

GROUNDWATER QUALITY : SAMPLING & ANALYSIS

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Abstract

Consideration of the design, implementation and quality assurance of groundwater sampling and analysis programs is essential to adequately characterising the chemical and microbiological composition of such waters. All too often however such programs are initiated without adequate consideration and definition of key variables resulting in the generation of analytical data that is, potentially, neither reliable, representative nor cost-effective. Since groundwater quality is influenced by wide regional variations in geology and land usage it is perhaps not surprising that few definitive protocols exist for the sampling and analysis of such waters. A central tenet of environmental programs should be that at every step in the process procedures should be identified to reduce the potential for error. Data quality objectives should be formally specified and techniques applied which ensure that data is fit for purpose. This paper does not purport to address all of the elements necessary to ensure that the most reliable data is obtained in every situation but aims to provide the reader with an insight into the range of variables, both practical and analytical, which should be considered if a satisfactory groundwater monitoring program, and the consequential environmental decisions and outcomes from it, are to be realised. The paper will concentrate on aspects of sampling, sample handling and analysis.