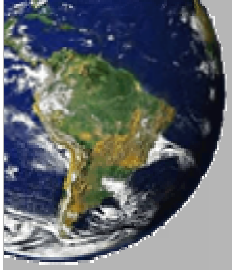


RS DYNAMICS

Automatic Monitoring of Natural Gas Effluence Over Underground Gas Reservoirs Using ECOPROBE Monitoring System

Case Study

Strategic gas reservoirs are located deep within large solid igneous rock massifs. Gas from these reservoirs may expand along geological faults and other geological heterogeneities. In this way, gas can penetrate into surrounding environment and severely impact on the security of the entire region.

Natural gas is a mixture of hydrocarbon gases and incombustible substances (mainly nitrogen and carbon dioxide). Natural gas is mostly methane. The so-called H Gas, piped into most European countries is more than 90% methane with less than 5% of incombustible substances.

ECOPROBE 5 provides selective measurement, at very low detection limits, of methane plus groups of hydrocarbons ensuring that even very small amounts of natural gas possibly seeping in from deep spots along the geological faults, can be detected.

The study site is an area over an underground gas reservoir where ten monitoring stations are located above the geological heterogeneities. In each station an **ECOPROBE** monitoring system has been installed together with a seismic monitoring system, which provides information about movement of the underground environment.

ECOPROBE monitoring system consists of the instrument **ECOPROBE 5** along with a special monitoring box with switching valves for zeroing, with a GSM data communication module and a back-up power supply.

Additional operating software facilitates wireless data communication with all monitoring stations from the control board or any PC worldwide using the Internet or GSM connection. In this way the data can be automatically collected and all the monitoring stations can be remotely controlled and configured. When any station registers a gas effluence the operator can be notified via an alarm from the monitoring system.

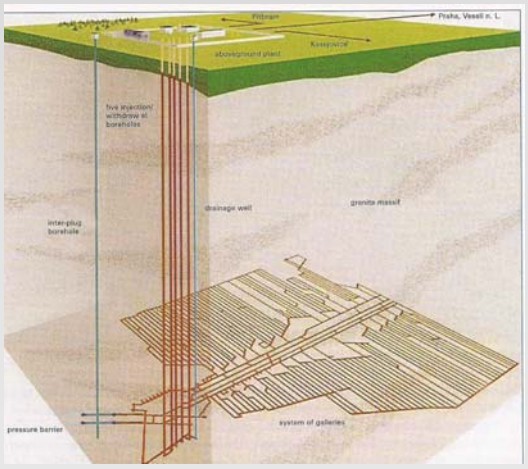
ECOPROBE 5 can be easily removed from a monitoring station and used separately for a systematic surface survey of the whole region (looking for a possible gas effluence) or it can be used for another type of soil contamination survey.

The **ECOPROBE** monitoring system can also be used to monitor various types of underground gas or fuel tank reservoirs. Just one instrument needs to be installed on a site collecting data from several monitoring points using automatic switching valves.

RS DYNAMICS Ltd. can customise the system, including necessary operating software to suit the customer and the area to be monitored.

The underground gas reservoir technological station

One of the monitoring stations



Schematic of underground natural gas reservoir

ECOPROBE 5 with a monitoring box comprising switching valves for zeroing, back-up power supply and GSM cellular data communicator.