The National Nuclear Security Administration Contractor Material Control and Accountability Technical Qualification Program

Abstract

The MC&A community across the DOE Complex has experienced significant turnover and attrition over the past decade at both the Federal and Contractor levels resulting in a marked decrease in the knowledge and experience level of the MC&A technical base. This caused a decrease in MC&A performance and, in turn, manifested in operational issues to include extended work stoppages with significant impact to programs (inability to meet deliverables on time).

To address this problem by strengthening the MC&A Technical Base, NNSA and the National Training Center partnered with the NNSA national laboratories (LANL, LLNL, and SNL) to develop and implement a Technical Qualification Program (TQP) Pilot that would (1) create a Contractor analog to the NTC Federal Program Specific Qualification Standard for MC&A, (2) identify any training gaps needed to meet knowledge and mandatory performance requirements, (3) address those gaps by developing supplemental training, and (4) conduct the TQP Pilot in 2021 for MC&A professionals.

This paper will discuss all steps taken to create the Contractor TQP and lessons learned.

Background

The NNSA Contractor MC&A TQP is based on the National Training Center Functional Area Qualification Standard for Federal Safeguards and Security Personnel. The FAQs are based on required tasks of Federal personnel and prescribe mandatory performance activities and knowledge requirements for the different areas of safeguards and security. Up until this effort, there were no Enterprise-level technical qualification programs for MC&A site contractors. Each site had site-specific TQP requirements primarily based on mechanics of job responsibilities, but these TQP programs did not go into detail as to the "why" of MC&A. As an example, site contractor personnel knew how to conduct a physical inventory – but many do not fully understand why the physical inventory is important and how it contributes to the security mission of the site. This gap in knowledge could potentially lead to ineffective implementation.

Recognizing these issues coupled with attrition rates and individuals remaining in NMC&A positions for limited periods of time, the NNSA MC&A Implementation Panel decided to create a contractor analog to the FAQs. Once all contractor MC&A tasks were identified (complete with both mandatory performance activities and knowledge requirements), a cross walk with the current NTC current training curriculum was completed and gaps were identified. For each gap, training was developed (gap training) and included in the course to ensure that all mandatory performance activities and knowledge requirements were addressed in the training. All of this work was completed and peer-reviewed by NA-712 and EA personnel.

With the NTC MC&A training curriculum updated with the gap training and the addition of several courses (statistics, program management and Non-Destructive Analysis for Assessors),

the NNSA and NTC developed a Process Guide for the TQP Pilot that was initiated for LANL, LLNL, and SNL.

NNSA MC&A TQP Process Guide

The purpose of the Enterprise Technical Qualification Program (TQP) Process Guide is to provide direction on the process for individuals who wish to obtain an enterprise level qualification in one or more Nuclear Material Control & Accountability (MC&A) functions.

The Process Guide outlines all related roles and responsibilities as well as necessary actions to support the MC&A TQP. The guide defines the qualification process to ensure individuals responsible for MC&A functions are knowledgeable and understand the MC&A Program objectives, which in turn, will strengthen the technical base of the MC&A Program throughout the complex.

Note: This program does not replace site specific qualification requirements. The Enterprise TQP is a separate program and should be completed as prescribed herein. Completion of any of these qualification requirements do not indicate individuals are site qualified to perform a function or task.

The TQP program applies to personnel within the National Nuclear Security Administration (NNSA) who perform MC&A functions, managers, training coordinators, qualifying officials, and the National Training Center (NTC).

Specific functions have been identified for the five MC&A sub-topical areas, which are as follows:

- Program Management

- Material Control

- Measurement/Measurement Control

- Material Accounting

- Physical Inventory

TQP Qualification

TQP participants must complete and submit a TQP Questionnaire (Attachment B) to the qualifying official or designee to initiate their involvement in the Technical Qualification Program. Qualification should be achieved within 18 months of initiation of the qualification card. Some functions may require qualification in more than one sub-topical area as determined by management or training coordinators.

Participants must complete applicable training and activities to meet all objectives. A designated qualifying official will be required to evaluate and confirm completion of all requirements. Once

all objectives have been met, a completion certificate will be issued to the participant for associated function.

To maintain qualification, participants will need to conduct activities on a periodic basis. All activities will need to be documented and submitted to the appropriate site training coordinator.

Qualification card(s) should be reviewed biennially (every 2 years) to ensure new revisions of DOE Orders, requirements, and applicable documents have been reviewed. This can be done by the participant and/or site training coordinator.

- To maintain qualifications, individuals must also participate in MC&A activities. A participant must acquire 20 points every two years. Point values are based on the weight of the activity. Activities include the following:
  - Conduct an MC&A technical presentation
  - Write MC&A white paper
  - Participate as a Presenter in an MC&A Training Course
  - Participate in annual EFCOG meetings
  - Participate in bi-annual Implementation Panel meetings
  - Participate in MC&A sub-topical Working Groups
  - Participate in a special MC&A projects or committees

Training requirements have been established to achieve enterprise qualification based on MC&A functions identified as a part of this program. Training courses will be made available through the National Training Center (including the Site Directed Training Program), Oak Ridge National Laboratory, Los Alamos National Laboratory, and the Savannah River Site.

Qualification cards will include knowledge-based requirements and MPAs which will be required for participants to demonstrate proficiency in an area. Knowledge-based requirements, MPAs and course testing will be part of the MC&A course material.

Evaluation Criteria

Only individuals approved as a "Qualifying Official" may authorize completion of a qualification card. This role will require in-depth knowledge of the subject area. The qualifying official must utilize the MC&A Contractor Evaluation Guide to qualify an individual. The guide defines the sub-topical areas, functions, objectives, and methodology for completion of the qualifications.

Individuals that have taken required courses prior to May 2021 may choose one of two options to receive credit towards qualification. They may take the newly updated course or take the specific course gap training which will include testing and activities to ensure the knowledge and MPA objectives are met as identified in the qualification requirements.

Implementation and Responsibilities

A. *MC&A Manager (or designee)*
1. Identifies individuals and/or positions that may participate in the Contractor Enterprise TQP.
2. Submits participant names to Site Training Coordinator for further processing of qualification(s).
3. Notifies participant of TQP submittal request.

B. *MC&A Site Training Coordinator*
1. In coordination with the manager of the designated participant, identifies qualification function(s) and/or objectives set forth in the TQP Qualification Card for the individual.
2. Ensures that all designated participants complete and submit a TQP Questionnaire.
3. Evaluates current training records of TQP participant and identifies necessary training which needs to be completed.
4. Communicates training needs to TQP participant with available training dates and locations.
5. Ensures TQP participant has access to training and receives appropriate credit for courses after completion.
6. Ensures TQP participant is aware of evaluation process and Qualifying Official role.
7. Identify and notify the applicable qualifying official(s) for participant.
8. Ensures TQP participant has met qualification requirements and all portions of the qualification card are complete prior to signing.
9. Submits all documentation to the NTC for qualification in the specified function.
10. Ensures TQP participant receives completion certification when all courses have been successfully completed per the qualification card.
11. Maintains all records to include follow-up of continuing education required to maintain certification.

C. *Qualification Applicant*
1. Coordinates with manager and MC&A site training coordinator for enrollment in the Enterprise TQP.
2. Understands designated function(s) assigned by manager and MC&A site training coordinator.
3. Obtains qualification card necessary for MC&A function(s) and communicates with qualifying official as applicable.
4. Requests training records from the MC&A site training coordinator.
5. Coordinates with the MC&A site training coordinator to identify training needs.
6. Attends courses or gap training to obtain course accreditation to meet objectives.

7. Ensures all objectives identified on qualification card are met.
8. Requests review of qualification card by qualifying official during review of each objective.
9. Signs Authorization page when all requirements have been met.
10. Submits qualification card to site training coordinator and qualifying official for authorization signatures.
11. Maintains qualifications through documented required activities on biennial basis.

D. *Qualifying Official*
1. Obtains authorization to act as a Qualifying Official.
2. Maintains TQP Questionnaires for all TQP participants.
3. Requests official transcripts from the NTC.
4. Utilizes the MC&A Contractor Evaluation Guide to review participant objectives.
5. Responsible for verifying the knowledge and MPA requirements have been met for participant.
6. Initials each objective verified or observed.
7. Signs Authorization page when all requirements have been met.

E. *NTC*
1. Responsible for management of the MC&A suite of courses curriculum and course schedule for the Contractor Enterprise TQP.
2. Ensures MC&A courses are available as needed for individuals to attend.
3. Maintains training and qualification records for the TQP through eTQP.

NMC&A Continuous Learning Point Accreditation	
Creditable Activities	**Continuous Learning Point (CLP) Credit**
Academic Courses:	**40 CLP Requirement**
College Courses	30 CLPs per course
Equivalency Exams	Same points as awarded for the course
Training Courses/Modules:	**40 CLP Requirement**
Courses/Continuous Learning Modules - site level and/or NTC level	1 CLP per hour of instruction, maximum 20 CLPs per year
Continuous Learning Modules testing/assessment associated - Site level	1 CLP per hour of instruction, maximum 20 CLPs per year
Leadership Training—(this excludes supervisory training for supervisory positions)	1 CLP per hour of instruction, maximum 20 CLPs per year
Conduct On the Job Training	10 CLPs per training, maximum 20 CLPs total
Conducting Training – site level and/or NTC level	10 CLPs per training, maximum 20 CLP per year
Professional Activities:	**40 CLP Requirement**
Publications	15 CLPs per publication, maximum 15 CLPs per year
Teaching /Lecturing	2 CLPs per hour; maximum 20 CLPs per year
Symposia/Conference *Presentations* (i.e., ,EFCOG, IP, INMM, etc.)	2 CLPs per hour; maximum 20 CLPs per year
Symposia/Conference *Attendance* (i.e., EFCOG, IP, INMM, etc.)	1 CLPs per hour; maximum 7 CLPs per day; 20 CLPs per year
Workshop Participation	1 CLP per hour; maximum 6 CLPs per day; 20 CLPs per year
Webinars/VTC	1 CLP per hour; maximum 6 CLPs per day; 20 CLPs per year
EFCOG MC&A Working Group Participation	I CLP per meeting attended, maximum of 12 CLPs per year
Experience:	**40 CLP Requirement**
EFCOG MC&A Working Group Co-Chair	1 CLP per hour, maximum of 15 CLPs per year
Peer Review Participation	1 CLP per hour, maximum of 15 CLPs per year
MC&A Program Element Assessment	15 CLPs per assessment
MCA Element Peer Review for another Site	Maximum 8 CLPs per day
Technical Content Advisor for one or more courses in your certification program	Maximum 15 CLPs per year
Special Project *Leader*	Maximum 15 CLPs per year
Special Project *Member*	Maximum 10 CLPs per year
Mentoring Program (Documented and approved by MC&A Manager)	Maximum 5 CLPs per year
Rotational Assignments Site Level	**Recommended Points:**
1 Month - 12 Months	4 CLPs per month, Maximum 40 CLPs per year
Benchmarking other sites	10 CPLs per site

NOTE

- 40 CLPs must be accumulated within a 2-year timeframe
- All activities must be in MC&A related functional area
- Documentation must be provided for each activity with approval signature from the MC&A site training coordinator