

**Demonstration of Geostatistical Methods for  
Long-Term Groundwater Monitoring Optimization**

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The U.S. Environmental Protection Agency Technology Innovation Office is sponsoring a project to showcase the use of geostatistics as a tool to evaluate and optimize long-term groundwater monitoring activities. During this project geostatistics and other techniques will be used to evaluate spatial and temporal frequency of monitoring data with respect to data quality objectives. The objectives of this demonstration are to: (1) increase the awareness of geostatistical methods, and their specific application to long term monitoring optimization (LTMO); (2) determine the usefulness of geostatistical methods for LTMO problems; (3) determine the applicability of geostatistical methods for LTMO problems; and (4) promote the use of these techniques for LTMO problems. One of the benefits of geostatistics is they can provide both regulators and responsible parties a more quantitative analysis of when and where to collect groundwater samples. To this end, four sites with existing long-term groundwater monitoring networks will be included in the study. Assistance will be provided to each site to determine if suggested modifications to the monitoring networks are feasible and acceptable from a regulatory standpoint. Preliminary results from up to three of the sites will be discussed during the presentation. In addition to the geostatistical evaluation, a new software product for long term monitoring design and evaluation, MAROS - developed for the US Air Force Center for Environmental Excellence (AFCEE), will be used to perform parallel evaluations at the same four sites. Preliminary results from the MAROS evaluation may also be discussed.