



MC&A Program Fundamentals

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NRC Regulatory Framework

- Regulations and guidance
- Licensing and certification
- Inspection and performance assessment
- Enforcement
- Investigation of allegations



MC&A Fundamentals

- Complete records of all SNM transactions, including receipt, acquisition, inventory (quantity and location), shipment, and disposal
- Trained and qualified management and staff
- Written procedures covering all aspects of the MC&A program
- Measurement systems for all SNM in the records
- Measurement quality control and assurance programs

Material Balance Evaluation

- Physical inventory of all SNM
 - Distinct cut-off between inventory periods
 - Full shutdown and cleanout preferable
 - Measurement systems for all inventoried SNM
- Comparison of physical inventory and book inventory
 - Evaluation of difference between book inventory and physical inventory (material unaccounted for; inventory difference; material balance)
 - Estimated measurement uncertainty
 - Investigation of all indications of missing SNM

Between Inventories

- Monitoring and controlling SNM between physical inventories
 - Specified probability of detection
 - Specified detectable quantity
 - Specified time interval
- Periodic tests of random samples of items in storage
- Statistical evaluation of process input-output differences using comparison with average differences (assumes a stable process)