EML

Environmental Measurements Laboratory

"A Federal Resource"

DOE QAP Services

Quality Assessment Program Services

EML administers for the DOE Office of Environmental Management (EM) the Quality Assessment Program (QAP) for environmental radiological analysis for site cleanup and regulatory compliance. This program is also appropriate for evaluation of radiological measurements for site survey and monitoring programs of DOE's Office of Environment, Safety and Health (EH). QAP meets the requirements of DOE Order 414.1A for DOE facilities to substantiate by an external assessment the quality of radioanalytical measurements by their contracted laboratories.

Radiological Performance Evaluation Program

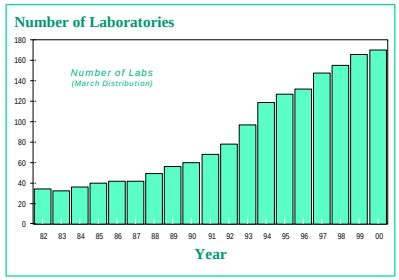
The EML QAP is an external, independent performance evaluation program designed to test the quality of environmental radiological measurements reported by DOE contractor and subcontractor laboratories. The program provides DOE with complex-wide comparability of environmental radiological analyses. DOE laboratories and commercial laboratories performing environmental radioanalytical measurements for EM are required to participate in QAP (Grimm, 1993 and Schmitt, 1997).*

QAP provides four matrices. The distribution typically consists of a simulated air filter, 200 g of soil, 100 g of vegetation and 500 mL of spiked water. These natural matrix and synthetic samples, prepared and analyzed at EML for as many as 15 radionuclides, are distributed semi-annually to DOE contractors and other participating laboratories. QAP is unique in supplying multi-matrix, multi-nuclide samples. Sample distributions are in March and September without any financial obligations for the participating laboratories.

Participants can use any analytical method and are required to analyze only those matrices/nuclides for which they contract to DOE. Participants' results must be reported to EML within 90 days. A summary of the reported results is available to the participants 48 hours after the reporting deadline via the internet. This rapid access to the data is another unique feature of QAP. The reported results are then compared with historically derived control limits. An evaluation report is available on the EML Web Site within 30 days. The participating laboratories and their reported results are identified. QAP reports are posted on the EML Web site in July and January.

Historical Database and Trend Reports

The QAP historical database is one of the most comprehensive environmental radiological data sets in existence. It contains data on some 48 radionuclide/matrix pairs from 1982 to the present. For any given radionuclide/matrix there is a varying number of intercomparisons, levels of activity, and number of reporting participants. On request, EML will supply participating laboratories, QA personnel, or operational/ project management with trend reports derived from the historical database for any given laboratory.



* Grimm, P. Memorandum, "Implementation of the Department of Energy's Office of Environmental Restoration and Waste Management Quality Assessment Program" (May 5, 1993)

Schmitt, E. Memorandum, "Update of The Quality Assessment Program and The Mixed Analyte Performance Evaluation Program" (July 22, 1997)

U.S. Department of Energy, 201 Varick Street, 5th Floor, New York, NY 10014-4811, USA, http://www.eml.doe.gov (1/01)

Gamma Spectrometry Data Evaluation Program

The Gamma Spectrometry Data Evaluation Program provides DOE with an assessment of the capabilities of the participating laboratories to perform gamma-ray spectra analysis required for EM projects and site characterizations. Previous studies have demonstrated that gamma-ray spectrometry software supplied by commercial manufacturers may provide spurious results when tested with complex spectra.

When participants register for the program, they indicate which software they are using and then receive the synthetic spectra on a disk, tape or electronically. The spectra are designed to test the ability of the spectroscopist to accurately identify and quantify nuclides in both routine and more complicated analyses. The spectra will test both the gamma-ray spectrometry software and the ability of the user to properly utilize the software. Participants' results must be reported to EML within 90 days. The expected results will be available on the EML Web Site immediately after the reporting deadline. An evaluation report is issued within 90 days.

Technical Assistance

EML chemists provide technical assistance, on request, for any participating laboratory that receives unsatisfactory evaluations. This assistance may include, as appropriate, technical data and document reviews, site visits, or providing off-cycle QAP samples for re-evaluation. Data and document reviews are the first step in determining whether the procedures and analytical methods are technically accurate and appropriate for the sample, and if the analytical system is biased. If the document review indicates a need for further investigation, a visit to the laboratory will be recommended.

The approach taken in the Technical Assistance Program is to identify analytical areas which are contributing to poor performance. The EML QAP is established as a performance-based evaluation program, in contrast to performance programs with prescribed analytical methods. DOE's focus is on the quality of the analytical results independent of the analytical method. Performance based programs benefit the analytical community in that they promote better and more efficient methods and state-of-the-art analytical technology.

QC Materials

EML provides QC materials from its inventory of QAP samples and archive of environmental samples for use in internal QA programs. EML will also prepare specialized samples on request.

For Further Information

For more information or to register as a participant in the:

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