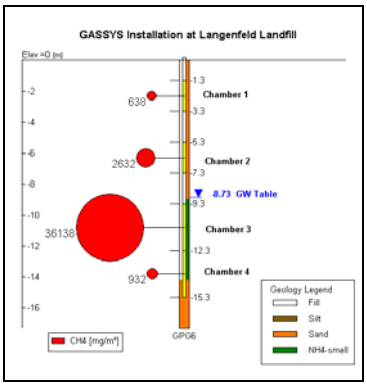
GASSYS: a unique and accurate passive gas-sampling system for repeated sampling of gas in soil and ground water at multiple depths

Location:	Europe
Client(s):	Various clients with about 50 contamination sites
Date Completed:	1995 - ongoing
Project Budget:	Several projects



Left picture: Gas sampling system GASSYS with stainless steel tubing connected to four semipermeable chambers.

Right picture: Methane measurements in a gas piezometer nest with four chambers at a landfill

Summary

Gas sampling serves three main purposes: (1) to determine production targets and possible safety risks (CO_2, CBM, SAGD), (2) to determine the location and concentration of vapours of contaminants for cleanup of soil air, and (3) for the repeated and accurate determination of soil gas and gas dissolved in groundwater for exploration and for natural attenuation at contamination sites. Methods used for purposes (1) and (2) usually are temporary installations and, most often, use some form of active pumping to extract the gas. Therefore gas is of mixed origin and their accuracy is approximate only. For a number of purposes these measurements are sufficient, as for example CBM and SAGD production, but not for investigations of natural attenuation.

The gas sampling system GASSYS is a permanent installation for long term repeated passive gas sampling under exactly the same conditions. The system collects the gas by diffusion into individual chambers with semipermeable membranes. GASSYS piezometer nests may contain up to 4 collection chambers to about 40 m depths within a special hose and the chambers may be installed above and below the groundwater table. For other purposes, the chamber material has been tested for underground use without failure for more than 20 years. A refined sampling and pressure recording system and protocol has been developed to ensure safe and reliable operation.

More detailed information is contained within our web site www.wda-consultants.com/gassys.htm, including a substantial list of gases GASSYS has been tested for. The system has been successfully used at landfills, uranium mining sites, contamination sites, pipe lines, plant sites, military sites (US-Army), etc. It may be used to determine leakage of natural or man-made gases to the surface (methane, etc) or along CBM boreholes and the like.

Services Provided

* Input into the design, manufacturing and installation of gas sampling system GASSYS.
* Initial or long-term drawing of gas samples, supervision of analyses and interpretation of results.
* Training of personnel for clients.