

MONITORING SYSTEM FOR THE HARTEL TANK TERMINAL

The quay wall of the Hartel Tank Terminal in the Mississippi harbour now is the fifth deep sea quay in the Port of Rotterdam that will be provided with a comprehensive monitoring system engineered, supplied and installed by Inventec. Client is main contractor Combinatie Kademuur HHTT. It is a permanent monitoring system that is integrated



into the structure during the construction of the quay wall. It will serve to enable asset owner Port of Rotterdam to observe the structural behaviour of the quay during its entire life cycle. A classic example of Structural Health Monitoring (SHM).

The monitoring system includes the following main components:

- Erosion detection by means of a geotextile with integrated optical fibers extending over the full 1230 m length of the quay. The optical fibers are interrogated continually by a reading unit utilising the principle of Distributed Strain Sensing technology. An upcoming subsidence of the soil behind the quay structure is detected and located instantaneously with a spatial accuracy of only one meter.
- Fiber optic sensors for monitoring the pulling forces in the MV anchoring piles.
- Sensors that monitor the groundwater table and the harbour water level. Also these sensors are fiber optic based in view of the required long term stability and durability.
- Fiber optic infrastructure and instrumentation.



The measurement data will be available online in real time via our web platform Livesense® where the asset manager can log into whenever he wishes to observe the behaviour of the quay wall. Alerts/alarms are automatically generated as soon as pre-set measurement values are reached.