LIQUID LEAK DETECTION SYSTEMS

OIL & GAS DIVISION

Case Study

TTK FUEL LEAK DETECTION SYSTEM AT MILITARY AIR BASE, EUROPE

Project Background

The project consists of the monitoring of the entire fuel pipelines and on-site facilities of a military air base in Europe.

The client requested an advanced and reliable fuel leak detection & location system to monitor its underground fuel pipelines which are buried with sand.

The on-site facilities include truck offloading station, manifold and filter station, pump and tank house, fillstand stations and manifold building.

On-site fuel pipelines

PROJECT OVERVIEW

Project	A military air base* *: Due to client confidentiality, the client name has been removed from this project study.
Location	Northern Europe
Application	Underground fuel hydrant systems and facilities
Project Type	New Project
Contract Scope	TTK assures engineering and material delivery of the fuel leak detection systems
Completion Date	2022-2023
Technology	FG-NET-LL digital monitoring unit with hydrocarbon sensing cables from the FG-ODR range
Project Managed by	TTK Oil & Gas

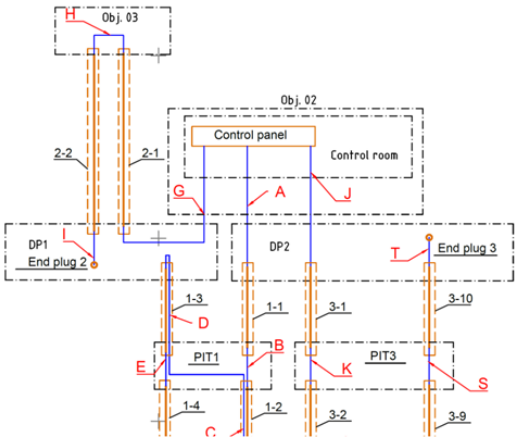
TTK's Solution

- For this project, TTK Oil & Gas division has proposed a state-of art monitoring and alarming system based on **addressable hydrocarbon sensing cables** and a **digital monitoring unit**.

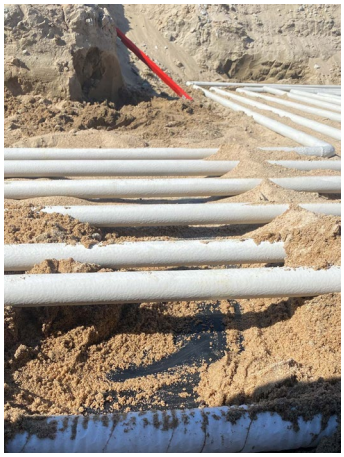
- Several hundred metres of FG-ODR hydrocarbon sensing cables are installed along the pipelines through pulling pits, ensuring a continuous protection of the entire pipeline. **These cables allow multiple leak detection thanks to the embedded microchip**. The FG-ODR cables, with their relatively **low sensitivity**, are suitable for volatile liquids in confined environments such as found in this project. Furthermore, they can be **reused**, allowing leak detection tests under real conditions. Standard lengths of 3, 7, 12 and 20 metres of cables, pre-connected with male/female connectors, are installed to suit different site section needs.

- The monitoring unit (FG-NET-LL) is installed on site within a control room. It is a powerful control panel specifically designed and developed for Oil & Gas industry on long distance application. Its unique feature "**Dynamic Leak Evolution Analysis**" consists of analysing the magnitude of a leak and its evolution in time through the alarm logs. The number and sequence of addressable sections which report a leak, together with their timestamp, allow the operator to monitor the leak's progression in time.

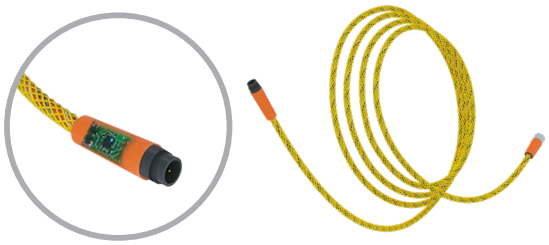
- When a leak is detected on a sensing cable, the monitoring unit triggers an audible alarm, activates relays and displays the precise location of the leak on its integrated dynamic map. Thanks to its TCP/IP & MODBUS/JBUS Connection, it also sends email alerts and SNMP traps to a LAN-connected SCADA System.



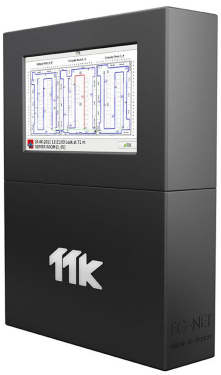
Extract of TTK hydrocarbon leak detection system diagram for the air base project



TTK sensing cable (inside a white conduit) near the fuel pipelines to be monitored



Low sensitivity addressable fuel sensing cable: FG-ODR



FG-NET-LL: digital hydrocarbon leak monitoring panel

TTK Headquarters & TTK Oil & Gas Division / 19 rue du Général Foy / 75008 Paris / France / T: +33.1.56.76.90.10 / F: +33.1.55.90.62.15 / **www.ttk.fr** / **ventes@ttk.fr**