



Standard Guide for the Selection, Training and Qualification of Nondestructive Assay (NDA) Personnel¹

This standard is issued under the fixed designation C1490; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide contains good practices for the selection, training, qualification, and professional development of personnel performing analysis, calibration, physical measurements, or data review using nondestructive assay equipment, methods, results, or techniques. The guide also covers NDA personnel involved with NDA equipment setup, selection, diagnosis, troubleshooting, or repair. General guidelines for the selection, training, and qualification of NDA auditors are included as well, but at a lower level of detail due to the variability of the personnel's responsibilities performing this functions. Selection, training, and qualification programs based on this guide are intended to provide assurance that NDA personnel are suitably qualified and experienced personnel (SQEP) to perform their jobs competently. This guide presents a series of options but does not recommend a specific course of action.

This standard guide does not address the qualifications per se of an NDA Manager. However, it is expected that the NDA Manager is familiar with NDA techniques, and can make informed decisions on the acceptability of the assay results. If an NDA Manager does not have adequate technical qualifications in the NDA field, they are recommended to undergo training to gain familiarity in this area.

An NDA Manager with no relevant NDA experience should have access to a Senior NDA Professional who will give guidance for all technical decisions such as applicability and limitation of methods, reasonableness of results, needed upgrades and advantageous development investments.

2. Referenced Documents

2.1 ASTM Standards:²

¹ This guide is under the jurisdiction of ASTM Committee C26 on Nuclear Fuel Cycle and is the direct responsibility of Subcommittee C26.10 on Non Destructive Assay.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- C1030 Test Method for Determination of Plutonium Isotopic Composition by Gamma-Ray Spectrometry
- C1133 Test Method for Nondestructive Assay of Special Nuclear Material in Low-Density Scrap and Waste by Segmented Passive Gamma-Ray Scanning
- C1207 Test Method for Nondestructive Assay of Plutonium in Scrap and Waste by Passive Neutron Coincidence Counting
- C1221 Test Method for Nondestructive Analysis of Special Nuclear Materials in Homogeneous Solutions by Gamma-Ray Spectrometry
- C1268 Test Method for Quantitative Determination of Americium 241 in Plutonium by Gamma-Ray Spectrometry
- C1316 Test Method for Nondestructive Assay of Nuclear Material in Scrap and Waste by Passive-Active Neutron Counting Using ²⁵²Cf Shuffler
- C1455 Test Method for Nondestructive Assay of Special Nuclear Material Holdup Using Gamma-Ray Spectroscopic Methods
- C1458 Test Method for Nondestructive Assay of Plutonium, Tritium and ²⁴¹Am by Calorimetric Assay
- C1493 Test Method for Non-Destructive Assay of Nuclear Material in Waste by Passive and Active Neutron Counting Using a Differential Die-Away System
- C1500 Test Method for Nondestructive Assay of Plutonium by Passive Neutron Multiplicity Counting
- C1514 Test Method for Measurement of ²³⁵U Fraction Using Enrichment Meter Principle
- C1592 Guide for Nondestructive Assay Measurements
- C1673 Terminology of C26.10 Nondestructive Assay Methods
- C1718 Test Method for Nondestructive Assay of Radioactive Material by Tomographic Gamma Scanning
- C1726 Guide for Use of Modeling for Passive Gamma Measurements

3. Terminology

- 3.1 Refer to Terminology C1673 for definitions used in this test method.