

INVENTEC TECHNOLOGY IMPROVES DUTCH DIKES

Within the scope of an overall levee reinforcement programme initiated by one of the Dutch district water boards Inventec supplied and installed a monitoring system to detect and locate the possible occurrence of macro-instability of a 800m long critical section of a dike along the River Rhine.

The technology that we deployed here is Distributed Strain Sensing (DSS). A fiber optic cable was buried over the full 800m along the crest of the dike and connected up to a reading unit. This unit continuously launches a high frequency light pulse of one specific wavelength into the optical fiber and analyses the backscattered spectrum. The shift of the so-called Brillouin wavelength provides a very accurate picture of any movement of the surrounding soil.

This process results in the presentation of the distributed deformation over the full 800m dike section with a measurement every meter. In other words: the equivalent of 800 spot sensors! Any possible deviant behaviour of the dike is thus located with an accuracy of one meter.

The system offers 24/7 early warning against possible upcoming failure of the dike. The measurement data are visualised and logged on our Livesense® web platform. Whenever somewhere along the dike the measurement values reach a pre-set level, an alert /alarm is raised automatically.

