



UNION CARBIDE CORPORATION

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CORPORATE RESEARCH LABORATORY

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September 28, 1978
U.S. NUCLEAR REG. COMMISSION
MAIL SECTION

U. S. Nuclear Regulatory Commission
Material Control & Licensing Branch
Division of Safeguards
Washington, D. C. 20555

Attn: Mr. James G. Partlow, Chief

Dear Sir:

We have enclosed revised pages 15 and 16 of the Union Carbide Corporation Measurement Quality Assurance Program which was last submitted to you for approval on June 23, 1978.

This revision has been made in accordance with your last set of comments by telephone today.

Very truly yours,

James J. McGovern
Manager
Radiochemical Production

JJMcG:js
Enclosure (10) - pp. 15 & 16 of Chapter 4 UCC FNMC Plan)

FEE EXEMPT

10931

4.2.3

Calibration Systems (cont'd)f) Calibration of Volume Measurements

Whenever possible, initial calibration of this system will be performed by direct comparison to the national system of measurements through the use of available standardized and certified vessels. In cases where this is impractical, initial calibration will be performed by comparison of the mass of the delivered or contained volume of solution (whichever is applicable) with the mass of standardized weights traceable to the national system, with appropriate correction for temperature and specific gravity. This calibration shall be performed on all vessels which are used in the process. Recalibration of vessels shall be performed at least once per year, whenever new vessels are introduced into the system, or whenever there is sufficient discrepancy in the results of analysis to cause the calibration to be suspect.

g) Calibration of Non-Certified Quality Control Pipettes

Because these pipettes (Eppendorff-10 - 1000 μ) are not certified, they will be calibrated on a 6 month interval delivering the rated volume of water into a weighing boat and weighing the amount of water delivered. A minimum of two measurements will be made for each pipette. If the values obtained show the pipette to be biased high or low by more than 3%, that pipette will not be used.

h) Balances shall be calibrated annually by weighing Class S weights. The Class S weights will be checked annually by an independent set of weights.

4.2.4

Statistics

4.2.4.1

Bias

Process materials are measured to determine SNM. The amount is calculated directly from the measurement data and the known value of standards which are measured at the same time; hence, no bias correction is required.

4.2.4.2 Systematic Error

The uncertainty associated with the assigned value of each standard will be the systematic error for the respective measurement system and material types.

Each systematic error variance used in the LEMUF calculation will be the square of the uncertainty associated with a parameter rather than the square of the parameter.

4.3 SAMPLING ACCURACY

4.3.1 Sampling for U-235 Measurement in Solutions

Sampling for the measurement of U-235 in solutions by the delayed neutron or radiometric method of analysis will be accomplished as follows:

- a) The solution shall be stirred thoroughly just prior to the bulk tap. Solids which may be present in feed solutions will be filtered. After the assay results confirm the shipper's assay, this material will be added to SNM waste and measured for SNM content along with other SNM waste present in the waste barrel.
- b) Three bulk taps will be removed and placed into clean glass bottles which will be covered for transport to the analytical lab. The samples will be drawn with a long tube which will be submerged to the entire depth of the bulk solution so that all layers in the bulk solution will be sampled.