Case Study: Geotech Low Flow kit used for 2m Interval Analysis of Landfill Liquid Phase

Quick and easy access in deep wells

Geotech low flow groundwater analysis equipment has enabled quick and easy access to samples at 2m intervals down a 28m screen in deep boreholes. Elizabeth Guilford of Norfolk County Council hired the low flow kit from Geotech and used it on a Norfolk CC landfill where leachate contamination of groundwater was suspected. Samples taken at 2m intervals close to elevation of the suspected contamination and at 5m intervals at greater depth in the borehole determined the distribution of contaminants and identified definite zoning. One set of readings showed that general samples from one borehole matched the average of the peak and baseline readings.

Groundwater contamination resulting from historic landfill operations was observed in long screen boreholes installed close to the landfill boundary. It was suspected that this contamination, indicated by elevated chloride concentrations was heavily zoned. Low flow sampling allowed us to identify this vertical zoning and quantify the maximum chloride concentrations that were observed.

After setting-up at a borehole, operators lowered the low-flow bladder pump to the required depth and ran the pump using the multi-parameter Flow Cell until Electrical Conductivity had stabilised. They then took samples.

Then they lowered the bladder pump another 2 or 5 metres and took the next samples after the parameters had stabilised.

Geotech Low-flow groundwater analysis kit

Elizabeth Guilford said, “Once we got the kit going it gave us the samples much more easily and quickly than we were expecting or than with any other method. In fact without low flow we would probably have had to use more methods such as geophysics or more complex methods such as packer testing. We had heard about the low flow kit and decided to try it for an unusual use and it did a great job.”

Elizabeth Guilford is a Hydrogeologist in the Closed Landfill Team, Norfolk County Council