

October 4, 2001

MEMORANDUM TO: Martin Virgilio, Director  
Office of Nuclear Material Safety  
and Safeguards

FROM: Michael F. Weber, Director  
Division of Fuel Cycle Safety */RA/*  
and Safeguards, NMSS

SUBJECT: PROVISION OF TECHNICAL ASSISTANCE IN SUPPORT OF  
IAEA SAFEGUARDS

**DATE AND LOCATION:** August 27 through September 7, 2001; Vienna, Austria

**PARTICIPANTS:** Martha Williams provided technical assistance to the International Atomic Energy Agency's Department of Safeguards.

**BACKGROUND:** The Planning and Statistical Analysis Section of the IAEA Division of Safeguards Concepts and Planning requested Ms. Williams' assistance in preparing two technical guidance documents.

**EXECUTIVE SUMMARY:** Ms. Williams provided technical assistance in the preparation of two documents that will be used by the IAEA Department of Safeguards: (1) the applied statistics sections of the Safeguards Manual and (2) a Safeguards Technical Report (STR) on material balance evaluation.

The Safeguards Manual is a four-volume document that provides guidance and instruction to the IAEA's Operations Divisions related to the conduct of international safeguards inspections. The areas in which Ms. Williams provided technical assistance included inventory stratification methodology, statistical sampling techniques, calculation of the size of samples required to meet specified detection probabilities, analysis of the measurement data resulting from inspector verification, and estimating measurement uncertainty.

The STR on material balance evaluation provides guidance to the statisticians who evaluate inspection results and State reports for enrichment, fuel fabrication and reprocessing facilities under international safeguards. Ms. Williams led the working group tasked with writing the STR. During this two-week period, the working group completed the STR and submitted it for publication by the IAEA.

Contact: Martha Williams, NMSS/FCSS  
415-7878

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