil accumulations. PhaseTester equipment delivered consistent production results verified by a comprehensive, quality control process. To date, more than 100 wells have been successfully tested, and between 10 and 20 wells are tested and evaluated per month. PhaseTester equipment has provided extensive and accurate multiphase data for production optimization and back allocation. This data has allowed PDO to optimize production processes and produce with more certainty.