

SECTION III

FUEL CYCLE SAFETY INSPECTOR NRC INSPECTOR QUALIFICATION JOURNAL

Applicability

This NRC Inspector Qualification Journal implements NRC Manual Chapter 1246, Appendix A, Section III, by establishing the minimum training requirements for personnel assigned to perform safety inspection 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 First Line 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.

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

A. Site Orientation	<u>Initials</u>	<u>Date</u>
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 facility inspection program	_____ First Line Supervisor	_____

Qualification Card 3
Office Instructions/Regional Procedures

Initials

Date

A. Familiarization with office/
regional policies and procedures

Employee

B. Discussion completed on
office/regional
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 facility inspection program	_____ First Line Supervisor	_____

Qualification Card 5
NRC Inspection Manual Chapters (MC)

Initials

Date

A. Review of appropriate NRC
MCs completed

Employee

B. Discussion of NRC MCs and
their relation to the fuel
facility 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 facility inspection
program

First Line Supervisor

Qualification Card 7
Inspection Accompaniments

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

Initials

Date

- 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 facility inspection program

First Line Supervisor

Qualification Card 9
Review of Significant Fuel Cycle Events

Initials

Date

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
Safety Analysis Report

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	Initials	<u>Date</u>
A. Familiarization with safety analysis report of selected fuel facility		
1. Review of selected chapters of the safety analysis report or license application, as appropriate	_____ Employee	_____
2. Review of facility license	_____ Employee	_____
3. Review of NRC safety evaluation report	_____ Employee	_____
4. Review of integrated safety analysis report	_____ Employee	_____
B. Discussion of relation to fuel facility inspection program	_____ First Line Supervisor	_____

Qualification Card 11
Formal Training

A. CORE TRAINING:	<u>Initials</u>	<u>Date</u>
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. Fuel Cycle Processes Directed Self-Study Course (F-201S)	_____	_____
	Training Coordinator	
8. Integrated Safety Analyses (F-103) or Hazard analysis for DOE SARs and QRAs	_____	_____
	Training Coordinator	
9. Nuclear Criticality Safety Directed Self-Study Course (F-101S)	_____	_____
	Training Coordinator	
10. Uranium Enrichment Process Directed Self study Course (F-204S)	_____	_____
	Training Coordinator	
11. Fire Protection for Fuel Cycle Facilities Directed Self-Study Course (F-206S)	_____	_____
	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:
 1. 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 region, NMSS, 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 40 | Domestic licensing of source material |
| 9. | 10 CFR Part 51 | Environmental protection regulations for domestic licensing |
| 10. | 10 CFR Part 61 | Licensing requirements for land disposal of radioactive waste |
| 11. | 10 CFR Part 70 | Domestic licensing of special nuclear material |
| 12. | 10 CFR Part 71 | Packaging and transportation of radioactive material |
| 13. | 10 CFR Part 73 | Physical protection of plants and materials |
| 14. | 10 CFR Part 74 | Material control and accounting of special nuclear material |
| 15. | 10 CFR Part 75 | Safeguards on nuclear material |
| 16. | 10 CFR Part 76 | Certification of Gaseous Diffusion Plants |
| 17. | 10 CFR Part 95 | Security facility approval and safeguarding of national security information and restricted data |
| 18. | 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 |

- | | | | |
|-----|-----------------|--|--|
| 22. | 40 CFR Part 61 | National emission standards for hazardous air pollutants (air quality) | |
| 23. | 40 CFR Part 190 | Environmental radiation protection for nuclear power operations (uranium fuel cycle 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/Region 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 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)
- 3.3 Quality Assurance Program Requirements for Fuel Fabrication Plants
 - 3.7 Monitoring of Combustible Gases and Vapor in Fuel Fabrication Plants
 - 3.10 Liquid Waste Treatment System Design Guide for Fuel Fabrication Plants
 - 3.12 General Design Guide for Ventilation Systems of Fuel Fabrication Plants
 - 3.16 General Fire Protection Guide for Fuel Fabrication Plants
 - 3.21 Quality Assurance Requirements for Fuel Fabrication Plants
 - 3.45 Nuclear Criticality Safety for Steel-Pipe Intersections Containing Aqueous Solutions of Fissile Materials
 - 3.52 Standard Format and Content for the Health and Safety Sections of License Applications for Fuel Cycle Facilities
 - 3.55 Standard Format and Content for the Health and Safety Sections of License Renewal Applications for Fuel Fabrication
 - 3.67 Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities
 - 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)
 - 4.15 Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment
 - 4.16 Monitoring and Reporting Radioactivity in Releases of Radioactive Materials in Liquid and Gaseous Effluents from Nuclear Fuel Processing and Fabrication Plants and Uranium Hexafluoride Production Plants
 - 8.5 Criticality and Other Interior Evacuation Signals
 - 8.6 Standard Test Procedure for Geiger Muller Counters
 - 8.7 Instructions For Recording and Reporting Occupational Radiation Exposure Data

- 8.8 Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations Will Be As Low As Reasonably Achievable
- 8.10 Operating Philosophy for Maintaining Occupational Radiation Exposure As Low As Is Reasonably Achievable
- 8.11 Applications of Bioassay for Uranium
- 8.13 Instruction Concerning Prenatal Radiation Exposure
- 8.14 Personnel Neutron Dosimeters
- 8.21 Health Physics Surveys for Byproduct Material at NRC-Licensed Processing and Manufacturing Plants
- 8.22 Bioassay at Uranium Mills
- 8.24 Health Physics Surveys During Enriched Uranium 235 Processing and Fuel Fabrication
- 8.25 Air Sampling in the Workplace
- 8.26 Applications of Bioassay for Fission and Activation Products
- 8.29 Instruction Concerning Risks from Occupational Radiation Exposure
- 8.30 Health Physics Surveys in Uranium Mills
- 8.31 Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills Will Be As Low As Reasonably Achievable
- 8.34 Monitoring Criteria and Methods to Calculate Occupational Radiation Doses
- 8.35 Planned Special Exposures
- 8.36 Radiation Doses to the Embryo/Fetus
- 8.37 ALARA Levels For Effluents From Materials Facilities

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

- IN 82-21 Buildup of Enriched Uranium in Effluent Treatment Tanks
- IN 87-26 Cracks in Stiffening Rings on 48-inch-diameter UF₆ Cylinders
- IN 89-24 Nuclear Criticality Safety
- IN 90-27 Clarification of Regulatory Requirements for Packaging of Uranium Hexafluoride (UF₆) for Transportation
- IN 90-63 Management Attention to the Establishment and Maintenance of a Nuclear Criticality Safety Program
- 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 92-58	Uranium Hexafluoride Cylinders - Deviations in Coupling Welds
IN 93-60	Reporting Fuel Cycle and Materials Events to the NRC Operations Center
IN 94-73	Clarification of Criticality Reporting Criteria
IN 94-75	Minimum Temperature for Criticality
IN 97-20	Identification of Certain Uranium Hexafluoride Cylinders that Do Not Comply With ANSI N14.1 Fabrication Standards
IN 97-23	Evaluation and Reporting of Fires And Unplanned Chemical Reactor Events at Fuel Cycle Facilities
IN 97-24	Failure of Packing Nuts on One-inch Uranium Hexafluoride Cylinder Valves
IN 97-36	Unplanned Intakes by Worker of Transuranic Airborne Radioactive Materials And External Exposure Due to Inadequate Control of Work
IN 99-01	Deterioration of High-Efficiency Particulate Air Filters in a Pressurized Water Reactor Containment Fan Cooler Unit
IN 99-03	Exothermic Reactions Involving Dried Uranium Dried Uranium Oxide Power (Yellowcake)
IN 99-05	Inadvertent Discharge of Carbon Dioxide Fire Protection System and Gas Migration
IN 99-06	1998 Enforcement Sanctions as a Result of Deliberate Violations of NRC Employee Protection Requirements
IN 99-34	Potential Fire Hazard in the Use of Polyalphaolefin in Testing Air Filters
IN 99-31	Operational Controls to Guard Against Inadvertent Nuclear Criticality
BL 91-01	Reporting Loss of Criticality Safety Controls

Others as selected by the First Line Supervisor

3. NUREGs (latest revision, where applicable)

NUREG 1198 Release of UF₆ From A Ruptured Model 48Y Cylinder at Sequoyah Fuels Corporation Facility

NUREG 1198, Supplement No. 1, Release of UF₆ From a Ruptured Model 48Y Cylinder at Sequoyah Fuels Corporation Facility: Lessons-Learned Report

NUREG 1189, Vol. 1 and 2, Assessment of the Public Health Impact From the Accidental Release of UF₆ at the Sequoyah Fuels Corporation Facility at Gore, Oklahoma

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 1460 Guide to NRC Reporting and Recordkeeping Requirements

NUREG 1520 Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility

NUREG 1513 Integrated Safety Analysis Guidance Document

NUREG 1600 General Statement of Policy and Procedures for NRC Enforcement Actions

Others as selected by the first line supervisor

4. Generic Letters (GL)

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

U. S. Nuclear Regulatory Commission, "Guidance on Fire Protection for Fuel Cycle Facilities," *Federal Register* 57 (No. 154), 35607-35613, August 10, 1992

Others as selected by the First Line Supervisor

6. NRC Branch Technical Positions

None

7. Policy and Guidance Directives

FCSS Policy and Guidance Directive FC 84-14, "Radiological Contingency Planning Requirements and License Application Review"

NRC Policy and Guidance Directive 83-23, "Termination of Byproduct, Source, and Special Nuclear Materials Licenses"

- B. The application of these guidance documents to the fuel facility 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. A selection of currently applicable MC and Inspection Procedure (IP) references with direct application to the fuel facility inspection program should be identified by the First Line Supervisor. The application of the specific references to the fuel facility inspection program should be studied in detail by the qualifying individual.

1. REPORTS/COMMUNICATIONS/FOLLOWUP

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 1246	Formal Qualification Programs in Nuclear Material Safety and Safeguards Program Area
MC 2600	Fuel Cycle Facility Operational Safety and Safeguards Inspection Program
MC 2601	Team Assessments of Fuel Cycle and Materials Licensees
MC 2602	Decommissioning Inspection Program For Fuel Cycle Facilities and Material Licensees
MC 2603	Inspection of the Nuclear Chemical Process Safety Program at Fuel Cycle Facilities
MC 2604	Licensee Performance Review
MC 2605	Decommissioning Procedures For Fuel Cycle and Materials Licensees
MC 2681	Physical Protection and Transport of SNM and Irradiated Fuel Inspections of Fuel Facilities
MC 2683	MC&A; Safeguards Inspections at Fuel Facilities
MC 2800	Materials Inspection Program

3. INTERACTIONS WITH OTHER FEDERAL AGENCIES

MC 1007	Interfacing Activities Between Regional Offices of NRC and OSHA
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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 facility 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 be selected from those listed below for the specific area of the inspector's responsibility 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/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 8.10	Criteria For Nuclear Criticality Safety Controls in Operations with Shielding and Confinement
ANSI/ANS 8.12	Nuclear Criticality Control and Safety of Plutonium-Uranium Fuel Mixtures Outside Reactors
ANSI/ANS 8.15	Nuclear Criticality Control of Special Actinide Elements
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
ANSI N13.1	Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities
ANSI N13.2	Guide for Administrative Practices in Radiation Monitoring
ANSI N323	Radiation Protection Instrumentation Test and Calibration
ANSI NQA-1	Quality Assurance Requirements for Nuclear Facilities

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).

2. NRC Accepted HP Computer Codes

PC-DOSE
Varskin
RASCAL
REMIT

3. U.S. Environmental Protection Agency (EPA)

EPA Federal Guidance Report No.11

4. Committee on the Biological Effects of Ionizing Radiation (BEIR)

BEIR Reports (As selected by Supervisor)

5. American Society for Testing Materials (ASTM) Standards

ASTM C986-89, Developing Training Programs in the Nuclear Fuel Cycle

6. Other

LA-10860-MS, Critical Dimensions of Systems Containing U-235, Pu-239, and U-233, H.C. Paxton and N. L. Pruvost, Los Alamos National Laboratory, Los Alamos, NM, 1987

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

Nuclear Criticality Safety - Theory and Practice, R. A. Knief, American Nuclear Society, La Grange Park, IL, 1985

- B. The First Line Supervisor should test the qualifying individual's knowledge of application of these codes and standards to the fuel facility 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(s).

- 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 1100 Notification of Significant Meetings |
 - 7. Morning Reports
 - MC 0230 Morning Report |
 - 8. Non-routine Licensee Events
 - MC 1110 Potential Abnormal Occurrences |
 - 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 MD 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 Procedures
15. NRC MD 8.8 Management of Allegations

B. Application of the selected NRC Management Directives to the fuel facility 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. UO₂ fires at fuel fabrication plants
 5. United Nuclear- Wood River Junction in 1964
 6. Japan fuel fabrication nuclear criticality accident in 1999
- 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 facility inspection program should be stressed.

Qualification Guide 10
Safety Analysis Report

- A. The First Line Supervisor will select appropriate documents from the safety analysis report and license communications for a selected fuel facility. The qualifying individual will then study these documents in detail. Documents would include the following.
1. Selected chapters of the safety analysis report
 2. Facility license, license renewals, and associated correspondence
 3. NRC safety evaluation report (SER)
 4. Integrated Safety Analysis (ISA), if available
 5. Facility pre-fire plan, if available
- B. The First Line Supervisor will discuss in detail the selected documents with the qualifying individual and verify the individual's understanding of the documents and their relationship to the fuel facility inspection program.

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.