An Innovative Passive Detection Method for Site Screening of VOCs and SVOCs in Soil, Ground Water, and Indoor Air

Andre Brown, P.E.
W. L. Gore & Associates

Preliminary site screening methods are an established means of lowering the overall cost and time required for site investigation and remediation. Conventional soil-gas detection methods work best for simple volatile compounds in dry, permeable soils or shallow water table elevations. This service uses a patented, passive sorbent collection device constructed from GORE-TEX® ePTFE. GORE®Survey Screening Modules contain replicate sensors (duplicate capability), each filled with specially engineered adsorbent materials. These shallow vadoze zone/saturated zone installed sensors have been demonstrated effective in detecting both volatile and semivolatile compounds (VOCs & SVOCs), even in difficult site applications such as saturated clay overburden, deep groundwater, glacial till, fractured bedrock, vertical delineation of dissolved contaminants, PAHs (low vapor pressure compounds). The results are typically used for site assessment, monitoring active remedial systems, evaluating site risk, natural attenuation monitoring, groundwater trend monitoring, remedial design, insurance monitoring, UST compliance, indoor air risk assessment.

When placed in the screened, saturated interval of a monitoring well or piezometer for a 2-day residence, the membrane collector housing allows for water/air partitioning (Henry's Law) of dissolved phase organic compounds (VOC/SVOCs) while preventing the transfer of liquid water and eliminating the impact of suspended solids on the adsorbent. The emphasis placed on reducing time, waste generation, and costs (>50%) associated with groundwater sampling programs has resulted in the application of this technology to reduce the frequency of groundwater purging and sampling and as a more sensitive indicator for sentinel /sentry wells.

Case studies demonstrating the cost-effective detection and areal-extent mapping of chlorinated solvents, hydrocarbon fuels, explosives, CW breakdown products, PAHs, pesticides, PCBs, and more will be discussed during the presentation. Experience at DOD sites, bulk storage terminals and pipelines, manufactured gas plants, and chemical facilities, drycleaners, brownfield sites, and indoor air assessment will be presented. Comparison of results will be made to both conventional soil and ground water quality data as well as active soil-gas survey data. EPA(SITE) ETV evaluation results will be presented.

Biography: Andre Brown, P.E. is currently the Director of Western Operations, Survey Products Group for W.L. Gore & Associates, Inc. Andre holds a B.S. in Mechanical Engineering from the University of South Carolina, a M.S. in Ocean Engineering from the University of Hawaii, and a M.B.A. in Operations Management from California State University. His experience includes 25 years in petroleum exploration and environmental project management in the Western U.S., Mexico, Canada and the Pacific Rim. He manages this business from the San Francisco offices of W.L Gore and Associates.