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Workshop:

Laboratory Sampling of Geological and Environmental Materials

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The old adage of "junk in, junk out" applies to laboratories as well as computers. Without proper sampling, sub-sampling and sample preparation, the best analysis techniques and analysts will be unable to generate reliable results. This presentation will describe laboratory sampling techniques that will ensure laboratory personnel that the samples analyzed will be as representative as possible of the bulk material submitted to the laboratory for analysis.

The ISO/IEC Standard 17025:2005 makes it the responsibility of the laboratory to estimate the uncertainty introduced by any sampling/sub-sampling and subsequent analysis performed as part of the laboratory's responsibility. As a consequence of performing this estimate, laboratory managers can prove to laboratory clients the precision of their work, including the sampling/sub-sampling stages. If the overall laboratory uncertainty (that is, standard deviation) is acceptable, this can eliminate the laboratory as a cause of precision problems when upper management starts looking for the source of problems.

This presentation will describe how to ensure the laboratory sampling/sub-sampling procedure gives as representative an analytical portion for analysis as possible. It also discusses how to estimate the overall uncertainty of the entire process in order to demonstrate the reliability of the laboratory results.

An optional demonstration of sampling theory could be made available to demonstrate to interested participants the theory discussed in the presentation. This could be done at the end of the symposium for those wishing to attend.