

WellWatcher Neon System Meets Strict Pressure Requirements for Italian UGS Wells

Operator increases gas storage capacity and meets peak gas demand

CHALLENGE

Increase storage capacity and pressure while meeting strict Italian legal requirements for pressure levels in underground storage (UGS) wells and meet peak gas demand.

SOLUTION

Install WellWatcher Neon* DTS, DAS, and PT gauge system and WellWatcher Quartz* premium high-temperature, high-resolution PT gauge to

- monitor pressure, temperature, and distributed temperature
- provide added reliability through built-in metrology redundancy.

RESULTS

Maximized gas storage capacity while meeting strict legal pressure requirements and ordered 11 additional WellWatcher Neon systems for UGS wells.



Pressure challenge in gas storage wells

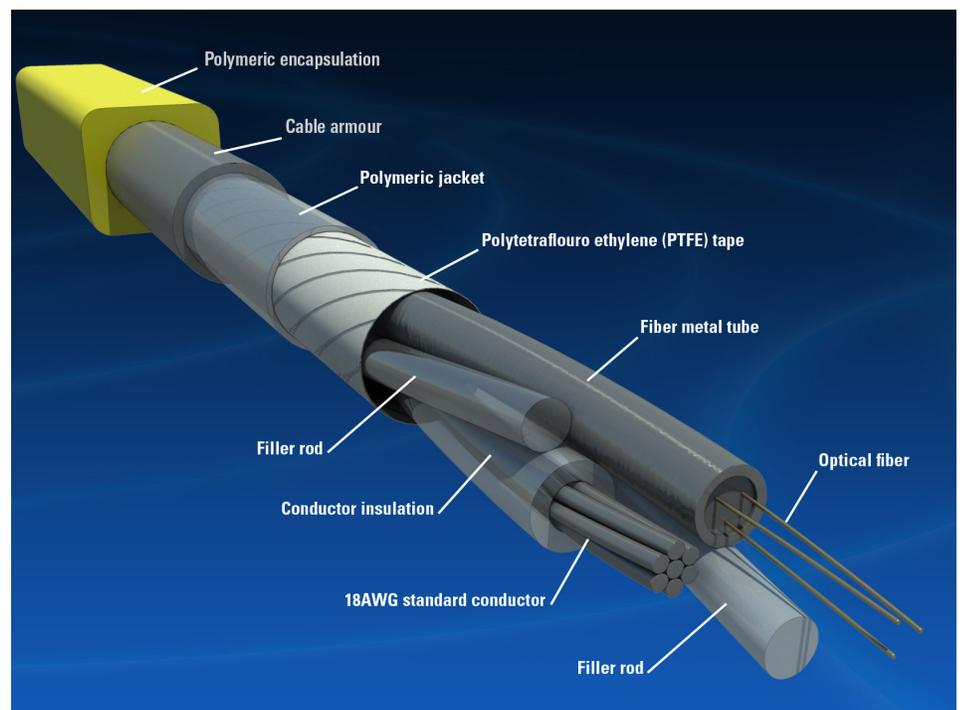
Underground storage (UGS) wells help store natural gas and reduce the risk of interrupted delivery and service. Often these wells are in depleted gas reservoirs into which gas from other sites has been injected. They must tolerate high injection pressures, high production rates, and frequent changes in temperature and pressure—and still produce gas fast enough to meet peaks in demand.

Maximizing the efficiency of existing gas resources requires that the storage capacity in these reservoirs also be maximized, mainly through an increase in storage pressure. Putting more gas in existing storage areas causes the pressure to increase above customary levels. When these levels are exceeded, the pressure must be carefully monitored to ensure that no leaks or other damage to the storage system occurs.

In Italy, where constant downhole pressure monitoring of UGS wells is required by law, an operator needed to install a highly reliable pressure gauge system that could withstand the high pressures and that would not need to be replaced.

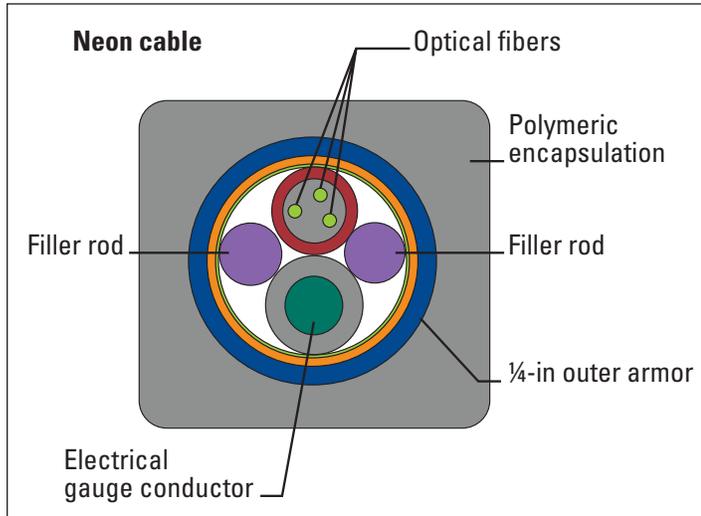
Complete metrology redundancy from hybrid monitoring system

Because of its impressive track record with permanent downhole gauges, Schlumberger was asked to provide a reliable monitoring system that would take continuous downhole temperature and pressure measurements while also providing metrology redundancy.



The WellWatcher Neon system is composed of an optoelectric permanent downhole cable and splice connector, with the option to multidrop several gauges on one cable. The reliability of the downhole connectivity equipment is ensured by the field-proven Intellitite downhole dual-seal dry-mate connector.*

CASE STUDY: WellWatcher Neon system enables operator to increase gas storage capacity and meet peaks in demand



The WellWatcher Neon system has optical fibers and an electrical gauge conductor that are run in a single cable, allowing for distributed temperature and single-point pressure and temperature measurements.

Schlumberger used the WellWatcher Neon DTS, DAS, and PT gauge system, which combines a fiber-optic line and an electrical conductor in a single permanent downhole cable, along with multiple electrical gauges. The WellWatcher BriteBlue* multimode DTS fiber provided continuous and intermittent distributed temperature measurements at approximately 3-ft [1-m] intervals along the entire length of the fiber. Simultaneous acquisition of the DTS data and the pressure and temperature data from WellWatcher Quartz premium high-temperature, high-resolution PT gauges provided rapid wellsite diagnostics.

Increased confidence in pressure readings and safety

By combining the different types of sensors, which had totally different modes of functionality yet similar metrology, the operator had greater confidence in its monitoring and control of the reservoir's pressure and analysis of reservoir behavior trends. As a result, the operator was confident that the gas storage facility was being run within its locally allowed pressure limits and knew that peak gas demand would be met. The operator ordered 11 additional WellWatcher Neon DTS, DAS, and PT gauge systems for its UGS wells.

slb.com/WellWatcher

Schlumberger