Downhole Oil and Gas Monitoring

Sichuan, China

AP Sensing‘s DTS solution to assess reservoir performance and improve gas recovery

The Moxi gas plant, located in Suining, Sichuan, China, is China‘s largest gas field. It has a storage capacity of 440 billion m^3 and an annual production of some 4 billion m^3.

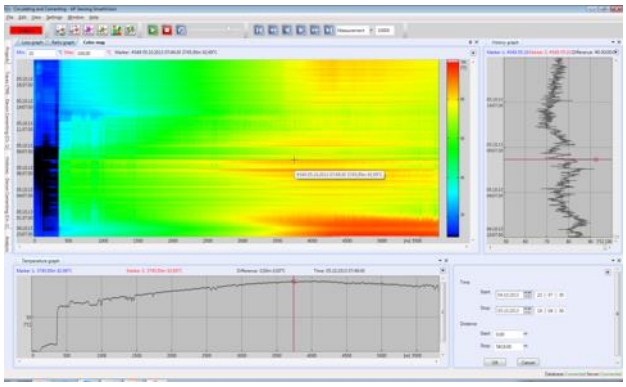
A solution was needed to assess reservoir performance and to improve overall gas recovery results.

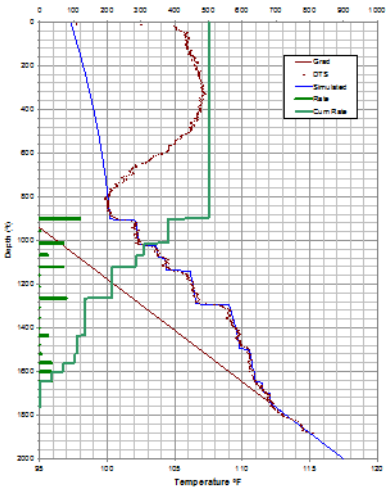
The Moxi plant selected AP Sensing‘s fiber-optic based DTS (Distributed Temperature Sensing) solution for downhole oil and gas applications. Two DTS units were acquired for the downhole wells #1 and #2. Single-channel devices were installed with, together with 8 km of sensor cable.

With the industry‘s most rugged and dependable DTS, which includes a VxWorks operating system (no viruses, no hacking), outdoor housing, and an operating temperature range from -40 °C to +65 °C, the DTS unit works together with the MultiSensor Board to enable further calibration after installation.

A DTS solution needs to stand up to the challenging conditions within the wells. A wide range of materials are encountered when drilling: natural gas and oil, salt, mud, hydrogen, hydrogen sulfide, and carbon dioxide. Therefore the choice of a sensor cable is important to achieve good results.

The fiber selected has an external armored material alloy 825 for protection, and can withstand pressure up to 137.9 Mpa and temperatures up to 175 °C, which exceeds the conditions in the well. The software for traces and data storage lets operators get a real-time picture of current conditions, or stores the data for later analysis:





Working in cooperation with CNPC (China National Petroleum Corporation) and our regional partners, the planning, installation, commissioning and training are planned for completion in mid-2015.

19“ rack model

Outdoor housing model