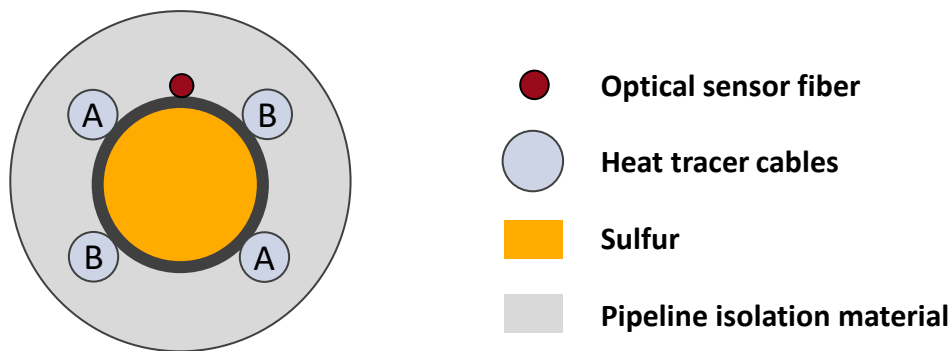


# Pipeline recovered and monitored by DTS

## Rotterdam, Netherlands

Transporting sulfur via pipelines requires heating, so that the sulfur remains in its liquid form. At the Q8 Kuwait refinery in Rotterdam, a reliable and well-performing Distributed Temperature Sensing (DTS) system was needed to diagnose a heating issue in a sulfur pipeline.

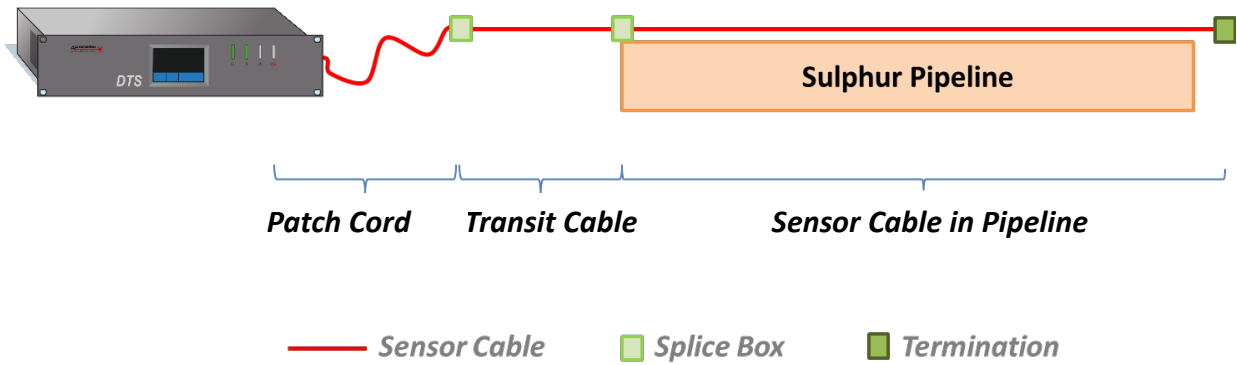
As shown in the diagram below, two sets of heated cables are installed adjacent to the pipeline, inside the insulation material. These maintain the necessary temperature between 135 °C and 155 °C to keep the sulfur in a liquid state. At the top of the pipeline a steel-armored sensor cable is installed, with a multimode optical fiber enclosed.



*Diagram of a pipeline section*

A different manufacturer's DTS had been used in the past, but the operators discovered some unidentified problems with the heat tracer cables where the tracers became too warm and were threatening to burn the isolation material. So first, the pipeline operator needed to identify which set of tracers was not running properly. Secondly, a known fiber break needed to be precisely located.

An AP Sensing DTS system, installed in a rugged IP66 outdoor housing unit, successfully carried out the tracer tests and precisely identified the fiber break location. With accurate temperature profiles the installation could be completed, and normal operations resumed.



The AP Sensing Support team gave an onsite product training for the operators. The clients were satisfied with the result and our system continues to monitor the temperature of the sulfur pipelines to avoid future downtime.



*The remote end of the sulfur pipeline*

The installation and tests were carried out together with our expert worldwide partner Pentair, together with a team of engineers from Q8 KPE.

