

## SECTION V

### NMSS HEADQUARTERS FUEL CYCLE SAFEGUARDS INSPECTOR MATERIAL CONTROL AND ACCOUNTING (MC & A) NRC INSPECTOR QUALIFICATION JOURNAL

#### Applicability

This NRC Inspector Qualification Journal implements NRC Manual Chapter 1246, Appendix A, Section V, by establishing the minimum training requirements for personnel assigned to perform fuel cycle safety inspection (MC & A) activities at fuel facilities.

The NRC Inspector Qualification Journal serves as a guideline for the development of a Qualification Journal, and establishes the minimum training requirements consistent with NRC Manual Chapter 1246. The Qualification Journal must provide traceable documentation to show that minimum requirements are met for each inspector.

The NRC Inspector Qualification Journal consists of a series of qualification guides and signature cards. Each signature card is used to document task completion, as indicated by the appropriate signature blocks. The corresponding qualification guide establishes the minimum knowledge levels or areas of study that must be completed for each signature card.

Most of the qualification guides are divided into sections. The review sections of the qualification guides identify references with general application to the inspector's qualification. The inspector is expected to have a general familiarity with these references. Other sections of the qualification guides identify specific references that have direct application to an inspection discipline. The inspector is expected to demonstrate detailed knowledge of the inspection discipline specific references.

In order to support the review of upper tier documents, programs, and policies, the inspector's immediate supervisor will assign one or more specific fuel facilities as reference facilities. The selection of a reference facility is intended to provide the inspector's management with the ability to tailor the qualification process to the experience and training level of the inspector, and to meet the inspection needs of the NRC. The use of specific real world material will reinforce the qualification process.

INSPECTOR QUALIFICATION JOURNAL  
 NMSS Headquarters Fuel Cycle Safeguards Inspector - MC & A

Name	Title	Branch	Section
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To complete your qualification as a NMSS Headquarters Fuel Cycle Safeguards Inspector - MC & A you are to complete the following signature cards. All signoffs shall include the signature of the responsible reviewer and the date. Maintain these cards in a notebook along with any background or written material required by the program. This notebook will comprise your NRC Inspector Qualification Journal.

		<u>Signature When Complete</u>	<u>Date</u>
1.	NRC Orientation	_____ First Line Supervisor	_____
2.	Code of Federal Regulations	_____ First Line Supervisor	_____
3.	Office Instructions /Regional Procedures	_____ First Line Supervisor	_____
4.	Regulatory Guidance	_____ First Line Supervisor	_____
5.	NRC Inspection Manual Chapters (MC)	_____ First Line Supervisor	_____
6.	Industry Codes and Standards	_____ First Line Supervisor	_____
7.	Inspection Accompaniments	_____ First Line Supervisor	_____
8.	NRC Management Directives	_____ First Line Supervisor	_____
9.	Review of Significant Fuel Cycle Events	_____ First Line Supervisor	_____
10.	Fundamental Nuclear Material Control Plans	_____ First Line Supervisor	_____
11.	Formal Training	_____ First Line Supervisor	_____

Qualification Board  
Requirement Met

\_\_\_\_\_  
Second Level Supervisor  
or Board Chairman

\_\_\_\_\_

Recommended as a qualified inspector

\_\_\_\_\_  
Second Level Supervisor

\_\_\_\_\_

Certification Memo Issued

\_\_\_\_\_  
Second Level Supervisor

\_\_\_\_\_

Qualification Card 1  
NRC Orientation

		<u>Initials</u>	<u>Date</u>
A.	Site Orientation		
1.	New employee processing package completed	_____ Employee	_____
2.	Facility tour and introduction	_____ First Line Supervisor	_____
B.	NRC Organization		
1.	Review of NRC headquarters and regional organization	_____ Employee	_____
2.	Discussion of NRC organization	_____ First Line Supervisor	_____

Qualification Card 2  
Code of Federal Regulations (CFR)

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	<u>Initials</u>	<u>Date</u>
A. Familiarization with selected CFR parts completed	_____ Employee	_____
B. Discussion completed on CFR parts related to the fuel cycle safeguards (MC & A) inspection program	_____ First Line Supervisor	_____

Qualification Card 3  
Office Instructions

	<u>Initials</u>	<u>Date</u>
A. Familiarization with office policies and procedures	_____ Employee	_____
B. Discussion completed on office policies and procedures	_____ First Line Supervisor	_____

Qualification Card 4  
Regulatory Guidance

	<u>Initials</u>	<u>Date</u>
A. Review of regulatory guidance		
1. Regulatory Guides	_____ Employee	_____
2. Information Notices /Bulletins	_____ Employee	_____
3. NUREGs	_____ Employee	_____
4. Generic Letters	_____ Employee	_____
5. Federal Register Notices	_____ Employee	_____
6. NRC Branch Technical Positions	_____ Employee	_____
B. Discussion of regulatory guidance with application to the fuel cycle safeguards (MC & A) inspection program	_____ First Line Supervisor	_____

Qualification Card 5  
NRC Inspection Manual Chapters (MC)

	<u>Initials</u>	<u>Date</u>
A. Review of appropriate NRC MCs completed	_____ Employee	_____
B. Discussion of NRC MCs and their relation to the fuel cycle safeguards (MC & A) inspection program	_____ First Line Supervisor	_____



Qualification Card 6  
Industry Codes and Standards

Initials

Date

A. Review of selected codes  
and standards completed

\_\_\_\_\_  
Employee

B. Discussion of the application  
of codes and standards in the  
fuel cycle safeguards (MC & A)  
inspection program

\_\_\_\_\_  
First Line Supervisor

Qualification Card 7  
Inspection Accompaniments

	<u>Initials</u>	<u>Date</u>
<b>A. Inspections completed</b>		
1.    _____ Facility	_____ Employee	_____
2.    _____ Facility	_____ Employee	_____
3.    _____ Facility	_____ Employee	_____
4.    _____ Facility	_____ Employee	_____
 <b>B. Discussion of inspection and employee's role</b>		
1.    _____ Facility	_____ First Line Supervisor	_____
2.    _____ Facility	_____ First Line Supervisor	_____
3.    _____ Facility	_____ First Line Supervisor	_____
4.    _____ Facility	_____ First Line Supervisor	_____

Qualification Card 8  
NRC Management Directives

	<u>Initials</u>	<u>Date</u>
A. Review of selected portions of the NRC Management Directives completed	_____	_____
	Employee	
B. Discussion of the application of the NRC Management Directives to the fuel cycle safeguards (MC & A) inspection program	_____	_____
	First Line Supervisor	

Qualification Card 9  
Review of Significant Fuel Cycle Events

	<u>Initials</u>	<u>Date</u>
A. Review of selected significant historical fuel cycle events	_____ Employee	_____
B. Discussion of the importance of these events and lessons learned	_____ First Line Supervisor	_____

Qualification Card 10  
Fundamental Nuclear Material Control Plans

	Initials	Date
A. Review of selected portions of fundamental nuclear material control plans	_____ Employee	_____
B. Discussion of fundamental nuclear material control plans and their relationship to the fuel cycle safeguards (MC & A) inspection program	_____ First Line Supervisor	_____

Qualification Card 11  
Formal Training

		<u>Initials</u>	<u>Date</u>
A.	CORE TRAINING:		
1.	Fundamentals of Inspection Course (G-101)	_____	_____
		Training Coordinator	
2.	Root Cause/Incident Investigation Workshop (G-205)	_____	_____
		Training Coordinator	
3.	Inspecting for Performance Course (G-304)	_____	_____
		Training Coordinator	
4.	Effective Communication for NRC Inspectors	_____	_____
		Training Coordinator	
5.	OSHA Indoctrination Course (G-111)	_____	_____
		Training Coordinator	
6.	Site Access Training (H-100)	_____	_____
		Training Coordinator	-
7.	Fundamentals of Nondestructive Assay of Nuclear Material Course (S-602)	_____	_____
		Training Coordinator	
8.	Basic Statistics Course or equivalent	_____	_____
		Training Coordinator	
9.	Neutron Assay of Nuclear Material Course (S-603)	_____	_____
		Training Coordinator	
10.	Gamma-Ray Assay of Nuclear Material Course (S-604)	_____	_____
		Training Coordinator	
11.	Integrated Safety Analysis Course (F-103) or Hazards Analysis for DOE SARs and QRAs	_____	_____
		Training Coordinator	
12.	Fuel Cycle Processes Directed Self-Study Course (F-201S)	_____	_____
		Training Coordinator	

- 13. Uranium Enrichment Process Directed Self-Study Course (F-204S)
 

Training Coordinator	
  
- 14. General Health Physics Practices for Fuel Facilities Directed Self-Study Course (F-102S)
 

Training Coordinator	

**B. SPECIALIZED TRAINING**

Other training courses required for inspectors performing inspections in specific areas:

<u>Course Title</u>	<u>Course #</u>	<u>Initials</u>	<u>Initials</u>	<u>Date</u>
		Supervisor	Training Coordinator	
		Supervisor	Training Coordinator	
		Supervisor	Training Coordinator	
		Supervisor	Training Coordinator	

Qualification Guide 1  
NRC Orientation

A. Site Orientation

1. The qualifying individual should read and complete, as appropriate, the following forms for processing into the NRC:
  - a. Personnel information
  - b. Health insurance elections
  - c. Retirement plan elections
  - d. Savings elections (e.g. U.S. Savings Bonds, TSP, etc.)
  - e. Fitness for Duty requirements and physical examination
  - f. Any other forms which may be required by NRC Office of Human Resources
  - g. Forms for issuance of tagged, controlled NRC equipment
  - h. Payroll forms and time cards
  - i. Regulatory Information Tracking System (RITS)
2. The First Line Supervisor should orient the qualifying individual to the facility as follows:
  - a. Tour the facility and introduce the qualifying individual to the staff
  - b. Indicate to the qualifying individual the location of controlled documents, reference material, supplies, office equipment, etc.

B. NRC Organization

1. The qualifying individual should review and become familiar with:
  - a. Organizational charts of division, NMSS, regions and headquarters and overall NRC organization (NUREG 0325)
  - b. Role of Headquarters in policy and interpretation of regulations
  - c. Role of NRC General Counsel
  - d. Role of NRC Inspector General
  - e. Role of NRC Public Affairs
  - f. Role of NRC Office of Investigations
  - g. Role of NRC Office of Enforcement



- h. Physical location of NRC offices and regions
  - i. Role of NRC as a regulatory agency
    - (1) 10 CFR Part 1 (Organization)
    - (2) Atomic Energy Act of 1954, as amended
    - (3) Energy Reorganization Act of 1974, as amended
    - (4) NRC Enforcement Policy (NUREG 1600)
    - (5) Incident Response Plan (NUREGs 0728 and 0845)
    - (6) Energy Policy Act of 1992
2. The First Line Supervisor should discuss NRC organization and role with the qualifying individual to ensure the qualifying individual has a full understanding of NRC's organization and mission and the role of the inspector in that mission.

Qualification Guide 2  
Code of Federal Regulations (CFR)

- A. A selection of currently applicable CFR Parts should be made by the First Line Supervisor. The selection should include the references listed below and be documented. The qualifying individual should be expected to have a general knowledge of the topics addressed in the references. This review may be accomplished by self-study, study-quizzes, briefings, or discussions.
1. 10 CFR Part 1 Statement of organization and general information
  2. 10 CFR Part 2 Rules of practice for domestic licensing proceedings and issuance of orders
  3. 10 CFR Part 9 Public Records
  4. 10 CFR Part 19 Notices, instructions and reports to workers; inspections
  5. 10 CFR Part 20 Standards for protection against radiation (includes selected Questions and Answers, Q & As)
  6. 10 CFR Part 21 Reporting of defects and noncompliance
  7. 10 CFR Part 30 Rules of general applicability to domestic licensing of byproduct material
  8. 10 CFR Part 32 Specific domestic licenses to manufacture or transfer certain items containing byproduct material
  9. 10 CFR Part 40 Domestic licensing of source material
  10. 10 CFR Part 51 Environmental protection regulations for domestic licensing
  11. 10 CFR Part 61 Licensing requirements for land disposal of radioactive waste
  12. 10 CFR Part 70 Domestic licensing of special nuclear material
  13. 10 CFR Part 71 Packaging and transportation of radioactive material
  14. 10 CFR Part 73 Physical protection of plants and materials
  15. 10 CFR Part 74 Material control and accounting of special nuclear material
  16. 10 CFR Part 75 Safeguards on nuclear material
  17. 10 CFR Part 76 Certification of Gaseous Diffusion Plants
  18. 10 CFR Part 95 Security facility approval and safeguarding of national security information and restricted data
  19. 10 CFR Part 170 Fees for facilities, materials, import and export licenses and other regulatory services under the Atomic Energy Act of 1954, as amended

- 20      10 CFR Part 171      Annual fees for reactor operating licenses, and fuel cycle licenses and materials licenses, including holders of certificates of compliance, registrations, and quality assurance program approvals and government agencies licensed by NRC
  
- 21.      29 CFR Part 1910      Occupational Safety and Health Standards

B.      Following completion of the qualifying individual's self study of the listed 10 CFR Parts, a discussion will be held with the qualifying inspector by the First Line Supervisor to test the qualifying inspector's knowledge of these Parts. To the extent possible, recent application of various sections, new regulatory initiatives, and current industry issues should be emphasized.

Qualification Guide 3  
Office Instructions/Regional Procedures

A. Office/Division Policies and Procedures

1. Read the NMSS Policy and Procedures Manual
2. The qualifying individual should review the NMSS policies and practices on:
  - a. Travel, including Management Directive 14.1 Official Temporary Duty Travel
  - b. Telephone use
  - c. Policies on use of annual leave and sick leave and excused leave, including Bulletin 4135, Leave Administration
  - d. Work schedule, including NRC Appendix 4136, Hours of Work and Premium Pay
  - e. Use of government equipment, including computers (NUDOCS and ADAMS) and Management Directive 13.1, Property Management
  - f. Union activities, including Management Directive 10.102, Labor-Management Relations Program for Federal Employees
  - g. Communications outside NRC
  - h. Policies on outside employment and acceptance of gifts
  - i. Participation in political activities
  - j. Routing of mail and procedures for sending mail and materials (via U.S. Mail, Federal Express, etc.), including Management Directive 3.23, Mail Management
  - k. Ordering of documents (e.g NUREGs)
  - l. Emergency and evacuation procedures
  - m. Employee appraisal system and Individual Development Plan (IDP)
    - (1) Employee trial period (Management Directive 10.14 Employment and Staffing)
    - (2) Employee appraisals (Management Directive 10.67, Non-SES Performance Appraisal System)
  - n. Differing Professional Views or Opinions (Management Directive 10.159, General Personnel Management Provisions)

- B. The First Line Supervisor should discuss these policies and practices with the qualifying individual to ensure that the qualifying individual has a full and complete understanding.

Qualification Guide 4  
Regulatory Guidance

A. A selection of currently applicable regulatory guidance should be identified by the First Line Supervisor. It should be noted that not all of the referenced regulatory guides will be applicable to each inspector's area of responsibility. These references should be selected from those listed below and should be documented. The qualifying individual should be expected to have a general knowledge of the topics addressed in the references. The review may be accomplished by self-study, study-quizzes, briefings, or discussions. Note that many Regulatory Guides reference or endorse industry codes and standards listed in Qualification Guide 6. Study of corresponding and subtier codes and standards is recommended.

1. Regulatory Guides (use latest revision)

- 3.71 Nuclear Criticality Safety Standards for Fuels and Materials Facilities (Draft DG-3013 published 1/98) (Guide Withdraws RG 3.1, 3.4, 3.43, 3.45, 3.47, 3.57, 3.58, 3.68, 3.70, and 8.12)
- 5.7 Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas
- 5.10 Selection and Use of Pressure Sensitive Seals on Containers for Onsite Storage of Special Nuclear Material
- 5.11 Nondestructive Assay of Special Nuclear Material Contained in Scrap and Waste
- 5.12 General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials
- 5.13 Conduct of Nuclear Material Physical Inventories
- 5.15 Tamper-Indicating Seals for the Protection and Control of Special Nuclear Material
- 5.21 Nondestructive Uranium 235 Enrichment Assay by Gamma Spectrometry
- 5.26 Selection of Material Balance Areas and Item Control Areas
- 5.31 Specially Designed Vehicle with Armed Guards for Road Shipment of Special Nuclear Material
- 5.37 In Situ Assay of Enriched Uranium Residual Holdup
- 5.67 Material Control and Accounting For Uranium Enrichment Facilities Authorized to Produce Special Nuclear Material of Low Strategic Significance
- 8.1 Radiation Symbol
- 8.5 Criticality and Other Interior Evacuation Signals
- 8.7 Instructions For Recording and Reporting Occupational Radiation Exposure Data

8.10 Operating Philosophy for Maintaining Occupational Radiation Exposure As Low As Is Reasonably Achievable

8.13 Instruction Concerning Prenatal Radiation Exposure

2. Information Notices(IN) and Bulletins (BL)

IN 89-24 Nuclear Criticality Safety

IN 90-09 Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees

IN 91-84 Problems with Criticality Alarm Components/Systems

IN 92-11 Soil and Water Contamination at Fuel Cycle Facilities

IN 92-14 Uranium Oxide Fires at Fuel Cycle Facilities

IN 93-60, Supplement 1 Reporting Fuel Cycle and Materials Events to the NRC Operations Center

IN 94-73 Clarification of Criticality Reporting Criteria

IN 98-05 Criminal History Record Information

IN 98-35 Threat Assessments and Considerations of Heightened Physical Protection Measures

IN 99-16 Federal Bureau of Investigation's Nuclear Site Security Program

BL 91-01 Supplement 1 Reporting Loss of Criticality Safety Controls

Others as selected by the First Line Supervisor

3. NUREGs (latest revision, where applicable)

NUREG 1065 Acceptable Standard Format and Content for the Fundamental Nuclear Material Control Plan Required for LEU Facilities

NUREG 1189, Vol. 1 and 2 Assessment of the Public Health Impact From the Accidental Release of UF<sub>6</sub> at the Sequoyah Fuels Corporation Facility at Gore, Oklahoma

NUREG 1198 Release of UF<sub>6</sub> From A Ruptured Model 48Y Cylinder at Sequoyah Fuels Corporation Facility

NUREG 1198 Supplement No. 1 Release of UF<sub>6</sub> From a Ruptured Model 48Y Cylinder at Sequoyah Fuels Corporation Facility: Lessons-Learned Report

NUREG 1280 Standard Format and Content Acceptance Criteria for the MC & A Reform Amendment

NUREG 1324 Proposed Method for Regulating Major Materials Licensees

NUREG 1450	Potential Criticality Accident at the General Electric Nuclear Fuel and Component Manufacturing Facility, May 29, 1991
NUREG 1520	Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility
NUREG 1600	General Statement of Policy and Procedures for NRC Enforcement Actions
NUREG/BR 0006	Instructions for Completing Nuclear Material Transaction Reports
NUREG/BR 0007	Instructions for Completing Material Balance Reports and Physical Inventory Listings
NUREG/BR 0096	Instructions and Guidance for Completing Physical Inventory Summary Reports
NUREG/CR 2078	Handbook of Nuclear Safeguards Measurement Methods
NUREG/CR 4604	Statistical Methods For Nuclear Material Management
NUREG/CR 5734	Recommendations to the NRC on Acceptable Standard Format and Content for the Fundamental Nuclear Material Control Plan Required for LEU Enrichment Facilities

Others as selected by the First Line Supervisor

4. Generic Letters(GL)

GL 91-003	Reporting of Safeguard Events
GL 95-001	NRC Staff Technical Position on Fire Protection For Fuel Cycle Facilities

Others as selected by the First Line Supervisor

5. Federal Register Notices

U.S. Nuclear Regulatory Commission, "Guidance on Management Controls/Quality Assurance, Requirements for Operation, Chemical Safety, and Fire Protection for Fuel Cycle Facilities," *Federal Register* 54 (No. 53), 11590-11598, March 21, 1989

Others as selected by the First Line Supervisor

- B. The application of these guidance documents to the fuel cycle safeguards (MC & A) inspection program should be studied in detail by the qualifying individual and covered by the First Line Supervisor in discussions, interviews, or oral quizzes.

Qualification Guide 5  
NRC Inspection Manual Chapters (MC)

A selection of currently applicable NRC MC and Inspection Procedure (IP) references with direct application to the fuel cycle safeguards (MC & A) inspection program should be identified by the First Line Supervisor. The application of the specific references to the fuel cycle safeguards (MC & A) inspection program should be studied in detail by the qualifying individual.

1. REPORTS/COMMUNICATIONS/FOLLOW-UP

MC 0030	Policy and Guidance for Development of NRC Inspection Manual Programs
MC 0230	Morning Report
MC 0610	Inspection Reports
MC 0620	Inspection Documents and Records
MC 0720	NRC Bulletins and Information Notices
MC 0730	Generic Communications Regarding Materials and Fuel Cycle Issues
MC 0801	Inspector Feedback
MC 1120	Preliminary Notifications
IP 92701	Followup
IP 92703	Followup of Confirmatory Action Letters

2. INSPECTIONS

MC 0300	Announced and Unannounced Inspections
MC 0312	Technical Assistance for Radiation Safety Inspections at Nuclear Fuel Cycle Facilities and Material Licensee's Sites
MC 0630	Analysis of the Impact of Noncompliance with Physical Security Requirements)
MC 1246	Formal Qualification Programs in Nuclear Material Safety and Safeguards Program Area
MC 2600	Fuel Cycle Facility Operational Safety and Safeguards Inspection Program
MC 2603	Inspection of the Nuclear Chemical Process Safety Program at Fuel Cycle Facilities
MC 2604	Licensee Performance Review
MC 2681	Safeguards Inspection of Fuel Facilities, Transport of SNM and Irradiated Fuel, and SNM Imports and Exports
MC 2682	Technical Assistance for Safeguards MC & A Inspections at Fuel Facilities
MC 2800	Materials Inspection Program
MC 8800	Fuel Facility Inspection
IP 88102	Surveillance Observations

3. INTERACTIONS WITH OTHER FEDERAL AGENCIES

MC 1007	Interfacing Activities Between Regional Offices of NRC and OSHA
IP 93001	OSHA Interface Activities

4. INCIDENT RESPONSE

MC 1300	Incident Response Actions - Responsibility and Authority
MC 1301	Response to Radioactive Material Incidents that Do Not Require Activation of the NRC Incident Response Plan



- MC 1302 Action Levels for Radiation Exposures and Contamination Associated with Materials Events Involving Members of the Public
- MC 1360 Use of Physician and Scientific Consultants in the Medical Consultant Program
- IP 88003 Reactive Inspection for Events at Fuel Cycle Facility Program

5. WASTE MANAGEMENT

- MC 8400 Radioactive Waste Management

6. FUEL CYCLE SAFETY PROGRAM

- MC 8100 Physical Security
- MC 8500 Material Control and Accountability
- MC 8800 Fuel Facility Inspection

7. RADIATION PROTECTION

- MC 8300 Radiation Protection

8. OTHER

- MC 1100 Notification of Significant Meetings
- MC 1201 Conduct of Employees
- MC 2900 Performance Appraisal Program

- B. The First Line Supervisor will hold discussions, interviews, or oral quizzes to test the qualifying individual's knowledge and understanding of the application of the selected references to the fuel cycle safeguards (MC & A) inspection program.

Qualification Guide 6  
Industry Codes and Standards

A. A selection of currently applicable industry codes and standards should be identified by the First Line Supervisor. These references should include those listed below and be documented. The qualifying individual should be expected to have a general knowledge of the topics addressed in the references. This review may be accomplished by self study, study quizzes, briefings, or discussions.

1. American National Standards Institute (ANSI)

ANSI N15.15	Nuclear Materials - Assessment of the Assumptions of Normality (Employing Individual Observed Values)
ANSI N15.18	Nuclear Materials - Mass Calibration Techniques for Control
ANSI N15.19	Nuclear Materials Control - Volume Calibration Techniques
ANSI N15.20	Guide to Calibrating Nondestructive Assay Systems
ANSI N15.22	Nuclear Materials - Plutonium-Bearing Solids - Calibration Techniques for Calorimetric Assay
ANSI N15.28	Nuclear Materials Control - Guide for Qualification and Certification of Safeguards and Security Personnel
ANSI N15.37	Guide to the Automation of Nondestructive Assay Systems for Nuclear Material Control
ANSI N15.41	Derivation of Measurement Control Programs - General Principles
ANSI N15.51	Nuclear Materials Management - Measurement Control Program - Nuclear Materials Analytical Chemistry Laboratory
ANSI N15.54	Instrumentation - Radiometric Calorimeters - Measurement Control Program
ANSI/ANS 8.1	Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors
ANSI/ANS 8.3	Criticality Accident Alarm System
ANSI/ANS 8.5	Use of Borosilicate-Glass Raschig Rings as a Neutron Absorber in Solutions of Fissile Material
ANSI/ANS 8.7	Guide for Nuclear Criticality Safety in the Storage of Fissile Materials
ANSI/ANS 8.9	Nuclear Criticality Safety Criteria for Steel-Pipe Intersections Containing Aqueous Solutions of Fissile Material

- |               |  |
|---------------|--|
| ANSI/ANS 8.17 | Criticality Safety Criteria for the Handling, Storage, and Transportation of LWR Fuel Outside Reactors |
| ANSI/ANS 8.19 | Administrative Practices for Nuclear Criticality Safety  |
| ANSI/ANS 8.20 | Nuclear Criticality Safety Training  |

Others as selected and documented by the First Line Supervisor

ANSI NFPA Standards as selected and documented by the First Line Supervisor (NOTE: a list is provided in Section 8.4.2 of NUREG 1520).

-Institute of Electrical and Electronic Engineers IEEE standards associated with security and analysis equipment

2. NRC Accepted HP Computer Codes

PC-DOSE  
Varskin  
RASCAL  
REMIT

3. International Atomic Energy Agency (IAEA)

Safety Series No. 1, 25, 33, 38

Technical Report Series No. 120 and 133

4. Other

DP-1014, Maximum Safe Limits for Slightly Enriched Uranium and Uranium Oxide, H. K. Clark, Du Pont de Nemours and Co., Aiken, SC, 1966

Draft Regulatory Guide, DOE/NCT-04, A Review of Criticality Accidents, W. R. Stratton, Revised by D. R. Smith, U.S. DOE, March 1989

- B. The First Line Supervisor should test the qualifying individual's knowledge of application of these codes and standards to the fuel cycle safeguards (MC & A) inspection program by discussions, interviews, or oral quizzes.

Qualification Guide 7  
Inspection Accompaniments

- A. Each inspector should accompany certified inspectors on at least four inspections. At least two of these inspections should be performed at a facility other than the designated lead plant.
- B. The following is a guide for material that should be studied and discussed with the inspector in charge during these inspection accompaniments. The First Line Supervisor will discuss these items, as appropriate, following each inspection accompaniment.
  - 1. The Inspection Program
    - MC 2600 Fuel Facility Inspection Program
    - White Paper Risk-Informed and Performance-Based Regulation
  - 2. Scheduling and Preparation for Inspections
    - MC 0300 Announced and Unannounced Inspections
  - 3. Scope of Inspection
  - 4. Entrance/Exit Interviews
  - 5. Conduct of Inspection, Accumulation of Data
  - 6. Post-inspection Activities of Inspectors
    - MC 0610 Inspection Reports
    - MC 0630 Analysis of the Impact of Noncompliance with Physical Security Requirements
    - MC 1100 Notification of Significant Meetings
  - 7. Morning Reports
    - MC 0230 Morning Report
  - 8. Non-routine Licensee Events
    - MC 1110 Potential Abnormal Occurrences
    - MC 0325 Augmented Inspection Team
    - Management Directive 8.3 NRC Incident Investigation Program
    - Management Directive 8.9 Accident Investigation
  - 9. Preliminary Notification
    - MC 1120 Preliminary Notifications
  - 10. Bulletins/Information Notices
    - MC 0720 NRC Bulletins and Information Notices

- 11. Use of Consultants of NRC
  - MC 1360 Use of Physician and Scientific Consultants in the Medical Consultant Program
  - Management Directive 10.6 Use of Consultants & Experts |
- 12. Allegations and Investigations
  - Management Directive 8.8 Management of Allegations |
- 13. Communication outside NRC
  - Management Directive 5.5 Public Affairs Program
  - Management Directive 3.6 Distribution of Unclassified NRC Staff/Contractor-Generated Reports |

Qualification Guide 8  
NRC Management Directives

- A. A selection of currently applicable NRC Management Directive (MD) references should be identified by the First Line Supervisor. These references should include those listed below and be documented. The qualifying inspector should be expected to have a general knowledge of the topics addressed in the references. This review may be accomplished by self-study, study-quizzes, briefings, or discussions. The selection should include:
1. NRC MD 9.1 Organization Management
  2. NRC 9.29 Organization and Function of Regional Offices
  3. NUREG 0325 USNRC Functional Organization Chart
  4. NRC MD 3.2 Privacy Act
  5. NRC MD 3.1 Freedom of Information Act
  6. NRC MD 10.130 Safety and Health Program Under the Occupational Safety and Health Act
  7. NRC MD 10.131 Protection of NRC Employees Against Ionizing Radiation
  8. NRC MD 14.1 Official Temporary Duty Travel
  9. NRC MD 10.159 Differing Professional Views or Opinions
  10. NRC MD 10.42 Hours of Work and Premium Pay
  11. NRC MD 10.43 Time and Attendance Reporting
  12. NRC MD 10.67 Non-SES Performance Appraisal System
  13. NRC MD 10.101 Employee Grievances
  14. NRC MD 8.3 NRC Incident Investigation Program
  15. NRC MD 8.8 Management of Allegations
- B. Application of the selected NRC Management Directives to the fuel cycle safeguards (MC & A) inspection program will be discussed with the qualifying individual by the First Line Supervisor to test the qualifying individual's knowledge.

Qualification Guide 9  
Review of Significant Fuel Cycle Events

- A. A selection of significant historical fuel cycle related events should be identified by the First Line Supervisor. These events should be studied in detail by the qualifying individual. Such events would include the following. Other events may be chosen but in any case the events chosen should be documented.
1. Sequoyah Fuels accidents in 1986 and in 1992
  2. Potential criticality at the GE Wilmington plant in 1991
  3. Y-12 criticality accident in 1958
  4. UO<sub>2</sub> fires at fuel fabrication plants
  5. United Nuclear - Wood River Junction in 1964
- B. The First Line Supervisor should discuss the selected events in detail with the qualifying inspector and go over recommendations made, lessons learned, and changes identified to prevent recurrence. The relevance of the event to the overall fuel cycle safeguards (MC & A) inspection program should be stressed.

Qualification Guide 10  
Fundamental Nuclear Material Control Plans

- A. The inspector should become generally familiar with several fundamental nuclear material control plans and/or the license applications. The inspector's review should include the safety analysis and security plan associated with the license application with special emphasis in the following areas, as appropriate.
1. Site characteristics
  2. Process systems
  3. Safety features
  4. Measurement systems
  5. Material control systems
- B. Each section of a reference facility's fundamental nuclear material control plan and/or license application should be reviewed with an emphasis on its application to the fuel cycle safeguards MC & A inspection program. After reviewing the fundamental nuclear material control plan and/or license application, the inspector will be able to specifically address its application to the MC & A inspection program. The inspector may demonstrate knowledge through discussions, interviews or quizzes. These discussion activities should be conducted by the First Line Supervisor or alternatively, by senior inspectors to illustrate recent application of regulatory guidance to the inspection program. Completion of the discussion activities must be documented.



Qualification Guide 11  
Formal Training

The standards for each Training Course are provided in the NRC Technical Training Division Course Catalog and will not be duplicated in the Qualification Guide.