

Membrane Interface Probe (MIP)

Gregg Drilling operates a Membrane Interface Probe (MIP) in conjunction with the Cone Penetration Test (CPT) to provide detailed stratigraphic logging with contaminant screening. The MIP is a module that can fit behind the standard cone and is pushed into the ground where it acts as an interface between the contaminants in the subsurface and gas phase detectors at the surface. The probe contains a semi-permeable membrane that is placed in a heated block. When the block is heated to 100-120° Celcius, diffusion of contaminants across the membrane is accelerated.

The probe operates by running a carrier gas through tubing inside the push rods to the probe within the subsurface, see figure *MIP*. This clean gas passes behind the membrane and causes diffusion across the membrane from the high concentration of contaminant in the soil to the clean carrier gas. The gas then transports any contaminants to the gas phase detectors at the surface for identification. The travel time from the membrane interface to the detectors is approximately 30-45 seconds depending on the flow rate and depth of probe.

The commonly used detectors include a photoionization detector (PID), electron capture detector (ECD), and the flame ionization detector (FID). Each detector is designated to a group or type of contaminant. The ECD detects chlorinated contaminants such as TCE and PCE; the PID detects aromatic hydrocarbons such as BTEX compounds; the FID is best used for straight chained hydrocarbons such as methane and butane. The MIP software can process up to four detector signals at one time and provides plots from them versus depth.

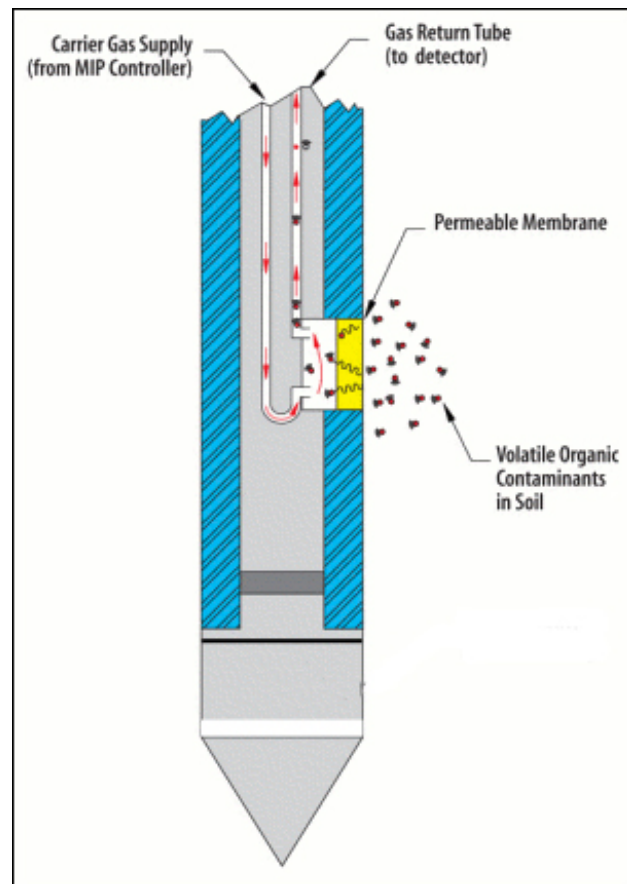


Figure MIP

