

should include a clear description of what measures are required and what the acceptance criteria are for each activity.

Laboratory QA is typically related to staff training and certification. It includes operations that ensure that the laboratory staff is initially trained to carry out specific analyses and that they receive additional training whenever changes or updates to methods occur. Laboratory QA can also encompass operations that are above and beyond the manufacturers recommendations or the analytical method. This may include the analysis of performance evaluation standards, the analysis of split samples or the analysis of additional blank samples.

Detailed QA procedures can be developed for each instrument or method employed in the analysis procedure. As an example, the majority of analyses employ some form of chromatography to separate the analyte(s) from other materials in the sample. After separation, a detector provides a response to the target analyte(s) and it is hoped, little or no response to the other compounds in the sample being analyzed. For chromatography, critical issues can be identified and those activities can be further explored to enhance the QC measures. Retention time monitoring, detector response, continuing calibration, evaluation of matrix interferences and computer data acquisition are such critical issues and are indicative of the procedures employed by experienced analysts in the generation of high quality analysis data.

Conclusion: Quality assurance/quality control must be an integral part of every laboratory that generates data relevant to the verification process. Every analytical method requires a minimum level of QA/QC and the laboratory must institute additional QA/QC elements in order to provide the highest levels of credibility. This paper introduces the analytical community to the variety of elements which are available. Each laboratory must meet internationally agreed minimum elements with some laboratories employing more than the minimum level. Furthermore, each individual program may require that even more measures will be adopted to maintain the level of credibility, accuracy and reliability which will be required to insure that verification of the chemical weapons ban is uniformly enforced in a credible manner.

Note: This paper is adapted from an article: "Basic ingredients for assuring quality in the analytical laboratory: Some precautions in the analysis of organic materials; by Deroos, F.L., Bicking, M.K.L. and Nosek, Jr. W.J., American Environmental Laboratory, V2, No. 4, October 1990.