

## PIPE LEAK DETECTION AT TATA STEEL PLANT.

Inventec supplied and installed a leak detection system for a one kilometre long tar pipeline at Tata Steel's blast-furnace plant in The Netherlands. The system serves to detect and locate a leak in the earliest possible stage in order to prevent spillage of tar to the environment.

The pipe is of the factory-insulated type with integrated copper wires. As however hydrocarbon liquids such as tar do not conduct an electrical current, that system would not work in this case.

The solution provided by Inventec is based on DTS (Distributed Strain Sensing) technology. A fiber optic cable is attached to the pipeline over its full length and subsequently is connected to a reading unit. This reading unit continuously launches a light pulse of one specific wavelength through the optical fiber and analyses the back-scattered spectrum. The temperature reading at any one point along the fiber results from the shift of the so-called Raman frequency at that point. Measuring this shift at 0,50m intervals along the fiber results in the distributed temperature profile over the full length of the pipeline.

A local increase in temperature indicates the development of a leak. As the system measures with an accuracy of only 0,1°C a very early detection of only a small leak is guaranteed. And thanks to the measurement interval the event is pinpointed with an accuracy of 0,50m along the 1000m long pipeline.

