

Cost-effective solutions for zonal groundwater sampling

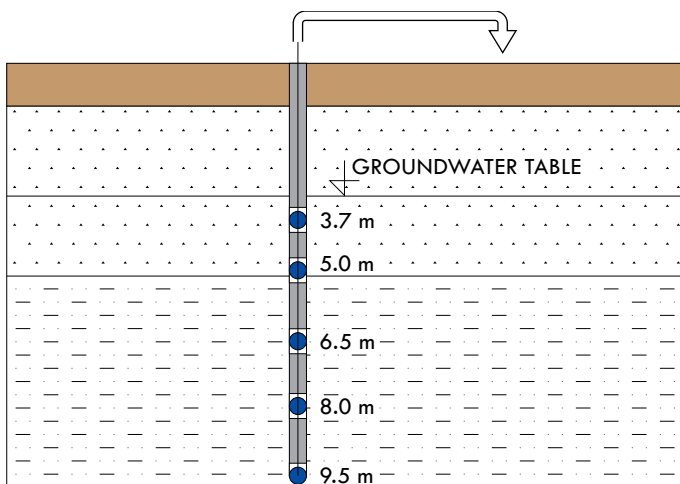
Aquifer stratification strongly contributes to contaminant migration. This led us to developing cost-effective ways for taking zonal groundwater samples: a system of independent micropumps.

The conventional approach to remediation – taking samples from open-screen wells and creating colour contamination maps – is not sufficient for planning successful in-situ remediation projects.

Detailed site description including vertical profiles of contamination in soil air (MIP or similar) and groundwater (micropumps) are a must for any in-situ injection.

Methodology

30 × 100 mm micropumps are permanently installed in the subsurface. All horizons are completely sealed from each other which provides representative water samples from every horizon. Water is pumped out from the subsurface by easily portable 3-head peristaltic pump which is driven by 12V external or car battery. 3-head peristaltic pump with fully charged 7.2 amps 12V external gel battery can work 4 full hours.



- Simultaneous sampling of up to 5 micropumps
 - Time saver
- Only 40 mm in diameter
 - Economic drilling
- Horizons properly sealed
 - Vertical stratification
 - Detailed water quality information
- Cheaper than normal casing
 - Cost-effective
- Unlimited number of horizons

References

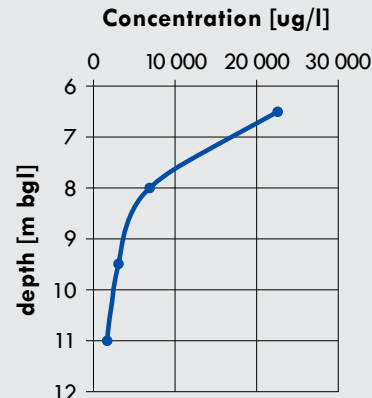
Micropumps have been successfully used on sites in the Czech Republic, France and China.



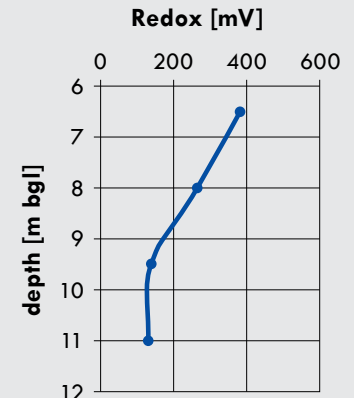
Applications and results

Micropumps have their place anywhere you might use MIP or monitoring wells for in-situ injections.

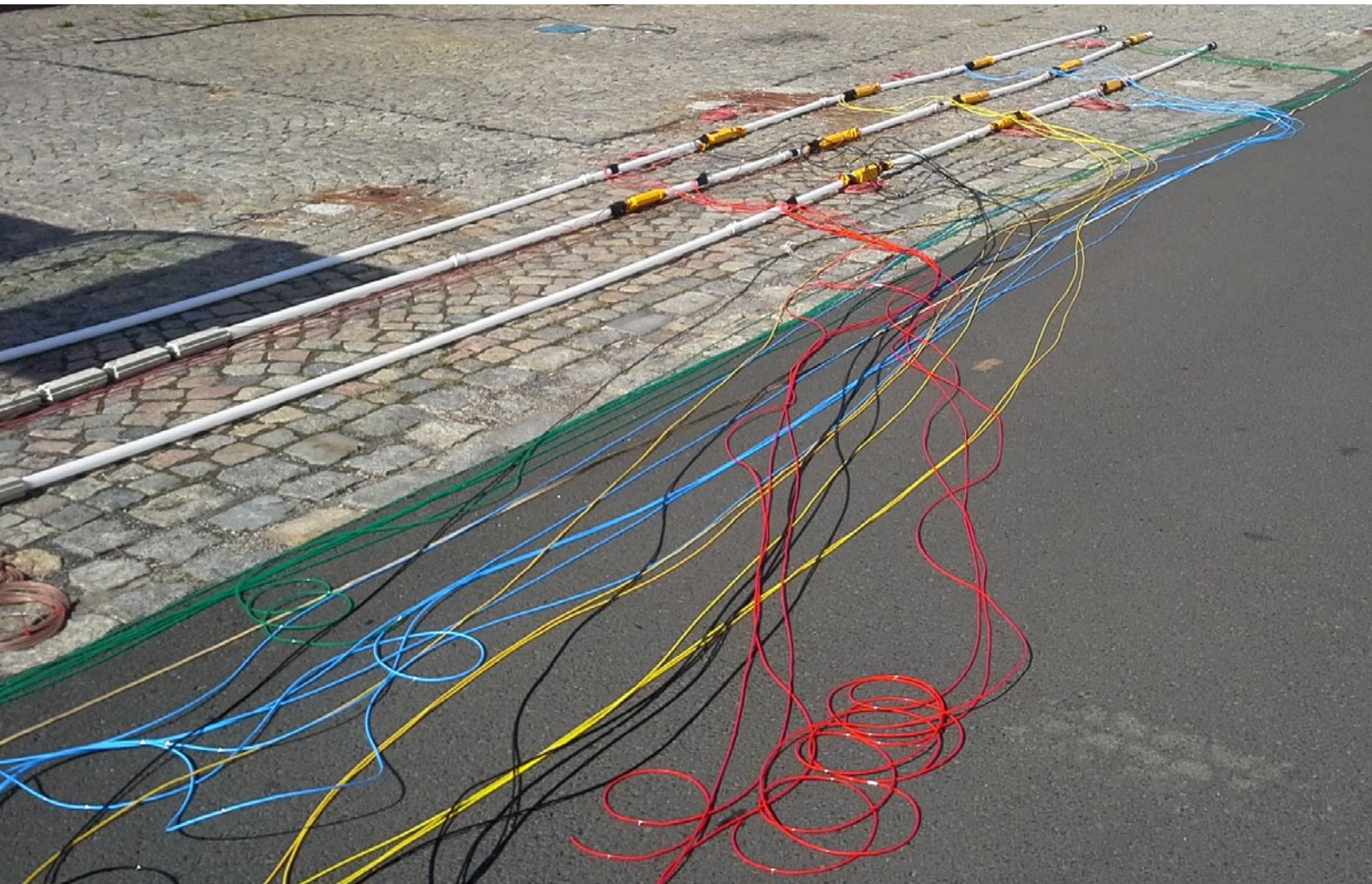
Compared to MIP, micropumps are permanent so they can continuously serve as conventional monitoring wells without the need to drill new probes for distribution of contaminant in the vertical profile.



Perchloroethylene



Redox potential



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