

Purging wells for Groundwater Sampling

Wells that are not in use must be purged before sampling in order to renew the water. In most countries, during purging there is a requirement to measure EC, pH, O₂ and in some countries also Turbidity and Redox (ORP).

The traditional method of purging is to remove 3 times the wet well volume. To limit purge times, high flow rates are mostly used. In consequence of this high volume purging the water becomes turbid because of suspended soil and emulsions such as pesticides, PAH, mineral oils, PCB's etc.

Soil particles interfere heavily when analysing insoluble organics (dioxins, pesticides, PAH) and the soil particles may contain high levels of trace metals. To counteract this it is a requirement to filter the water through a 0.45 micron filter but **!!BE CAREFUL!!** because the emulsions will also be filtered out completely.

One solution is to make sure that the water is not turbid (turbidity value < 10NTU which equals the normal turbidity of water). This can be achieved with a low flow purging procedure where the sampling rate is kept below 0.5 litres/minute which gives a limited water drop of less than 0.5 metres.

As ever this technique also has limitations. Devices such as the peristaltic pumps cannot work at heads of water deeper than 9 metres and therefore down well pumps for example the Geosub 2 need to be used. Water can be easily contaminated so it is even more imperative that all materials are of an inert quality and CLEAN.