



## New well integrity guideline provides solution to CO<sub>2</sub> storage challenges

Potential leakage pathways along an existing well that should be addressed by well qualification:



a) between cement and outside of casing



b) between cement and inside of casing



c) through the cement



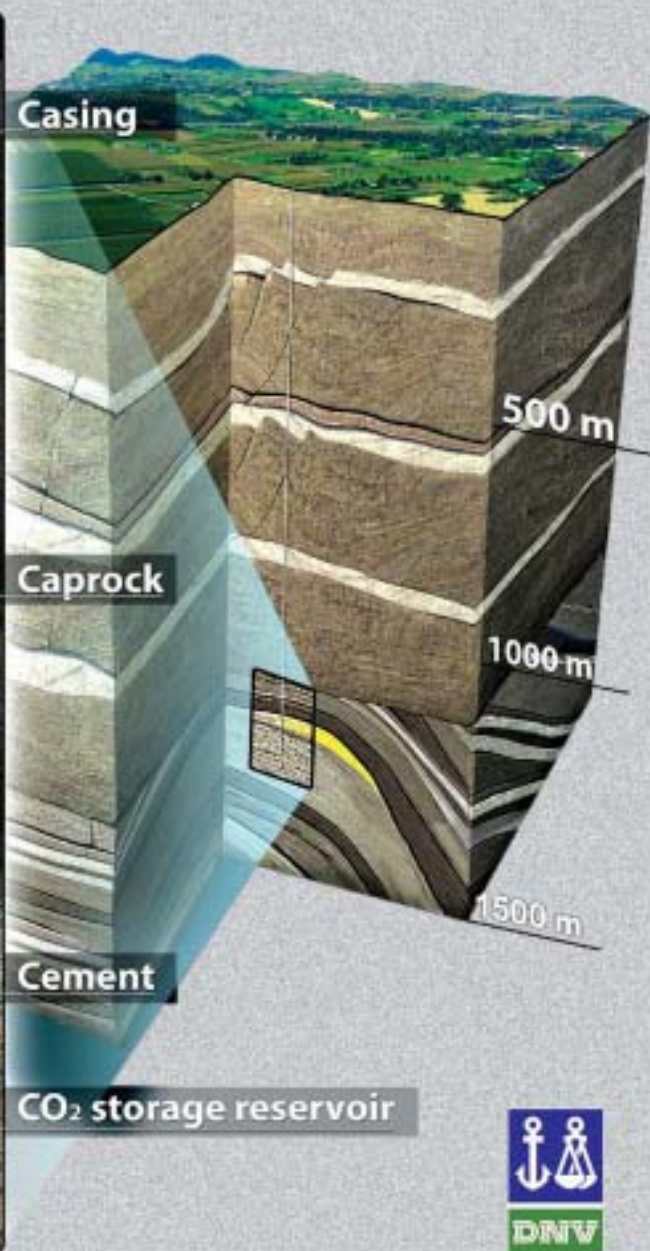
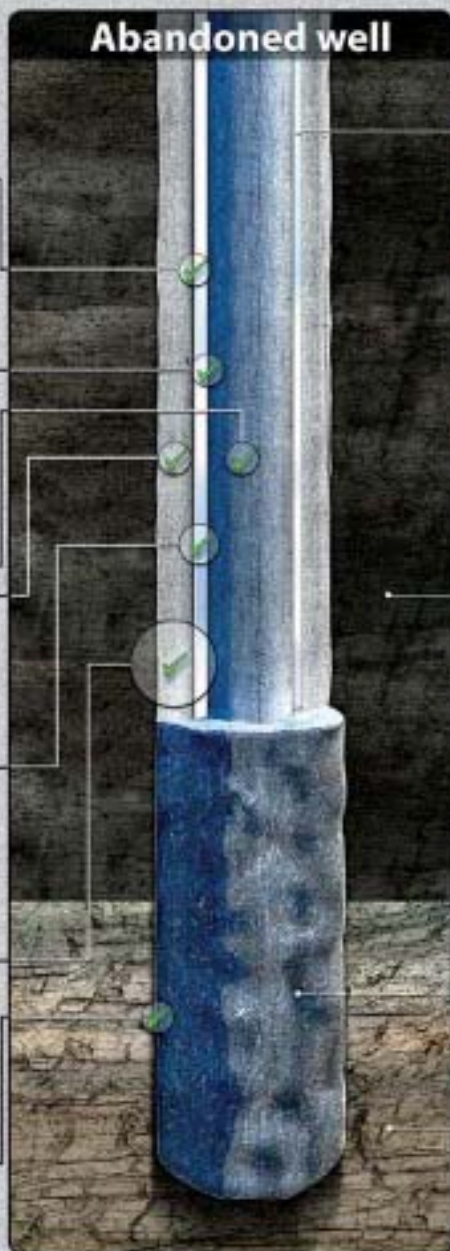
d) through the casing



e) through fractures in cement



f) between cement and formation



# Down-hole Pressure and Temperature Sensor

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Photon Control Inc.'s Down-hole Pressure and Temperature Sensor (DHPTS) is designed to meet the demanding

needs of the Steam Assisted Gravity Drainage (SAGD) process required to efficiently extract the bitumen from oil sands projects.

Major Oil and Gas companies are investing significant dollars in developing oil sand resources around the world, more and more of them using the technique referred to as Steam Assisted Gravity Drainage (SAGD). The temperature and pressure of the steam required to efficiently extract the bitumen, in a SAGD process, are considerable. The temperature can be as high as 300°C with pressures exceeding 10 MPa.

SAGD reservoirs tend to be somewhat unconsolidated in nature and thus injection pressures must be monitored (in-situ) to remain under the known fracture gradient in the area. Exceeding fracture (formation) pressure can cause the loss of steam to adjacent thief zones, adversely affecting well production.

The ability to accurately measure these process vari-

ables during production is extremely important for process optimization, reducing severity or impact of problem wells, and enhancing safety for pressure control operations. Keeping an analysis of reservoir data can validate reservoir models & estimate reserve lifetime of the asset along with providing the most effective operating pressure at field, pad and well. Maintaining control and tracking the measurement in the long run can help reduce overall production costs.

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sensors are prone to failure as a result of material limitations and high levels of electrically induced noise which can lead to inaccurate measurements hindering the overall performance of a well.

Photon Control's DHPTS is designed to meet the demanding needs of the SAGD process. The

sensing elements are hermetically sealed within a stainless steel probe and are resistant to "hydrogen blackening". The DHPTS boasts accurate high pressure and temperature range as well as a Spectral Multiplexer with 8 or 16 channels. The

Probe is connected to the interface electronics with optical fibers, housed within a stainless steel cable; the cable can be up to 5000 m in length.

Photon Control strives to meet there customers' needs with high accuracy, reliability and competitive pricing. [dewjournal.com](http://dewjournal.com)

