

Case study: Italy

HC-Vision boosted production by 295 barrels per day

The drilling environment in Sicily presents unique challenges to successful hydrocarbon extraction. High costs of water disposal and treatment mean that wells with more than 10% water cut are not economical to develop. Therefore, locating and avoiding water-bearing zones is extremely important.

An operator wanted to reduce the water cut in a well with known wellbore instability challenges, which can affect the quality of formation evaluation data. Logging while drilling (LWD), measurement-while-drilling (MWD), and wireline logs were run to set the proper placement of the packers and to avoid any geohazards during production. However, when the well was turned on for production, there was a water cut of more than 70%.

After consulting with Baker Hughes a solution was provided based on the integration of the datasets that were collected at the wellsite and the interpretation of the formation evaluation (FE) datasets.

The **HC-Vision™ reservoir characterization service** provided critical indicators of wellbore

hydrocarbon volumetrics, saturations, porosity, and permeability. These indicators delivered answers about the reservoir's fluid type, productive or nonproductive zones, potential fluid contacts, reservoir compartmentalization, and natural fractures.

Using the HC-Vision service and surface logging, the Baker Hughes experts determined the water contact was offset by more than 50 ft (15 m) compared to that of the MWD datasets alone. The packer was set based on the mud logging data, and the operator was able to increase production in barrels per day and reduce the water cut from 70% to less than 10%, making the well economical to produce.

The HC-Vision service, with integration and interpretation of formation evaluation datasets, provided the operator with a new approach to understanding fluid contacts and downhole conditions in order to determine where to set the packer needed and optimize production while decreasing water volume.

Challenges

- Wellbore instability affected the quality of formation evaluation data from e-logs
- High water disposal and treatment costs

Results

- Increased production from 75 B/D to 370 B/D
- Reduced water cut from 175 B/D to 30 B/D
- Decreased water disposal and treatment costs

Production values in bbls per day

