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**HydroPhysical™ Logging: A new wellbore  
technology for hydrogeologic and contaminant  
characterization of aquifers**

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WILLIAM H. PEDLER<sup>1</sup>, CHARLES R. HEAD<sup>2</sup>,  
P.E., AND LACEY L. WILLIAMS<sup>1</sup>

1. RAS, Inc. Integrated Subsurface Evaluation, COLOG Inc.,  
Golden, Colorado, USA. ¶ 2. GZA Geoenvironmental Inc.,  
Manchester, New Hampshire, USA. <BPedler@rasinc.org>

In the continuing search for improved groundwater characterization technologies, a new wellbore fluid logging method has recently been developed to provide accurate and cost effective hydrogeologic and contaminant characterization of bedrock aquifers. This new technique, termed HydroPhysical™ logging, provides critical information for contaminated site characterization and water supply studies and, in addition, offers advantages compared to existing industry standards for aquifer characterization. HydroPhysical™ logging is based on measuring induced electrical conductivity changes in the fluid column of a wellbore by employing advanced downhole water quality instrumentation specifically developed for the dynamic borehole environment. HydroPhysical™ logging contemporaneously identifies the locations of water bearing intervals, the interval-specific inflow rate during pumping, and in-situ hydrochemistry of the formation waters associated with each producing interval. In addition, but employing a discrete point downhole fluid sampler during HydroPhysical™ logging, this technique provides evaluation of contaminant concentrations and migration of contaminants vertically within the borehole.

Recently, HydroPhysical™ logging was applied in a deep wellbore at an industrial site in New Hampshire contaminated with dense nonaqueous phase liquids (DNAPLs). The results of the HydroPhysical™ logging, conducted as part of a hydrogeologic site investigation and feasibility study, facilitated investigation of the site by providing information which indicated that the contamination had not penetrated into deeper bedrock fractures at concentrations of concern. This information was used to focus the pending Remedial Action Plan and to provide a more cost-effective remedial design.