

## **Multipurpose Packer System**

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### **Abstract**

The Multipurpose Packer System (MPS) is a discrete-interval isolation system for the sampling and hydraulic assessment of wells completed in heterogeneous formations. The MPS consists of inflatable packers connected by threaded aluminum pipe, to isolate discrete intervals in the well. The packer to pipe couplings have sampling ports with miniature fittings. Pressure transducers and small diameter tubing are connected to the fittings and run through the aluminum pipe to a control board located at the wellhead. Data on hydraulic head, water sampling, and hydraulic testing can be collected for each isolated interval. An MPS prototype was successfully designed, fabricated, and installed in a 6" diameter, 200' deep well completed in a fractured bedrock formation contaminated with chlorinated solvents. The MPS isolated the intervals and was used successfully for hydraulic testing and water sampling. The MPS helps to minimize water quality biases. Additional research is being conducted to optimize the MPS design and its range of applications.

### **Topic:**

Water sampling classical and innovative

## **Biographical sketches**

**Gonzalo Pulido**, PhD, is a civil engineer with over 18 years of academic and consulting experience. He has been teaching several college courses related with hydraulic resources, in his home country (Colombia) over 6 years. As a groundwater consultant engineer he has been responsible for well drilling oversight, design, and installation, including hydraulic testing and pumps selection. He has a wide experience in mathematical modeling, including object-oriented programming, computer graphics, and groundwater software development. During his doctoral research he was responsible for the hydraulic characterization of a fractured bedrock aquifer. Currently, he is retained by HydroQual, Inc. and he is participating in several Superfund Sites involving fractured bedrock formations. *Email: [gpulido@hydroqual.com](mailto:gpulido@hydroqual.com). Phone: (201)529.5151 ext. 7148 Fax: (201)529.5728.*

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**Nancy E. Kinner**, PhD, is a Professor at the University of New Hampshire. Her main areas of research interest are bioremediation of contaminated subsurface environments and more generally, environmental microbiology. She is a member of the Environmental Research Group (ERG) at UNH and has conducted research on wastewater biofilm microbiology, the role of protists in subsurface contaminant degradation, and petroleum and chlorinated solvent bioremediation. *Email: [nancy.kinner@unh.edu](mailto:nancy.kinner@unh.edu) .Phone: (603)862.1422. Fax:(603).862.3967.*