

APPENDIX C3

TRAINING REQUIREMENTS AND QUALIFICATION JOURNAL FOR MATERIAL CONTROL AND ACCOUNTING LICENSE REVIEWER

I. TRAINING REQUIREMENTS

A. Applicability

The training described below is required for all personnel assigned as material control and accounting (MC&A) license reviewers.

B. Training

1. Required Training

a. Initial Training

- i. Agency-Level Knowledge
- ii. Office-Level Knowledge
- iii. Ethics, Objectivity, and Professional Conduct
- iv. Differing Views and Staff Diversity

b. Core License Reviewer Training

- i. Title 10 of the Code of Federal Regulations
- ii. Exploring the Fuel Facility Licensing Program
- iii. Licensing Actions
- iv. Interacting with Stakeholders
- v. The Inspection Program
- vi. MC&A/FNMC Plans

c. MC&A Training

- i. MC&A Management Structure
- ii. Measurements and Measurement Control
- iii. Item Control and Item Monitoring

- iv. Physical Inventory
- v. Process Monitoring
- vi. Detection of Unauthorized Production
- vii. Resolution Program
- viii. Recordkeeping/Independent Assessments
- d. On the Job Training
- e. Specialized Training
 - i. Site Access Training (H100 or H101)
 - ii. Fuel Cycle Processes (F201 or F201S)
 - iii. Regulatory Process
 - iv. Communications (complete at least one)
 - 1. Technical Writing
 - 2. Conducting Effective Public Meetings
 - 3. Media Training Workshop
 - v. Basic MC&A Training (complete as needed based on experience in consultation with Branch Chief)
 - (1) MCA-101DC – Introduction to Nuclear Material Control & Accounting
 - (2) Measurement of Nuclear Material
 - (3) MCA-110 – Basics of Nuclear Materials Accountability
 - (4) MCA-120 – Basics of Nuclear Materials Control
 - (5) MCA-130 – Statistical Concepts in MC&A
 - vi. Additional Post Qualification MC&A Training (complete as needed based on experience in consultation with Branch Chief)

- (1) MCA-260 – Physical Inventories for MC&A
- (2) Fundamentals of Nondestructive Assay
- (3) Statistical Concepts in Nuclear Safeguards

2. Supplemental Training. Additional training beyond that identified as Core Training. This training will be determined by the individual's supervisor. It will depend on the individual's previous work experience and planned licensing activities in specific areas.

3. Refresher Training. Refresher training will be determined by management on a case-by-case basis.

II. QUALIFICATION JOURNAL

Purpose

This Qualification Journal (Journal) implements NRC Manual Chapter 1246 by establishing the minimum training requirements for personnel assigned as material control and accounting (MC&A) license reviewers.

This Journal establishes the minimum training requirements consistent with NRC Manual Chapter 1246. The document 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. It establishes the minimum knowledge levels or areas of study that must be completed for each signature card. These signature cards provide traceable documentation to show that minimum requirements are met for each MC&A license reviewer.

Journal Format

The Qualification Cards will be divided into the following three sub-sections:

1. Evaluation Criteria
2. Tasks
3. Supervisor Approval

Each section will contain multiple items, e.g. documents, tasks, questions, etc. The tasks must be initialed by the supervisor or the proctor approved by the supervisor. The tasks will be labeled with a review tag to help identify the amount of effort the individual is expected to undertake. The review level may be adjusted by the individual's supervisor on a case by case basis.

Basic = B:

Scan the information, but do not read word-for-word. Become knowledgeable of the purpose and general content. Be aware the information exists, know where it can be accessed, and know how it is used. Expect Qualification Questions regarding awareness of the information and where to find it. (Example Question: If uncertain how to report travel time on the weekend, where would one find guidance on this topic.)

Intermediate = I:

Familiarity plus: Review the entire body of information. Understand how the information correlates to the roles, responsibilities, and assignments of the position. Expect a few Qualification Questions to be drawn from key concepts in the material. Be prepared to give basic examples of how the information would be used on the job.

(Example Question: What role does 10 CFR 73 play in the regulation of our licensees?)

Comprehensive = C

Basic plus: Study the entire body of information thoroughly. Be prepared to explain the basic steps needed to complete key tasks associated with the subject. Rather understand and be able to describe the process, the regulatory basis, and the importance of applicable guidance.

(Example Question: If a licensee submits an MC&A (or Fundamental Nuclear Material Control [FNMC]) Plan for a new facility process, describe how you would conduct the review and summarize the regulatory requirements needed for approval.)

Proctors

In order to support the “On the Job Training” requirements, the candidate will work under the direction of a qualified MC&A license reviewer to complete the required training. Any qualified member of the staff, as approved by the supervisor, may review and initial specific items on the qualification cards. The qualification board should seek to tailor the qualification process to the experience and training level of the reviewer and to meet the needs of the NRC.

Qualification Journal Notebook

The qualification program involves two major tasks. First, the individual must review the material specified in the Qualification Cards listed below. Once the material has been reviewed to the satisfaction of the individual’s First Line Supervisor, the appropriate box below must be initialed. Second, after the qualification cards have been signed, the individual must appear before a Qualification Board, as described in Section 1246-08. At the successful completion of this Board review, the Second Line Supervisor, a Senior Executive Service (SES) manager, must provide the approval signatures. To complete your qualification, 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 Qualification Journal.

Additional guidance, including sample oral board questions, is provided in the Knowledge Management Center at <http://nrcknowledgecenter.nrc.gov/CommunityBrowser.aspx?id=1546&lang=en-US>.

New Employees

New employees to the agency who are hired to NMSS shall complete, "New Employee Orientation Checklist". The NMSS "New Employee Orientation Checklist" generally includes activities that a new NMSS employee would encounter in the first few weeks of employment. For activities that require more than the first few weeks of employment, employees can finish the activities in parallel with a qualification plan. The New Employee Orientation Checklist can be found in <http://www.internal.nrc.gov/HR/pdf/orientation-checklist.pdf>.

**FUEL CYCLE MC&A LICENSE REVIEWER
QUALIFICATION JOURNAL NOTEBOOK**

Name:

Position:

Branch:

Individual Education, Training and Experience (insert or attach description):

Beginning Date of Training and Qualification:

Proposed Completion Date of Training and Qualification:
(not to exceed 2 years from beginning date)

Acceptance of Qualification Plan

Employee Signature: _____ Date: _____

Branch Chief Signature: _____ Date: _____

Completion of All Requirements except Oral Board

Employee Signature: _____ Date: _____

Branch Chief Signature: _____ Date: _____

Successful Completion of Oral Board

SES Signature: _____ Date: _____

Signature: _____ Date: _____

Signature: _____ Date: _____

Signature: _____ Date: _____

Qualification Guide 1 Agency-Level Knowledge

PURPOSE. The purpose of this activity is to familiarize the employee with the structure of the Agency and some impacts from regulatory history on the regulatory framework under which today's NRC staff functions. Employees should gain an understanding of how the agency was formed and how it contributes as an independent agency.

EVALUATION CRITERIA.

At the completion of this activity you should be able to:

1. Describe the statutes authorizing NRC activities.
2. Describe the history of the NRC.
3. Describe the NRC's Strategic Plan.
4. Describe how the NRC regulates.
5. Describe the organization and functions of NRC offices.
6. Describe the License Fee Program.
7. Describe major document collections including the general topic and the intended audience of each.
8. Describe how the Commission operates
9. Describe how the staff communicates with the Commission
10. Describe how the NRC responds to emergencies.

TASKS.

1. Statutes - Locate the discussion of statutory authority on the public website. (Select "About NRC," then select "Governing Legislation".)
 - a. In general, what is the purpose of the Atomic Energy Act (AEA) of 1954?
 - b. What is 11(e)2 material? See AEA Section 11 - Definitions.
 - c. What is "Restricted Data"? See AEA Section 11 - Definitions.
 - d. What AEA section defines "Safeguards Information"? See AEA Chapter 12 - Control of Information.
 - e. What AEA section gives the public the right to know about significant actions and the right to request a hearing (e.g., to participate in the regulatory process)? See AEA Chapter 16 - Judicial Review.
 - f. When the Commission establishes an Agreement with a State, is the Commission's authority delegated or discontinued? See AEA Section 274 - Cooperation with States.

- g. Agreements with States are limited to what material? See AEA Section 274.
 - h. In general, what is the purpose of AEA Title II?
 - i. Does the NRC license or certify gaseous diffusion plants? See AEA Chapter 27 - Licensing and Regulation of Uranium Enrichment Facilities.
 - j. In general, what is the purpose of the Energy Reorganization Act (ERA) of 1974?
 - k. Does the NRC belong to a Branch of the Federal Government, or is it an independent agency? See ERA Section 201.
 - l. What employee protection is provided by the ERA? See ERA Section 211 - Employee Protection.
 - m. In general, what is the purpose of the Administrative Procedures Act? See summary on public web site.
 - n. In general, what is the purpose of the National Environmental Policy Act? See summary on public web site.
 - o. In general, what is the purpose of the Energy Policy Act of 1992? Search website. In addition, see NUREG-0980.
 - p. In general, what is the purpose of the Energy Policy Act of 2005? What security requirements did it impose? Search website. In addition, see NUREG-0980.
2. History - Locate the discussion of NRC history on the public website. (Select "About NRC," then select "History". Also see NUREG/BR-0175.)
- a. In general, what was the concern that led to re-organizing the Atomic Energy Commission and creating NRC?
 - b. How did NRC's regulatory approach change after the accident at Three Mile Island?
 - c. In general, describe some major issues that have been addressed regarding nuclear materials safety.
3. Strategic Plan - Locate the discussion of the Strategic Plan on the public website. (Select "About NRC," then select "Plans, Budget, & Performance". Also see NUREG-1614.)
- a. What are the key elements of the Strategic Plan?
 - b. What is the mission of the NRC?
 - c. What are the values of the NRC?
 - d. What are the Strategic Goals of the NRC?
 - e. Scan the Strategic Outcomes and Safety Goal Strategies. Know where to find them.

4. How We Regulate - Locate the discussion of regulations on the public website. (Select "About NRC," then select "How We Regulate".) Describe the key elements of our regulatory system.
5. Organization - Locate the discussion of organization on the public website. (Select "About NRC," then select "Organization and Functions".)
 - a. Note which office report directly to the Commission and which offices report to the Executive Director of Operations (EDO). Know where to find the information.
 - b. Who is serving on the Commission currently?
 - c. What is the function of the Office of the EDO? Which Deputy EDO is responsible for our office?
 - d. Which Congressional Oversight Committees does the Office of Congressional Affairs keep informed?
 - e. Which Assistant General Counsel handles fuel cycle issues?
 - f. What kind of licenses does the Office of International Programs issue?
 - g. Who are the Public Affairs Officers in Region II?
 - h. Which office codifies Commission decisions in memoranda to the staff?
 - i. Which office investigates charges of criminal activity by NRC staff?
 - j. Which office investigates charges of criminal activity by licensees?
 - k. Which office is responsible for the Agreement State Program?
 - l. Which office manages the NRC Operations Center?
 - m. Which Region implements the Fuel Facility Inspection Program?
 - n. Which office is responsible for the Agencywide Document Access and Management System (ADAMS)?
 - o. Which office delivers your mail?
 - p. Which office implements the Employee Mentoring Program?
 - q. Which office has oversight of safety culture issues?
6. License Fee Program - Locate the discussion of fees on the public website. (Select "About NRC," then select "How We Regulate," then select "Licensing," then select "License Fees".)
 - a. Why does the NRC charge fees for licensing actions?
 - b. Which parts of NRC regulations establish the fees licensees must pay?
 - c. Which office is responsible for the NRC Fee Policy?

7. Major Document Collections - Locate document collections on the **internal** website. (Under "Agencywide" select "Info Resources" and then select the collection of interest.
 - a. What are the purpose and the audience for Management Directives (See MD 1.1)?
 - b. What is a NUREG? (See brief statement on NUREG home page. Note different types of NUREGs.)
 - c. What is the purpose and audience for a Regulatory Guide? (See brief statement on Regulatory Guide home page. Note different divisions of guides.)
 - d. What is the purpose and audience of a Standard Review Plan (SRP)? SRP's are issued as what type of document?
 - e. What types of documents are provided for inspectors in the Inspection Manual? (See Inspection Manual Chapter 0040, Sections 07.01 - 07.04)
 - f. What is the purpose of the Enforcement Policy (not the Enforcement Manual)? In what form is the policy being maintained currently? (Select "Enforcement" in the "Document Collections" section of the web page.)
8. How the Commission Operates - Locate discussion on public web site (Go to "About NRC", select "Organization & Functions", select "The Commission", select "Direct-Setting and Policymaking Activities".)
 - a. What is a SECY paper?
 - b. What is a Commission Action Memoranda?
 - c. Check the schedule of upcoming Commission meetings and attend a meeting (on a topic related to your area if possible).
 - d. What is a Staff Requirements Memoranda?
 - e. What is a Commission Voting Record?
9. Communications with the Commission - Locate the "Offices" section on the **internal** website and select "OEDO". Select "Info for the Commission" and then select "Procedures."
 - a. What is the purpose of a Drop-In Briefing Package? Know where to find the guidance.
 - b. What is the purpose of a Commissioners' Assistants Note? Know where to find the guidance.
 - c. What is the purpose of a Daily Note and a One Week Look Ahead? Know where to find the guidance.
 - d. Skim the last several EDO Updates to identify topics of interest to senior managers. (From the OEDO home page select "News from the EDO.")
 - e. If possible, attend a Commission All-Hands Meeting.

10. NRC Response to Emergencies - Locate discussion on public web site (Under "Spotlight", select "Emergency Preparedness". Scroll down and select "How We respond to an Emergency.") In addition, see MD 8.2, NRC Incident response Program.
- a. What is NRC's highest priority when responding to an emergency?
 - b. With respect to other Federal agencies, what is NRC's role when the emergency occurs at a facility licensed by NRC or an Agreement State?
 - c. What changes when an emergency rises to the level of General Emergency, or is terrorist-related?
 - d. In general, describe the NRC response modes.
 - e. Describe the Fuel Cycle Safety Team functions (On the internal web page, under Offices select NMSS, then look under Emergency Preparedness)

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

B NRC Statutory Authority

Initials	Date
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B NRC History

Initials	Date
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C NRC Strategic Plan

Initials	Date
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I How NRC Regulates

Initials	Date
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B Organization and Function of Offices

Initials	Date
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B License Fee Program

Initials	Date
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B Document Collections

Initials	Date
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B How the Commission Operates

Initials	Date
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B Communications with the Commission

Initials	Date
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B NRC Response to Emergencies

Initials	Date
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Qualification Guide 2
Office-Level Knowledge

PURPOSE. The purpose of this activity is to familiarize the employee with the structure, procedures and functions of the Office of Nuclear Material Safety and Safeguards.

EVALUATION CRITERIA.

At the completion of this guide you should be able to:

1. Describe the NMSS Mission, Goals, and Values.
2. Describe the NMSS organization and functions.
3. Describe NMSS Office Letters (location and general topics).
4. Describe the various coordinators that NMSS has
5. Describe the NMSS Delegation of Authority
6. Describe how to use the NMSS Ticket Tracking System

TASKS.

1. Mission, Goals and Values - Locate on internal website (Find "Offices", click on "NMSS", then scroll down and click on "Mission, Goals and Values".)
 - a. Do the NMSS goals match the Agency goals?
 - b. In general, describe the NMSS values and some aspects of those values.
 - c. Review the NMSS Operating Plan for the current fiscal year. (Located on S: drive)
2. Organization and Functions - Locate on internal website (Find "Offices", click on "NMSS", then scroll down and click on information needed.)
 - a. Who are the current Office Director and Deputy Office Director?
 - b. In general, describe the function of each division.
 - c. If you had a question about criticality safety, which Branch Chief would you call?
 - d. If you had a question about a centrifuge enrichment plant, which Branch Chief would you call?

- e. If you had a question about the shielding in a spent fuel shipping cask, which Branch Chief would you call?
 - f. If you had a question about the Licensing Support Network for the high-level waste repository, which Branch Chief would you call?
3. Office Letters - Locate the NMSS Policy and Procedures Letters in ADAMS (Launch the ADAMS Document Manager and sign in. In the Main Library, open the NMSS P&P folder.)
- a. Note that many of these letters are outdated. Review the "NMSS P&P Index" file.
 - b. What is the policy for radiation protection of NMSS staff (see P&PL 1-42)? In addition to the responsibilities of all staff, what special responsibilities does female staff have? How do you obtain a dosimeter?
 - c. Where do you find guidance on withholding information from the public (see P&PL 1-85)? Is OGC concurrence required on routine withholding determinations?
 - d. Where do you find guidance on posting notices on the NRC website of hearing opportunities for major licensing actions (see P&PL 1-86)?
 - e. Where do you find guidelines for voice mail and e-mail (see P&PL 1-87)?
 - f. Where do you find HRMS codes you can use to charge your time (see P&PL 2-3)?
4. Office Coordinators - Locate on internal website (Find "Offices", click on "NMSS", then scroll down and click on "Contacts and Resources List".)
- a. Who is the Training Coordinator that can help you register for a class?
 - b. Who is the Event Coordinator that can help you find an event report?
 - c. Who is the Allegation Coordinator that can help you follow-up on a phone call regarding discrimination by a licensee?
 - d. Who is the Enforcement Coordinator that can help you prepare for an enforcement panel?
 - e. Who is the Generic Communications Coordinator that can help you write an Information Notice?

- f. Who is the Inspection Manual Coordinator that can help you revise an Inspection Procedure?
 - g. Who is the Radiation Safety Officer who can help you get a dosimeter?
5. Delegation of Authority - Locate on internal website (Find "Offices", click on "NMSS", then scroll down to "Important" and click on "Delegation of Authority".)
- a. Note the actions that must be signed by the Office Director.
 - b. Under FCSS, who can approve licensing actions (amendments, reviews, renewals, and new applications)?
 - c. Who can approve travel?
 - d. What can a Project Manager approve?
6. Ticket Tracking System - Locate on internal website (Find "Offices", click on "NMSS", then scroll down and click on "Ticket Status".)
- a. Run a report on all open tickets due in the next 30 days. Note the type of actions being tracked.
 - b. Open a ticket. What do the Special Instructions say? Who has the lead? Are other people assigned to provide input? When is input due? When is the final product due?
7. Read the most recent "Director's Greeting" and "Deputy Director's Corner." Attend an NMSS All Hands Meeting.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C NMSS Mission, Goals, and Values

Initials	Date
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I Organization and Functions

Initials	Date
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B NMSS Office Letters

Initials	Date
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B Office Coordinators

Initials	Date
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B Delegation of Authority

Initials	Date
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B Ticket Tracking System

Initials	Date
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B Director Messages and All Hands Meeting

Initials	Date
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Qualification Guide 3
Ethics, Objectivity and Professional Conduct

PURPOSE. The purpose of this activity is to acquaint employees with the NRC's expectations of employee conduct, protocol, and professionalism. Employee conduct is a vital component of the NRC's credibility as an effective regulator. Employees represent the Agency in interactions with licensee management and workers, local officials, media, and the public. This activity will assist employees to understand NRC procedures, policies, and expectations related to Headquarters employee conduct. This activity will also help employees enhance their professional conduct that is needed to be an effective employee.

EVALUATION CRITERIA.

At the completion of this guide you should be able to:

1. Describe the behavior expected of NRC employees at work.
2. Describe what the "appearance of impartiality or impropriety" means.
3. In general, describe the Office of Government Ethics (OGE) standards of ethical conduct.
4. Describe the behavior expected when NRC employees interact with other parties.
5. Describe the behavior expected when NRC employees visit other locations.

TASKS.

1. Behavior at Work - Locate ethics information on the internal website. (Under Offices, select "OGC," then select "Ethics." Complete the online training if not completed already. Review the resource information provided. If the answer cannot be found, call one of the OGC contacts listed or consult your supervisor.)
 - a. With regard to alcohol and illegal drugs?
 - b. With regard to official business and personal relationships?
 - c. With regard to business partnerships with licensees?
 - d. With regard to work habits and professional demeanor?
2. Appearance of Impartiality - Complete the online ethics training described in Task 2.

3. OGE Standards of Conduct regarding the following – Complete the online ethics training in Task 2:
 - a. Gifts from outside sources.
 - b. Gifts between employees.
 - c. Conflicting financial interests.
 - d. Seeking other employment.
 - e. Misuse of power.
 - f. Outside activities.
4. Interaction with Other Parties – Complete the online ethics training in Task 2. Review the NRC Principles of Good Regulation and NMSS Values (Go to public website, select “About NRC,” then select “Values”.)
 - a. Personnel of licensees, vendors or applicants.
 - b. Other NRC employees.
 - c. Members of the general public; another resource is the Office of Public Affairs.
 - d. Public interest groups - Another resource is the Office of Public Affairs.
 - e. Allegers and concerned citizens - Another resource is the NMSS Allegation Coordinator.
5. Conduct at other Locations - Complete the online ethics training in Task 2. Review the NRC Principles of Good Regulation and NMSS Values (Go to public website, select “About NRC,” then select “Values”.)
 - a. The site of licensees, vendors or applicants.
 - b. Headquarters, regional office or training center.
 - c. Public meetings.
 - d. Conferences.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Behavior at Work

Initials	Date
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C Appearance of Impartiality

Initials	Date
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B Standards of Conduct

Initials	Date
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I Interaction with Other Parties

Initials	Date
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I Conduct at Other Locations

Initials	Date
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Qualification Guide 4 Differing Views and Staff Diversity

PURPOSE. The purpose of the activity is to become familiar with the informal and formal processes for pursuing resolution of differing views or opinions and encourage diversity in opinion and staff. Our workforce represents diversity in gender, ethnicity, occupation, and age, and that diversity makes us stronger. It is the policy of the NRC and the responsibility of all NRC supervisory and managerial personnel to maintain a working environment that encourages each employee to make known his/her best professional judgment even though that judgment may differ from the prevailing staff view, disagree with a management decision or policy position or take issue with proposed or established agency practices.

EVALUATION CRITERIA.

At the completion of this guide you should be able to:

1. In general, describe the Differing Professional Opinion (DPO) program.
2. Describe the NRC Non-concurrence process.
3. Describe an Open Collaborative Work Environment.
4. Describe the Open Door Policy.
5. Describe the grievance process.
6. In general, describe how the Agency supports diversity in the staff.

TASKS.

1. DPO Program - Locate MD 10.159, "The NRC Differing Professional Opinions Program". In addition, locate information on Differing Views on the internal website (Under "Agencywide" select "Employee Resources," scroll down to "Employee Concerns" and select "Differing Views".).
 - a. What is the DPO policy?
 - b. What are the objectives of the program?
 - c. In general, how is a DPO submitted?

2. Non-Concurrence Process - Locate MD 10.158, "NRC Non-Concurrence Process". In addition, locate information on Non-Concurrence Process on the internal website under Differing Views.
 - a. What is the NCP policy?
 - b. What are the objectives of the program?
 - c. In general, how does the process work?
3. Open Collaborative Work Environment - On the internal website, look under Agencywide links and select OCWE.
 - a. What is an OCWE?
 - b. What does it mean to be a "Team Player"?
 - c. Describe the different ways to raise a concern.
4. Open Door Policy - Locate MD 10.160, "Open Door Policy". In addition, locate information on the Open Door Policy on the internal website under OCWE.
 - a. What is the Open Door Policy?
 - b. What are the objectives of the program?
 - c. In general, how does the process work?
5. Grievance Process - Locate the Grievance Procedures in the Collective Bargaining Agreement (On the internal website, under "Agencywide" select 'Employee Resources,' scroll down to "Union" and select "Collective Bargaining Agreement." In the agreement, go to Article 51 - Grievance Procedures.)
 - a. What is considered a grievance?
 - b. What matters are excluded from the process?
 - c. Know how to contact the Union office for more information.
6. Diversity - Locate NUREG/BR-0316, "Comprehensive Diversity Management Plan".
 - a. What are the goals of the Diversity Management Program?
 - b. What is the role of an employee in the program?
 - c. If possible, attend an EEO Commission briefing.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

B DPO Program

Initials	Date
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B Non-Concurrence Process

Initials	Date
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C Open Collaborative Work Environment

Initials	Date
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B Open Door Policy

Initials	Date
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B Grievance Process

Initials	Date
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B Diversity

Initials	Date
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Qualification Guide 5
Title 10 of the Code of Federal Regulations

PURPOSE. The Code of Federal Regulations (CFR) provides that licensees and certificate holders (Note - the term licensee will be used throughout this document to represent both licensees and certificate holders) comply with those Parts of the CFR that pertain to the possession, use, storage, disposal and transportation of radioactive materials. Fuel facilities are required to develop, document, and implement a material control and accounting program commensurate with the scope and extent of licensed activities within the plants. For this reason, it is mandatory that all material control and accounting (MC&A) license reviewers gain a comprehensive knowledge of the contents of relevant MC&A requirements in the CFR. This activity will provide the license reviewer with detailed knowledge of the contents of the requirements and how to apply the appropriate MC&A regulation requirements.

EVALUATION CRITERIA.

At the completion of this guide you should be able to:

1. Identify, recognize and locate specific MC&A topics presented in 10 CFR Part 74, and compare and contrast MC&A requirements for the different facility types/safeguards categories.
2. Discuss and interpret the contents of 10 CFR Parts 70, 75, and 76.
3. Discuss 10 CFR 2.390.
4. Discuss 10 CFR Parts 30, 40, 71, 72, 73, 95, 110, and 150.

TASKS.

1. 10 CFR Part 74
 - a. Review Part 74 Subpart A including general performance objectives and definitions.
 - b. Review Part 74 Subpart B on general reporting and recordkeeping requirements. Identify the three primary reports licensees must submit and discuss the purpose of each.
 - c. Review Part 74 Subpart C on the performance objectives and system capabilities for Category III facilities. Identify the differences in the requirements for Category III fuel fabrication facilities and enrichment facilities.

- d. Review Part 74 Subpart D on the performance objectives and system capabilities for Category II facilities. Identify the differences in the requirements for Category II facilities and Category III facilities.
- e. Review Part 74 Subpart E on the performance objectives and system capabilities for Category I facilities. Identify the differences in the graded requirements for Category I, II, and III facilities.

2. 10 CFR Parts 70, 75, and 76

- a. Review Part 70 on domestic licensing of special nuclear material. Identify the sections specific to MC&A.
- b. Review Part 75 on implementation of the US/IAEA agreement for the application of safeguards in the United States.
- c. Review Part 76 on certification of gaseous diffusion plants.

3. Review 10 CFR 2.390(d) for the requirement on disclosure of MC&A related information

4. Review 10 CFR Parts 30, 40, 71, 72, 73, 95, 110, and 150. Identify any information related to MC&A.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C 10 CFR Part 74

Initials	Date
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C 10 CFR Parts 70, 75, and 76

Initials	Date
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C 10 CFR 2.390(d)

Initials	Date
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B 10 CFR Parts 30, 40, 71, 72, 73, 95, 110, and 150

Initials	Date
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Qualification Guide 6
Exploring the Fuel Facility Licensing Program

PURPOSE. The purpose of the activity is to become familiar with the fuel facility licensing program and the roles and responsibilities of an MC&A License Reviewer.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Describe the role of an MC&A license reviewer.
2. Discuss fundamentals of the licensing process including the role of the project manager (PM).
3. Discuss the documents that MC&A license reviewers should maintain and be familiar with.
4. Discuss expectations regarding knowledge of the licensee facilities.
5. Discuss the content of 10 CFR 70.32(c) "Conditions of Licenses," and 70.34 "Amendment of Licenses."

TASKS.

1. MC&A License Reviewer Role – Discuss the role of an MC&A license reviewer with a qualified reviewer. Identify the various actions that a license reviewer may undertake.
2. Licensing Fundamentals - Review Chapters 1-5 of the Fuel Cycle PM Handbook. (On the **Internal** website, select "Organization," then click on "NMSS," then select "Quick Links.") Discuss the licensing process with a qualified PM.
 - a. Discuss how the PM and license reviewer interact regarding licensing actions.
 - b. Discuss how the PM and license reviewer interact with licensees.
 - c. Discuss what contact information the PM uses to communicate with the licensee and the Region.
3. Documents – discuss with a qualified MC&A license reviewer the following:
 - a. What documents should an MC&A license reviewer maintain in the office? Make a list.
 - b. What is the classification level for each of the documents listed.

c. Where are the documents kept? How are they protected?

4. Facility Knowledge.

a. Discuss with a qualified MC&A reviewer the knowledge a license reviewer should have of the licensed facilities.

b. Describe how a reviewer maintains unescorted access to a facility. Consult the NMSS Radiation Safety Officer if necessary.

c. What information is available to maintain knowledge of a facility's MC&A program?

5. License Amendments – Review 10 CFR 70.32(c) and 70.34.

a. Discuss with a qualified MC&A license reviewer examples of changes that may decrease the effectiveness of a licensee's MC&A program. What changes wouldn't decrease the effectiveness? When can the changes be implemented?

b. Discuss the types of amendments that would be made under 10 CFR 70.34. What types of changes are included? When can these changes be implemented?

c. Discuss the types of license exemptions requested by licensees. How is the licensing process completed for those requests?

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C MC&A License Reviewer Role

Initials	Date
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C Licensing Fundamentals

Initials	Date
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C Documents

Initials	Date
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C Facility Knowledge

Initials	Date
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C Amendments

Initials	Date
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Qualification Guide 7 Licensing Actions

PURPOSE. The purpose of the activity is to become familiar with how the MC&A license reviewer receives and responds to a licensing action.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Describe what a Technical Assignment Control (TAC) number is and what it is used for.
2. Describe what a Technical Assistance Request (TAR) is and how to respond to a TAR.
3. Describe the objective of the Safeguards Evaluation Report.
4. Describe the process for requesting additional information from a licensee.
5. Describe the roles and responsibilities of a PM and their interaction with the license reviewer.
6. Describe what an acceptance review is and when it should be completed.

TASKS.

1. TAC Numbers – Discuss with a qualified license reviewer or PM what a TAC number is and how it is used in HRMS to charge time spent on a licensing action.
2. Technical Assistance Requests (TARs) - See Chapter 11 of PM Handbook
 - a. Review Chapter 11 of the PM Handbook
 - b. Obtain a TAR from a qualified license reviewer. Identify who sent the TAR, the TAC number, deadlines for completing the tasks, and the reason for the request.
 - c. Discuss with a qualified reviewer the purpose of the TAR acceptance review and how one is conducted.
3. Safeguards Evaluation Reports (SERs) - see Chapter 12 of the PM Handbook
 - a. What is the purpose of a Safeguards Evaluation Report (SER)? When is an SER written?

- b. Why should a draft SER be prepared before additional information is requested?
 - c. Review an SER for an existing facility and identify the key components of each section. Discuss your observations with a qualified license reviewer.
 - d. Review an SER for a new facility license application. Identify the key components of each section. Discuss your observations with a qualified license reviewer.
4. Request for Additional Information (RAI) - see Chapter 13 of the PM Handbook.
- a. Review Chapter 13 of the PM handbook for guidance on how an RAI question should be worded.
 - b. Why must a regulatory requirement be cited?
 - (i) Is compliance with guidance required? (See the statement at the bottom of first page of any *final* Regulatory Guide.)
 - (ii) Why is it useful to call a licensee and discuss the requests before they are issued?
 - (iii) What does 2.108(a) say about RAI responses?
 - c. Review the list of RAIs for an existing facility license amendment. Read the corresponding sections of the licensee’s FNMC Plan and identify what triggered each RAI question. Discuss your observations with a qualified license reviewer.
 - d. Review the list of RAIs for a new facility license application. Read the corresponding sections of the licensee’s FNMC Plan and identify what triggered each RAI question. Discuss your observations with a qualified license reviewer.
5. Discuss with two senior PMs their roles during a licensing action and how they interact with an MC&A license reviewer.
6. Acceptance Review – Review the information on acceptance reviews in Section 9.5 of the PM handbook and discuss with a senior PM.

SUPERVISOR APPROVAL:
 Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C TAC Numbers

Initials	Date
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C Technical Assistance Requests

Initials	Date
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C Safeguards Evaluation Reports

Initials	Date
----------	------

C Requests for Additional Information

Initials	Date
----------	------

C Roles/Responsibilities and Interaction with a PM

Initials	Date
----------	------

C Acceptance Reviews

Initials	Date
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Qualification Guide 8 Interacting with Stakeholders

PURPOSE. The purpose of this activity is to become familiar with procedures for interacting with other NRC staff, licensees, and the public.

EVALUATION CRITERIA.

At the completion of this guide you should be able to:

1. Describe how a license reviewer should interact with a licensee.
2. Describe how a license reviewer should interact with other NRC staff.
3. Describe how a license reviewer should interact with the public.
4. Describe how a license reviewer should support a hearing process.

TASKS.

1. Interacting with a Licensee (see Chapters 4 and 5 of the PM Handbook):
 - a. How does a license reviewer maintain objectivity?
 - b. How should licensee documents be handled?
 - c. How should conference calls be used and documented?
2. Interacting with Other NRC Staff:
 - a. Which areas are inspected by Headquarters staff and which areas are inspected by Regional staff?
 - b. Who are the Project Managers for each fuel facility? (Locate on the internal NMSS web site)
 - c. Review some recent MC&A inspection reports for a fuel facility. Were there any violations? Were there any inspection follow-up items? Were there any unresolved issues?
 - d. Review the last License Performance Review (LPR) for a fuel facility. Did it identify any areas needing improvement?
3. Interacting with the Public (see Chapters 4 and 5 of the PM Handbook – while the Handbook is written for PMs, the guidance is also appropriate for a license reviewer)

- a. Describe how a license reviewer should communicate with the public. What should a reviewer strive to do? What should a reviewer refrain from doing?
- b. Describe how a public meeting should be conducted. What statements should be made? What forms should be provided? How should it be documented?
- c. How does a license reviewer handle remarks from a member of the public alleging licensee misconduct or problems at the site? (Complete the online Allegation training.)
- d. What does 10 CFR 2.206 allow a member of the public to request? Describe the process for handling these requests.

4. Hearing Process:

- a. Review NMSS P&PL 1-86, "NMSS Staff Support of the Hearing Process in 10 CFR Part 2."
- b. Discuss the pre-hearing process with respect to hearing notices and admissibility of intervention petitions.
- c. Discuss the hearing process with respect to testimony/exhibits, evidentiary hearing and adjudicatory records, and responsibility of the staff to preserve documents.
- d. Discuss the post-hearing process with respect to board and/or Commission decisions.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Interacting with a Licensee

Initials	Date
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C Interacting with Other NRC Staff

Initials	Date
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C Interacting with the Public

Initials	Date
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C Hearing Process

Initials	Date
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Qualification Guide 9 The Inspection Program

PURPOSE. The purpose of this activity is to become familiar with the inspection program for fuel cycle facilities.

EVALUATION CRITERIA.

At the completion of this guide you should have a clear understanding of the following:

1. Types of Inspection Manual Documents.
2. NMSS Responsibilities for the Inspection Manual
3. The Fuel Cycle Inspection Program in Manual Chapter (MC) 2600
4. MC&A Inspection Programs

TASKS.

1. Types of Inspection Manual Documents (see Manual Chapter 0040, on the internal web site, select Info Resources, scroll down to Key Guidance Documents and select Inspection Manual)
 - a. What information does a Manual Chapter contain? (see definitions in Section 0040-03 and formats in Section 0040-07)
 - b. What information does an Inspection Procedure (IP) contain?
 - c. What information does a Temporary Instruction (TI) contain?
2. NMSS Responsibilities
 - a. What are the NMSS responsibilities in the inspection manual? (see Section 0040-04)
 - b. Who is the current NMSS Inspection Manual Coordinator? (on the internal web site, select NMSS, and then select the Contacts and Resources List)
3. Fuel Cycle Inspection Program in MC 2600
 - a. NSIR is responsible for what part of the inspection program? (see Section 2600-05)
 - b. The FCSS/Technical Support Branch is responsible for what part of the inspection program?

- c. The FCSS/Material Control and Accounting Branch is responsible for what part of the inspection program?
- d. In general, describe the inspection program elements. (see Section 2600-07)
- e. What is the Master Inspection Plan? (see Section 2600-08)
- f. What tools are used to assess facility performance? (see Section 2600-12)
- g. Under the Core Inspection Program, what type of fuel facility receives the most inspection effort? (see MC 2600, Appendix B)
- h. In general, describe the Resident Inspector program. (see MC 2600, Appendix C)
- i. When planning for an inspection, what input is requested from the license/technical reviewer? (see MC 2600, Appendix D)
- j. Discuss with an MC&A inspector the outstanding inspection issues and resolution actions/activities.

4. MC&A Inspection Programs

- a. Review MC 2683 which describes the MC&A inspection program for fuel cycle facilities. Discuss the program with a qualified license reviewer or experienced MC&A inspector.
- b. Review MC 2515 which describes the light-water reactor inspection program – operations phase. Locate the MC&A portion of the program and review the applicable IP for MC&A.
- c. Review MC 2561 which describes the decommissioning power reactor inspection program. Locate the MC&A portion of the program and review the applicable IP for MC&A.
- d. Review MC 2545 which describes the research and test reactor inspection program. Locate the MC&A portion of the program and review the applicable IP for MC&A.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

B Types of Inspection Manual Documents

Initials	Date
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B NMSS Responsibilities

Initials	Date
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I Fuel Cycle Inspection Program in MC 2600

Initials	Date
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I MC&A Inspection Programs

Initials	Date
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Qualification Guide 10 MC&A/FNMC Plans

PURPOSE. The NRC requires that licensees develop a Material Control and Accounting Plan (formerly Fundamental Nuclear Material Control Plan) describing how the performance objectives and system features and capabilities delineated in 10 CFR Part 74 will be met. As an MC&A license reviewer, you will be reviewing these plans to ensure that they meet the requirements set forth by those regulations. For a new facility, you will be reviewing the entire plan. For this reason, it is vital that a MC&A license reviewer gain a detailed knowledge of the contents of a licensee's MC&A/FNMC Plan. This guide will provide MC&A license reviewers with the detailed knowledge of the contents of an MC&A/FNMC Plan, the location of the applicable information and requirements for specific topics, and how to apply the requirements.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Identify the applicable sections of Part 74 for facilities designated by your supervisor or the person designated as a resource, and discuss the required system capabilities for each of those facilities. At least one Category I and one Category III facility should be chosen.
2. Identify and discuss the applicable NUREG describing the acceptable MC&A/FNMC Plan format for each of the designated facilities.
3. Discuss process/material flow diagrams for the designated facilities.
4. Discuss each facility's MC&A program as described in the MC&A/FNMC Plan.

TASKS.

1. MC&A Regulations - For each facility designated by your supervisor or qualified MC&A license reviewer, identify and review the applicable MC&A regulations in 10 CFR Part 74.
2. Acceptable MC&A/FNMC Plan Format - Identify and review the appropriate NUREG specifying acceptable MC&A/FNMC Plan format for the facilities designated in Task 1 above.
3. Facility Process/Material Flow
 - a. Identify each material process conducted at the selected facilities including: chemical/physical form of SNM input to process, chemical/physical changes to SNM during processing, and chemical/physical form of output from the process.

- b. Identify sources of input materials (receipts) and destination of process outputs (shipments).

4. Facility MC&A/FNMC Plan Review

- a. Review the MC&A/FNMC Plan for the facilities and compare the information in the Plan to the guidance in the applicable NUREG.
- b. Identify areas where the Plan deviates from the guidance and discuss with a knowledgeable MC&A staff member.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C MC&A Regulations

Initials	Date
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C Acceptable MC&A/FNMC Plan Format and NUREG Review

Initials	Date
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C Facility Process/Material Flow

Initials	Date
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C Facility MC&A/FNMC Plan Review

Initials	Date
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Qualification Guide 11 MC&A Management Structure

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for a facility MC&A management structure, which includes organization, procedures, and training and qualification. An adequate management structure permits effective functioning of the MC&A system. Documentation, review and approval of procedures eliminate ambiguities about what is to be done and by whom. A training and qualification program can help ensure individuals are adequately prepared to perform their functions correctly with a minimum of errors.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the MC&A management structure requirements applicable to each of the facility types/safeguards categories.
2. Discuss the elements of an effective MC&A management structure as described in guidance documents.
3. Discuss the MC&A management structure for a facility designated by your supervisor or person designated as a resource for this activity.

TASKS.

1. MC&A Management Structure Requirements in 10 CFR Part 74
 - a. Review the requirements for a licensee's MC&A management structure, including organizational structure, independence from production responsibilities, procedures, and training and qualification, for each facility type/safeguards category.
 - b. Identify the differences in MC&A management structure requirements for the different facility types/safeguards categories.
2. MC&A Management Structure Guidance
 - a. Review the guidance for implementing an adequate management structure for a Category I facility contained in applicable sections of NUREG-1280.
 - b. Review the guidance for implementing an adequate management structure for a Category II facility contained in applicable sections of the Category II NUREG.

- b. Review the guidance for implementing an adequate management structure for a Category III facility contained in Chapter 1 of NUREG-1065.
 - c. Compare and contrast the Category III facility guidance with the guidance for a Category I and Category II facility.
 - d. Review the guidance for implementing an adequate management structure for a Category III enrichment facility contained in Chapter 1 of NUREG/CR-5734.
 - e. Compare and contrast the Category III enrichment facility guidance with the guidance for other Category III facilities.
3. Facility Example - Review the MC&A/FNMC Plan section on MC&A management structure for a facility designated by your supervisor or person designated as a resource for this activity.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C MC&A Management Structure Requirements

Initials	Date
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C MC&A Management Structure Guidance

Initials	Date
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C Facility Example

Initials	Date
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Qualification Guide 12 Measurements and Measurement Control

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for a licensee's measurement and measurement control programs. Licensees must maintain a system of measurements to ensure that all quantities of SNM in the accounting records are based on reliable measurements, and must control the quality of measurements to satisfy the capabilities required for loss detection, response, and accounting.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the measurement systems and measurement control requirements applicable to each of the facility types/safeguards categories.
2. Identify the major categories of MC&A measurements and discuss the specific measurement systems used for each of the measurement categories identified.
3. Discuss the elements of an effective measurements program.
4. Discuss the elements of an effective measurement control program.
5. Discuss measurement error variance estimates.
6. Discuss the MC&A measurements and measurement control program for a facility designated by your supervisor or person designated as a resource for this activity.

TASKS.

1. Measurements and Measurement Control Requirements in 10 CFR Part 74
 - a. Review the requirements for measurement systems and measurement control for each facility type/safeguards category.
 - b. Identify the differences in requirements for the different facility types/safeguards categories.
2. MC&A Measurement Systems - Read Appendix 13B, Measurement Systems, of NUREG/CR-4604. Be prepared to discuss the major categories of MC&A measurements and the specific measurement systems used for each of the measurement categories identified.

3. Measurement Systems Guidance - Review the acceptable elements of a measurements program for the following:
 - a. Category I facility, as described in Chapter 5 of NUREG-1280.
 - b. Category II facility, as described in Chapter 2 of the Category II NUREG.
 - c. Category III facility, as described in Chapter 2 of NUREG-1065.
 - d. Category III enrichment facility, as described in Chapter 2 of NUREG/CR-5734.

4. Measurement Control Program Guidance - Review the acceptable elements of a measurement control program for the following:
 - a. Category I facility, as described in Chapter 6 of NUREG-1280.
 - b. Category II facility, as described in Chapter 3 of the Category II NUREG.
 - c. Category III facility, as described in Chapter 3 of NUREG-1065.
 - d. Category III enrichment facility, as described in Chapter 3 of NUREG/CR-5734.

5. Measurement Error Variances - Review Chapter 3, Sources of Uncertainty in Nuclear Materials Control, of TID-26298. Be prepared to discuss random and systematic measurement error variance estimates.

6. Facility Example – Review the MC&A/FNMC Plan section on measurements and measurement control for a facility designated by your supervisor or person designated as a resource for this activity.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Measurements and Measurement Control Requirements

Initials	Date
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C MC&A Measurement Systems

Initials	Date
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C Measurement Systems Guidance

Initials	Date
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C Measurement Control Program Guidance

Initials	Date
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C Measurement Error Variances

Initials	Date
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C Facility Example

Initials	Date
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Qualification Guide 13
Item Control and Item Monitoring

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for a licensee's item control/item monitoring program. For all facilities, the licensee must implement item control procedures that protect against unauthorized and unrecorded removal of items, or of material from items, and enable timely location of items.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the item control/item monitoring requirements and guidance for a Category I facility.
2. Discuss the item control requirements and guidance for a Category II facility.
3. Discuss the item control requirements and guidance for a Category III facility.
4. Discuss differences in item control/item monitoring for the different facility types/safeguards categories.

TASKS.

1. Item Control/Monitoring for a Cat I facility
 - a. Review the item monitoring requirements for a Category I facility as specified in 10 CFR 74.55.
 - b. Review the acceptable elements of an item monitoring program as described in Chapter 2 of NUREG-1280.
 - c. Review the MC&A/FNMC Plan section on item monitoring for a Category I facility designated by your supervisor or person designated as a resource for this activity.
2. Item Control/Monitoring for a Cat II facility
 - a. Review the item monitoring requirements for a Category II facility as specified in 10 CFR 74.43.
 - b. Review the acceptable elements of an item control/monitoring program as described in Chapter 2 of the Category II NUREG.

- c. Review the MC&A/FNMC Plan section on item monitoring for a Category I facility designated by your supervisor or person designated as a resource for this activity.
3. Item Control/Monitoring for a Category III facility
- a. Review the item control requirements for a Category III facility as specified in 10 CFR 74.31 and 10 CFR 74.33.
 - b. Review the acceptable elements of an item control program for a Category III facility, as described in Chapter 6 of NUREG-1065, and for a Category III enrichment facility, as described in Chapter 6 of NUREG/CR-5734.
 - c. Review the MC&A/FNMC Plan section on item control/monitoring for a Category III facility designated by your supervisor or person designated as a resource for this activity.
4. Facility Comparison – Compare and contrast the item control/monitoring requirements and guidance for the different facility types/safeguards categories, in particular the regulatory requirement differences between a Category I facility and any other facility category.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Item Control/Monitoring for a Category I Facility

Initials	Date
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C Item Control/Monitoring for a Category II Facility

Initials	Date
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C Item Control/Monitoring for a Category III Facility

Initials	Date
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C Facility Comparison

Initials	Date
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Qualification Guide 14 Physical Inventory

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for conducting a physical inventory. Periodic physical inventories enable a licensee to adjust accounts to accurately reflect the status of the inventory. For Category I facilities, comparisons of the book inventory to the physical inventory serve as a quality control check on the performance of the material control tests employed for prompt loss detection. For Category II and Category III facilities, annual physical inventories are performed to confirm that a loss or diversion of a significant quantity of SNM has not occurred.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the physical inventory requirements and guidance for a Category I facility.
2. Discuss the physical inventory requirements and guidance for a Category II facility.
3. Discuss the physical inventory requirements and guidance for a Category III facility.
4. Discuss limits of error and the standard error of the inventory difference.
5. Discuss the results of an inventory as reported on NRC Form 327.
6. Discuss any differences in physical inventory requirements and/or guidance for the different facility types/safeguards categories.

TASKS.

1. Physical Inventory for a Category I facility
 - a. Review the physical inventory requirements for a Category I facility as specified in 10 CFR 74.59.
 - b. Review the acceptable elements for conducting a physical inventory for a Category I facility as described in Chapter 8 of NUREG-1280:
 - (i) Facility Preparation.
 - (ii) Inventory Performance.

- (iii) Inventory Reconciliation.
 - (iv) Standard Error of the Inventory Difference Estimator.
 - c. Review the MC&A/FNMC Plan section on physical inventory for a Category I facility designated by your supervisor or person designated as a resource for this activity.
- 2. Physical Inventory for a Category II facility
 - a. Review the physical inventory requirements for a Category II facility as specified in 10 CFR 74.43.
 - b. Review the acceptable elements for conducting a physical inventory for a Category II facility as described in Chapter 5 of the Category II NUREG:
 - (i) Facility Preparation.
 - (ii) Inventory Performance.
 - (iii) Inventory Reconciliation.
 - (iv) Standard Error of the Inventory Difference Estimator.
 - c. Review the MC&A/FNMC Plan section on physical inventory for a Category II facility designated by your supervisor or person designated as a resource for this activity.
- 3. Physical Inventory for Category III facilities
 - a. Review the physical inventory requirements for a Category III facility as specified in 10 CFR 74.31, and for a Category III enrichment facility as specified in Section 74.33. What are the differences? What are the similarities?
 - b. Review the acceptable elements for conducting a physical inventory for a Category III facility as described in NUREG-1065:
 - (i) Chapter 5, Physical Inventories.
 - (ii) Determination of SEID.
 - (iii) Bias Corrections.
 - c. Review the acceptable elements for conducting a physical inventory for a Category III enrichment facility as described in NUREG/CR-5734:

- (i) Chapter 5, Physical Inventories.
 - (ii) Determination of SEID.
- d. Review the MC&A/FNMC Plan section on physical inventory for a Category III facility designated by your supervisor or person designated as a resource for this activity.
4. Review Chapters 4, 5, and 6 in TID-26298 for a general discussion of limits of error and calculating the standard error of the inventory difference (SEID).
 5. Review the inventory reporting requirements in 10 CFR 74.17 and NUREG/BR-0096 for instructions and guidance for completing NRC Form 327. Be prepared to discuss the various items that are reported on the form.
 6. Facility Comparison – Compare and contrast the physical inventory requirements and guidance for the different facility types/safeguards categories.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Physical Inventory for a Category I Facility

Initials	Date
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C Physical Inventory for a Category II Facility

Initials	Date
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C Physical Inventory for Category III Facilities

Initials	Date
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C Limit of Error and SEID

Initials	Date
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C NRC Form 327 and NURG/BR-0096

Initials	Date
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C Facility Comparison

Initials	Date
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Qualification Guide 15 Process Monitoring

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for a licensee's process monitoring program. For Category I facilities, licensees must have a quality control program that will provide early indications of diversion or theft and a prompt detection system for significant abrupt diversions of five formula kilograms or more.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the process monitoring requirements.
2. Discuss the elements of an effective process monitoring program.
3. Discuss the process monitoring program for a facility designated by your supervisor or person designated as a resource for this activity.

TASKS.

1. Review the process monitoring requirements for a Category I facility as specified in 10 CFR 74.53.
2. Review the acceptable elements of a process monitoring program as described in Chapter 1 of NUREG-1280:
 - a. Process Subdivision and Measurement Points.
 - b. Material Control Tests.
 - c. Location Categorization and Material Substitution.
 - d. Exemptions.
 - e. Trend Analysis.
3. Facility Example – Review the MC&A/FNMC Plan section on process monitoring for a facility designated by your supervisor or person designated as a resource for this activity.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Process Monitoring Requirements

Initials	Date
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C Process Monitoring Guidance

Initials	Date
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C Facility Example

Initials	Date
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Qualification Guide 16
Detection of Unauthorized Production

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for an enrichment facility's program to protect against and detect unauthorized production of enriched uranium.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the requirements pertaining to precluding and detecting unauthorized production of enriched uranium.
2. Discuss the elements of an effective detection program.
3. Discuss the program for detection of unauthorized production for a facility designated by your supervisor or person designated as a resource for this activity.

TASKS.

1. Review the detection program requirements for an enrichment facility as specified in 10 CFR 74.33.
2. Review the guidance for an acceptable detection program as described in Chapter 9 of NUREG/CR-5734:
 - a. Organization.
 - b. General Description of Program.
 - c. Data, Information, and Activities to be Monitored.
 - d. Reporting and Documentation Requirements.
3. Facility Example – Review the MC&A/FNMC Plan section on detection of unauthorized production for a facility designated by your supervisor or person designated as a resource for this activity.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Detection of Unauthorized Production Requirements

Initials	Date
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C Detection Of Unauthorized Production Guidance

Initials	Date
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C Facility Example

Initials	Date
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Qualification Guide 17 Resolution Program

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for resolving an indicator of potential loss of nuclear material. For Category I facilities, the resolution program must be able to respond promptly to process and item monitoring alarms and determine whether the alarm was caused by an actual loss or by a system error. For all facilities, the licensee must investigate and resolve indicators of potential loss including significant shipper-receiver differences (SRDs), excessive inventory differences (IDs), and item control discrepancies. For enrichment facilities, indicators of unauthorized production must also be investigated and resolved.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the resolution program requirements and guidance for Category I facilities.
2. Discuss the resolution program requirements and guidance for Category II facilities.
3. Discuss the resolution program requirements and guidance for Category III facilities.
4. Discuss the resolution program requirements and guidance for Category III enrichment facilities.
5. Discuss any differences in resolution program requirements and/or guidance for the different facility types/safeguards categories.

TASKS.

1. Resolution Program for a Category I facility
 - a. Review the alarm resolution requirements for a Category I facility as specified in 10 CFR 74.57.
 - b. Review the requirements for resolution of excessive IDs and significant SRDs for Category I facilities as specified in 10 CFR 74.59(f) and (h).
 - c. Review the guidance for development of MC&A alarm resolution procedures in NUREG/CR-4108.
 - d. Review the acceptable elements for resolving alarm indicators for a Category I facility as described in NUREG-1280.

- e. Review the acceptable elements for resolving excessive IDs and significant SRDs for a Category I facility as described in NUREG-1280:
 - (i) Inventory Reconciliation.
 - (ii) Shipper-Receiver Differences.
 - f. Review, for a particular Category I facility, the MC&A/FNMC Plan sections on alarm resolution, resolving excessive IDs and resolving significant SRDs.
2. Resolution Program for a Category II facility
- a. Review the requirements for resolving excessive IDs and significant SRDs for a Category II facility as specified in 10 CFR 74.43.
 - b. Review the guidance for resolving excessive IDs, significant SRDs, and item control discrepancies for a Category II facility as described in the Category II NUREG:
 - (i) Inventory Difference Limits and Response Actions.
 - (ii) Shipper-Receiver Comparisons.
 - (iii) Investigation and Resolution of Item Discrepancies.
 - (iv) Resolving Indications of Missing Uranium.
 - c. Review, for a particular Category II facility, the MC&A/FNMC Plan sections on resolving excessive IDs, significant SRDs, and item control discrepancies.
3. Resolution Program for a Category III facility
- a. Review the requirements for resolving excessive IDs and significant SRDs for a Category III facility as specified in 10 CFR 74.31.
 - b. Review the guidance for resolving excessive IDs, significant SRDs, and item control discrepancies for a Category III facility as described in NUREG-1065:
 - (i) Inventory Difference Limits and Response Actions.
 - (ii) Shipper-Receiver Comparisons.

- (iii) Investigation and Resolution of Item Discrepancies.
 - (iv) Resolving Indications of Missing Uranium.
 - c. Review, for a particular Category III facility, the MC&A/FNMC Plan sections on resolving excessive IDs, significant SRDs, and item control discrepancies.
- 4. Resolution Program for a Category III enrichment facility
 - a. Review the requirements for resolving excessive IDs, significant SRDs, and indications of unauthorized production for a Category III enrichment facility as specified in 10 CFR 74.33.
 - b. Review the guidance for resolving excessive IDs, significant SRDs, item control discrepancies, and indicators of unauthorized production for a Category III enrichment facility as described in NUREG/CR-5734:
 - (i) Inventory Difference Limits and Response Actions.
 - (ii) Shipper-Receiver Comparisons.
 - (iii) Investigation and Resolution of Item Discrepancies.
 - (iv) Resolving Indications of Missing Uranium and of Unauthorized Production of Enriched Uranium.
 - c. Review, for a particular Category III enrichment facility, the MC&A/FNMC Plan sections on resolving excessive IDs, significant SRDs, item control discrepancies, and indicators of unauthorized production.
- 5. Facility Comparison – Compare and contrast the resolution program requirements and guidance for the different facility types/safeguards categories.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive = **C**

C Resolution Program for a Category I Facility

Initials	Date
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C Resolution Program for a Category II Facility

Initials	Date
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C Resolution Program for a Category III Facility

Initials	Date
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C Resolution Program for a Category II Enrichment Facility

Initials	Date
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C Facility Comparison

Initials	Date
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Qualification Guide 18 Recordkeeping/Independent Assessments

PURPOSE. The purpose of this guide is to familiarize you with the requirements and guidance for a facility's recordkeeping system and for performance of independent assessments of the MC&A program. The licensee must have an auditable records system that contains sufficient information to facilitate further review, audits, and inspections to demonstrate that all MC&A/FNMC Plan commitments have been met. An independent assessment of the MC&A program enables the licensee to evaluate the overall effectiveness of the MC&A program relative to the performance objectives and system capabilities specified in the regulations.

EVALUATION CRITERIA.

At the completion of this guide, you should be able to:

1. Discuss the recordkeeping requirements and guidance for the different facility types/safeguards categories.
2. Discuss the independent assessment requirements and guidance for the different facility types/safeguards categories.
3. Discuss the requirements for preparing and distributing Nuclear Material Transaction Reports and Material Status Reports.

TASKS.

1. Recordkeeping
 - a. Review the recordkeeping requirements for the different facility types/safeguards categories as specified in 10 CFR Part 74.
 - b. Identify any differences in recordkeeping requirements for the different facility types/safeguards categories.
 - c. Review the guidance for implementing an adequate recordkeeping system for the following:
 - (i) Category I facility, contained in NUREG-1280.
 - (ii) Category II facility, contained in the Category II NUREG.
 - (iii) Category III facility, contained in NUREG-1065.
 - (iv) Category III enrichment facility, contained in NUREG/CR-5734.

- d. Compare the recordkeeping requirements specified in 10 CFR Part 74 with requirements in 10 CFR Part 75.
2. Independent Assessments
- a. Review the requirements for conducting an independent assessment of the MC&A program for the different facility types/safeguards categories as specified in 10 CFR Part 74.
 - b. Identify any differences in the requirements for conducting the assessment for the different facility types/safeguards categories.
 - c. Review the guidance for conducting an independent assessment of the MC&A program for the following:
 - (i) Category I facility, contained in NUREG-1280.
 - (ii) Category I facility, contained in the Category II NUREG.
 - (iii) Category III facility, contained in NUREG-1065.
 - (iv) Category III enrichment facility, contained in NUREG/CR-5734.
3. Material Status Reports and Nuclear Material Transaction Reports
- a. Review the requirements for preparing and distributing Material Status Reports and Nuclear Material Transaction Reports as specified in 10 CFR 74.13 and 74.15.
 - b. Review the guidance for preparing and distributing Material Status Reports and Nuclear Material Transaction Reports contained in NUREG/BR-0007 and NUREG/BR-0006.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Recordkeeping

Initials	Date
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C Independent Assessments

Initials	Date
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C Material Status and Nuclear Material Transaction Reports

Initials	Date
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Qualification Guide 19
On The Job Training

PURPOSE. The purpose of this activity is to work with an experienced MC&A license reviewer to apply the knowledge gained from this qualification journal to actions associated with reference facilities.

EVALUATION CRITERIA.

1. Site Visits
2. TARs and Acceptance Reviews
3. Requesting Additional Information
4. Safeguards Evaluation Reports
5. Amendment Requests – 10 CFR 70.32 and 70.34

TASKS.

1. Site Visits
 - a. Arrange a visit to either one Category I facility, or enrichment facility, or Category III fuel fabrication facility.
 - b. Process a Form 277 to transfer your security clearance to the site, if necessary.
 - c. Obtain an NRC dosimeter.
 - d. Review the facility MC&A/FNMC Plan.
 - e. Visit the site.
 - f. Discuss the visit with a qualified MC&A license reviewer after the visit.
2. TARs and Acceptance Reviews – Work with a qualified MC&A license reviewer to complete the following tasks:
 - a. Review a new TAR. Identify who sent the TAR, the TAC number, deadlines for completing the tasks, and the reason for the request.
 - b. Discuss the information with a license reviewer. Describe how you would proceed with the TAR.

- c. Review a licensing action and determine if acceptable, and review the basis for acceptability with a qualified license reviewer.
- 3. Requesting Additional Information – Work with a qualified MC&A license reviewer to complete the following tasks:
 - a. Review a new license application for RAIs and develop the RAIs if applicable. Discuss the RAIs with the license reviewer.
 - b. If there are no current new applications being reviewed, obtain an original version of the application for a currently licensed facility and compare RAIs you develop with the RAIs sent to the licensee.
 - c. Review an amendment request for RAIs and develop the RAIs if applicable. Discuss the RAIs with the license reviewer.
- 4. Safeguards Evaluation Reports – Work with a qualified MC&A license reviewer to complete the following tasks:
 - a. Develop an SER for a license amendment request. Review and discuss the SER with the license reviewer.
 - b. Repeat 4.a. above as needed to ensure understanding of SER development.
- 5. Amendment Requests – Work with a qualified MC&A license reviewer to complete the following tasks:
 - a. Review a license amendment request submitted under 10 CFR 70.32(c). Identify the changes that were made and why they are allowed under 10 CFR 70.32(c).
 - b. Review a license amendment request submitted under 10 CFR 70.34. Which changes required the amendment be made under 70.34? Were there any changes that could have been made under 70.32(c) (had they been submitted separately)?
 - c. If possible, review a license exemption request. Work with the license reviewer and the facility Project Manager to complete the task.

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Site Visits

Initials	Date
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C TARs and Acceptance Reviews

Initials	Date
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C Requesting Additional Information

Initials	Date
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C Safeguards Evaluation Reports

Initials	Date
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C Amendment Requests

Initials	Date
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Qualification Guide 20
Specialized Training

PURPOSE. The purpose of this activity is to complete formal classes which teach skills and knowledge important to MC&A license reviewer functions.

EVALUATION CRITERIA.

1. Site Access Training
2. Fuel Cycle Processes
3. Regulatory Process
4. Communications
5. Basic MC&A Training
6. Additional Post Qualification MC&A Training

TASKS.

1. Site Access Training – Complete H100 or H101
2. Fuel Cycle Processes – Complete F201 or F201S
3. Regulatory Process
4. Communications – Complete at least one of the following classes:
 - a. Technical Writing
 - b. Conducting Effective Public Meetings
 - c. Media Training Workshop
5. Basic MC&A Training – Complete basic MC&A training as needed based on experience in consultation with Branch Chief:

Note: An asterisk (*) indicates the training is available through the DOE National Training Center (NTC). See the website <http://ntc.doe.gov>. The preferred method for completing the training is through the classroom version at the NTC. If not available in a timely manner, the class may be taken self-study using material on the MC&A Branch Sharepoint site working with a qualified MC&A reviewer or inspector.

- a. *MCA-101DC - Introduction to Nuclear Material Control & Accounting (DOE NTC)

- b. Measurement of Nuclear Material (self-study)
 - c. *MCA-110 – Basics of Nuclear Materials Accountability (DOE NTC or self-study)
 - d. *MCA-120 – Basics of Nuclear Materials Control (DOE NTC or self-study)
 - e. *MCA-130 – Statistical Concepts in MC&A (DOE NTC or self-study)
6. Additional Post Qualification MC&A Training – Complete post qualification MC&A training as needed based on experience in consultation with Branch Chief:

Note: An asterisk (*) indicates the training is available through the DOE National Training Center (NTC). See note above.

The “Fundamentals of Nondestructive Assay” and “Statistical Concepts in Nuclear Safeguards” courses are taught at Los Alamos National Laboratory (LANL). See the LANL website for information about these courses.

- a. *MCA-260 – Physical Inventories for MC&A (DOE NTC or self-study)
- b. Fundamentals of Nondestructive Assay (LANL)
- c. Statistical Concepts in Nuclear Safeguards (LANL)

SUPERVISOR APPROVAL:

Basic = **B**, Intermediate = **I**, Comprehensive= **C**

C Site Access Training

Initials	Date
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C Fuel Cycle Processes

Initials	Date
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C Regulatory Process

Initials	Date
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I Communications

Initials	Date
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C Basic MC&A Training

Initials	Date
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C Additional Post Qualification MC&A Training

Initials	Date
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Attachment 1

Revision History for IMC 1246, Appendix C3

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
n/a	10/26/2011	Added new Qualification Journal for material control and accounting license reviewer.	No	n/a	n/a