




UNITED STATES
NUCLEAR REGULATORY COMMISSION
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August 23, 2022

MEMORANDUM TO: Christopher G. Miller, Director
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

FROM: Philip J. McKenna, Chief  Signed by McKenna, Philip
Reactor Assessment Branch on 08/23/22
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

SUBJECT: APPROVAL TO IMPLEMENT A PILOT ALTERNATE
TRAINING PROGRAM FOR RESIDENT INSPECTORS

The purpose of this memo is to document implementation of the enhanced competency-based qualification (CBQ) resident inspector training program described in Enclosure (1) of this memo on a pilot/trial basis. NRC Inspection Manual Chapter 1245, "Qualification Program for Reactor Inspectors," allows the Director of the Division of Reactor Oversight (DRO) to designate an alternate training approach via memorandum to achieve inspector qualification provided the alternate approach ensures the competencies outlined in IMC 1245 Attachment 2 "Inspector Competencies" are satisfied.

The overall goals of the enhanced CBQ program are to improve inspector capability and reduce the length of the resident inspector training program. The CBQ program is designed to model an apprenticeship style program that is focused on gaining on-the-job experience in the field that will enable inspector assignments to the field much earlier than the existing process. The program is flexible and considers the candidates' existing experiences and learning preferences. Progression will be based on demonstration of capabilities rather than completion of training activities, with an emphasis on gaining experience and building confidence through practice and feedback from certified mentors/on the job training instructors.

As background, the enhanced CBQ training program was developed, in part, to close several of the potential inspector training gaps identified in a September 8, 2014, "Training Needs Analysis Report" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14280A186), that was commissioned as part of the NRC Learning Transformative Initiative.

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Plans to examine and possibly revise the resident inspector training program that is described in Inspection Manual Chapter (IMC) 1245, Appendix C1 "Reactor Operations Inspector Technical Proficiency Training and Qualification Journal" were previously discussed in an October 19, 2019, Commissioners' Assistants Note "Phase One Closure Notification for Review of Training and Qualification Programs in Response to SRM-CMSY17-0024 – Proposed Agency Reform and Workforce Reduction Plans" (ADAMS Accession No. ML19273C019) and updated in an May 18, 2022, Commissioners' Assistants Note "Initiation of Pilot Resident Inspector Training Program" (ADAMS Accession No. ML 22111A269).

The enhanced CBQ program was developed over a two-year period by the staff of the Technical Training Center (TTC), Office of Chief Human Capital Officer, in close coordination with a working group that included experienced former resident and senior resident inspectors and operating reactors inspection branch chiefs. As the program was developed, multiple touch points and meetings were held with internal stakeholders to obtain input regarding program structure and curriculum. To ensure the enhanced CBQ program provided an equivalent level of training to the current resident inspector training program that is outlined in IMC 1245, Attachment 2 "Inspector Competencies," the working group compared the CBQ program curriculum to the competencies outlined in Attachment 2.

The enhanced CBQ program commenced in January 2022 using a Region II resident inspector candidate and was expanded in 2022 to a select group of resident inspector candidates from other regions. Participation in the program by candidates is voluntary. If the working group and other stakeholders determine the training program approach is meeting the established goals, it will be expanded to include other resident inspector candidates in 2023 and possibly other inspector types such as engineering inspectors.

Accordingly, based upon a review of the attached program document and the recommendation of the CBQ working group, I request that you authorize, by your signature on this memo, the use of the enhanced CBQ program on a pilot/trial basis for the qualification of resident inspectors. The pilot/trial program is expected to last 18 months, at which time the TTC staff in close coordination with the CBQ working group will recommend to DRO next steps regarding program utilization.

Enclosures: (1)

Competency-Based Qualification Program for Resident Inspectors Overview and Instruction for Completion

Division Director Approval/Disapproval/Comments: _____

Division Director: Christopher G. Miller Digitally signed by Christopher G. Miller
Date: 2022.08.29 15:52:25 -0400 Date: _____

Christopher G. Miller, Director
Division of Reactor Oversight
Office of Nuclear Reactor Regulation

COMPETENCY- BASED QUALIFICATION PROGRAM FOR RESIDENT INSPECTORS OVERVIEW AND INSTRUCTIONS FOR COMPLETION

RI_CBQ-01 PURPOSE

01.01 To define performance and qualification standards for Resident Inspectors equivalent to the process defined by Inspection Manual Chapter 1245.

01.02 To establish the requirements instructions for assessment and recording successful completion of each performance requirement.

01.03 To establish the requirements and define the process for evaluating the effectiveness of the inspector training and qualification process.

RI_CBQ-02 OBJECTIVES

02.01 To ensure Resident Inspectors have the necessary skills, knowledge, and experience to successfully implement the Reactor Oversight Process (ROP).

02.02 To ensure the Resident Inspector training and qualification program remains effective in preparing inspectors to implement the inspection program.

RI_CBQ-03 DEFINITIONS

03.01 Assessment. The process of determining whether the trainee can adequately complete each performance requirement as compared to the performance standard. The mentor determines whether the performance standard is met or if the trainee is not yet prepared to conduct the task on their own. For each assessment, the mentor will provide feedback to the trainee by documenting the acceptable performance observed or skills requiring more practice.

03.02 Assessment Criteria. The performance standard against which the trainee's performance is measured. Further guidance for assessment may be provided to mentors/assessors in the "mentor notes" tab to ensure consistency and fairness in the assessment process.

03.03 Basic Resident Inspector. A trainee in the RI-CBQ program who has completed all the performance requirements in both the Fundamental and Basic phases of the program and the Site Readiness Review. This designation is equivalent to the Basic Qualified Inspector in the IMC-1245 process, making the inspector available to conduct inspections under the supervision of a qualified inspector and for temporary or permanent site assignment.

03.04 Collaborative Learning Environment (CLE). An NRC learning and development platform developed using the Open-Source software known as Moodle. This system is used to house and track completion of assessments in the RI-CBQ program.

03.05 Critical Task. An activity identified through a job-task analysis and represents an essential job task or fundamental component of the Resident Inspector job. Each critical task is defined by the processes involved with completing the task and related cognitive or intellectual concepts. Task related processes have been translated into performance requirements and related concepts and are addressed by knowledge resources and mentor instruction in the RI-CBQ program.

03.06 Evaluation. The process of determining effectiveness of an activity or program by examining selected data, performance results, and feedback from participants.

03.07 Final Qualification Practical. An assessment used to determine the trainee's capability to complete selected performance criteria from certain critical tasks successfully in a simulated environment. The Final Qualification Practical is used to make a final determination of Full Qualification for inspector candidates.

03.08 Fundamental Inspector. A trainee in the RI-CBQ program who has completed all the performance requirements in the Fundamental phase of the resident inspector training program.

03.09 KSA (Knowledge, Skill, and Abilities). A combination of the essential knowledge, skills, and abilities to successfully perform a job or a task. KSAs are derived from Critical Tasks, Performance Standards, and their related cognitive concepts referenced in Knowledge Resources. KSAs were compared to previously documented KSAs in IMC-1245, "Qualification Program for Reactor Inspectors" to justify equivalency of completing the RI-CBQ in lieu of the former standard program.

03.10 Mentoring. The process where an experienced performer teaches, coaches, or assists a trainee who is learning a process or task, through the performance of a task. This is the primary method of knowledge transfer and skill development utilized in the CBQ program.

03.11 On-the-Job Training (OJT). A method of instruction that uses structured hands-on activities to develop the required job-related knowledge and skills.

03.12 OJT Instructor/mentor. An experienced inspector who provides training, guidance, and support to the trainee and conducts assessments to ensure the trainee satisfies the performance standards. Provides appropriate feedback to guide the trainee in further development.

03.13 Performance Requirement. The specific individual task that a trainee must perform and be assessed against to demonstrate their ability to successfully perform a critical task.

03.14 Qualification Phase. The separate portions of the CBQ program for which critical tasks were identified. There are three phases in the RI-CBQ program, Fundamental, Basic, and Apprentice. The phases were identified to represent three levels of capability. The Fundamental Phase is a preparatory period, where trainees complete requirements to work at a reactor site. In the Basic Phase, trainees learn the basic duties of Resident Inspectors under direct supervision of a mentor. During the Apprentice Phase, the trainee performs the day-to-day functions of a Resident Inspector, while learning the more complex portions of the job under the instruction and guidance of a Senior Resident Inspector.

03.15 Site Readiness Review. An assessment completed by the trainee's Branch Chief, or designee, to determine readiness of the individual to move from the Basic to the Apprentice Phase.

03.16 Supporting Knowledge. References and resources where knowledge related to the critical task may be found. Items may include policy documents, procedures, knowledge management, training resources, etc. Supporting knowledge resources will be utilized to supplement instruction from mentors and provide background information that may be needed during the performance of required tasks.

RI_CBQ-04 RESPONSIBILITIES AND AUTHORITIES

04.01 Associate Director for Training and Development, Office of the Chief Human Capital

Officer (ADHRTD). Administers and maintains the RI-CBQ program in the CLE. Ensures candidates and mentors have proper access to the program. Maintains supporting knowledge resources including active links and the mentor notes sections of the program in the CLE. Administers and implements the formal training programs referenced in CLE. Assesses training course effectiveness and identifies areas where the course content or delivery methods need to be revised.

04.02 Director, Office of Nuclear Reactor Regulation. Maintains the Resident Inspector Standards Document (performance requirements) on which the RI-CBQ program is based. Notifies the ADHRTD of any changes to the performance standards that need to be reflected in the RI-CBQ program.

04.03 Regional Administrator. Ensures that the regional staff achieves and maintains qualifications in accordance with the guidelines in the RI-CBQ program. Certifies inspector achievement of full qualification. May develop procedures for implementing this program for regional staff, including providing for adequate qualified mentors.

04.04 Division Directors, NRR and Regions. Assists the Office of the Chief Human Capital Officer in developing, monitoring, and reviewing the RI-CBQ program implementation and any related formal training courses that support the program.

04.05 Chiefs, NRR Program Branches. Develops and maintains in conjunction with the Associate Director Human Resources Training and Development and the regions, the qualification standards and RI-CBQ program requirements and assessments. Evaluate proposed changes to NRR programs for impacts on performance standards.

04.06 Immediate Supervisor of Trainees. Identifies the trainee's previous experience and training and provides guidance or recommendations on which formal training activities the trainee should complete. Assesses the ability of the trainee and provides appropriate levels of supervision based on the trainee's level of proficiency. Ensures trainees are ready to independently perform job responsibilities at the proficiency level. Recommends trainees are ready for site-assignment and transition to the Apprentice Phase of qualification, and readiness for the Final Qualification Practical Assessment.

RI_CBQ-05 REQUIREMENTS

Staff implementing NRR programs must understand the facilities, equipment, processes, and activities of those programs, as well as the criteria, techniques, and mechanics of implementing the programs. This qualification process is intended to provide staff with sufficient practice, experience, and resources to perform program activities that are technically correct and in accordance with NRC regulations, policies, and procedures.

Attachment 1, "Resident Inspector Performance Standards," is a complete description of the critical tasks, performance requirements, and related concepts for the Resident Inspector role. Each phase of the program contains a link to a Visual Journey Map which provides a visual representation of the critical tasks for each phase, and their associated processes and concepts. The RI-CBQ Program requirements, assessments, and instructions for completion are all contained in the Collaborative Learning Environment (CLE).

Attachment 2, "KSA Comparison Between IMC 1245 and RI-CBQ," is a comparison of the required competencies identified in Attachment 2 of IMC 1245, "Inspector Competencies" and the competencies/skills demonstrated by completing the RI-CBQ program. This attachment is

included to show functional equivalency between the two programs to allow individuals who complete the RI-CBQ program pilot to be granted equivalent "full qualification" as Resident Inspectors via an NRR/DRO memorandum referencing the KSA Comparison.

05.01 Performance and Qualification Requirements. Staff assigned to perform in the role of Resident Inspector must have successfully completed the requirements of the RI-CBQ program. Each inspector must complete all the required tasks for each phase of the RI-CBQ program, the Site Readiness Review and Final Qualification Practical Assessment as described in the program. Except for Site Access Training, no specific formal training requirements must be completed, but formal training may be utilized as a method to acquire the knowledge necessary to complete the performance tasks.

05.02 Completing and Recording Program Requirements. Each critical task contains a list of performance requirements and associated assessment criteria. Each trainee will complete the required tasks under the instruction individually or with the support of an assigned OJT Instructor/mentor. Some required tasks may not occur frequently, and the OJT Instructor/mentor may need to provide a scenario or simulation for the trainee to demonstrate the required performance. When the trainee believes they can successfully perform a task independently, they will request an assessment from an OJT Instructor/mentor. The mentor will observe the trainee's performance and provide assessment feedback for each performance requirement. The feedback will be in the form of "met standards" or "not ready yet". For each assessment, the mentor will document what was observed and why or why not the performance met or did not meet the standard. There is no alternative way to complete the required tasks, but the amount of preparation and practice required will be dependent upon the qualifying individual's prior knowledge and experience.

05.03 Site Readiness Review. After the qualifying individual completes all the performance requirements for the Fundamental and Basic Phases of the RI-CBQ program, the trainee's Branch Chief, or qualified designee, if necessary, will conduct the Site Readiness Review (SRR). The SRR performance and assessment standards are maintained in the CLE. The assessment consists of individual performance requirements from various critical tasks from the Basic Phase of the RI-CBQ program. The Branch Chief (or designee) will observe the qualifying individual's performance conducting routine inspector activities and determine whether they are ready to be assigned to a site to perform these tasks under the guidance of the Senior Resident Inspector, while completing the requirements of the Apprentice Phase.

05.04 Final Qualification Practical Assessment. An inspector must be recommended by the Resident Inspector qualification practical assessment panel and certified by the Regional Administrator or Division Director to be fully qualified. While the assessment contains only performance requirements previously completed by the trainee, opportunities to practice prior to the final qualification practical assessment should be afforded.

- a. **Resident Inspector Qualification Practical Assessment Panel.** The Resident Inspector qualification practical assessment panel is used to evaluate how well a trainee can integrate and apply inspector competencies to simulated field situations. Upon an individual's completion of all required performance activities and critical task assessments, a Resident Inspector qualification practical assessment panel will confirm that an individual has the necessary capabilities to independently perform the Resident Inspector assigned duties and responsibilities. The individual's direct supervisor will determine when they are ready for the final qualification practical assessment based on personal observation and input from senior inspectors and mentors who have assessed the individual's performance throughout the qualification process.

1. **Members.** A final qualification practical assessment panel will consist of at least

three members. The panel should contain a cross-section of knowledgeable staff including Resident Inspectors, Senior Resident Inspectors, Project Engineers, and Branch Chiefs. Each panel will include and be chaired by someone at the Branch Chief level. The board chairman cannot be the individual's immediate supervisor. However, whenever practical, the immediate supervisor of the individual seeking qualification, or a designee should observe the assessment panel.

2. Assessment Panel Conduct.

(a) The assessment process consists of three portions. Two are presentation/discussion interactions and the third an observation of performance during a simulated response to a plant event. Final qualification practical assessment standards have been established from those present in the qualification program in various critical tasks. Assessment panel members will prepare by reviewing the standards and the scenarios/tasks assigned to the candidate.

(b) Ideally, Final Qualification Practical Assessment Panels will be scheduled at the TTC between 60 and 90 days, or more, in advance to ensure simulator availability and allow for all participants to make necessary travel arrangement. Final Assessment panels for inspectors from all four regions will be conducted on the same week and panel members may include senior inspectors or Branch Chiefs from the candidate's own, or other regions. While the immediate supervisor for one candidate may not participate in his/her assessment, he/she may perform the duties of the panel chair for another candidate during the week. (As an alternative if qualification is essential or urgent and cannot be coordinated through this process at the TTC, the presentation portions may be completed in the Regional Office and a licensee's exercise/drill or simulator may be used for the observation portion of the assessment panel.)

(c) For the presentation/discussion portion of the Assessment, the HRTD Program Manager will provide the trainee with scenarios/issues/instructions and necessary resources 30 – 45 days in advance of the planned final assessment panel. The candidate will perform actions necessary to resolve and disposition the issue or gather the required data and prepare presentations for each simulation/scenario.

(d) Assessment panel members will be provided a copy of the assigned issue/task/scenario two weeks prior to the planned assessment panel to plan and develop questions related to the issue/scenario and assess the candidate's performance related to the established standards.

(e) For the performance observation portion of the final qualification assessment panel, the candidate will not be made aware of the scenario prior to the start of the simulation. The assessment panel members will be given the scenario two weeks prior to the planned assessment panel along with the other preparation materials. During the simulation, panel members will observe and listen to the candidate's performance and interactions but will not interfere with any actions. At the conclusion of the simulation, the candidate will prepare and deliver either a verbal or written summary of the event to the panel members, and they may ask any questions at that time specific to the scenario or the candidate's performance related to the established standards.

(f) The Final Qualification Practical Assessment Panel activities typically will require between two and three hours to complete for each candidate, but do not have to be completed all at once or in any specified order. Schedules for all assessment activities will be developed based on the number of candidates for a given assessment week and membership of each assessment panel. The schedule will be provided to candidates and panel members by the RI-CBQ Program Manager prior to their arrival at TTC to complete assessment activities.

3. Assessment Panel Recommendations and Documentation.

(a) Assessment panel members will each independently assess the candidate's performance against the established standards and document their assessment results and observation comments.

(b) Assessment panel members will then discuss their observations and reach a collective recommendation for Full Qualification if all the standards are met, or for further practice as an Apprentice Resident Inspector with specific areas of needed improvement identified. The candidate's immediate supervisor may be present for this panel discussion and provide insights or answer questions as necessary to assist the panel in making its decision if necessary.

(c) Assessment panel members will provide their documented assessment results and any related observation comments to the RI-CBQ Program Manager, who will upload these documents and complete the assessment in CLE based on the panel's recommendation. These assessment notes will accompany the candidates training and qualification record in CLE.

4. Re-assessment Panels.

If a candidate is assessed as "Not Ready Yet" at the initial Final Qualification Practical Assessment, they will be given the opportunity for more practice in the specific areas identified by the panel. Once the candidate, a Senior Resident Inspector, and the candidate's immediate supervisor believes they are ready for final assessment, they may be scheduled for re-assessment. Scheduling requirements and assessment panel membership will be dependent upon the portion of the final qualification practical that needs to be re-assessed. After the completion of the re-assessment, the candidate's immediate supervisor or a designated OJT Instructor will update the assessment status and upload the appropriate assessment results documents into the CLE.

05.05 Other Administrative Requirements.

a. Formal Training Requirements and Expectations.

1. With exception of Site Access Training, no formal training is required to complete this program. However, formal training courses are available and listed as "resources" in the appropriate Critical Task area. If a candidate chooses to attend formal training courses, all attendance and exam performance expectations for those courses will apply.

2. This is a self-driven, performance-based program, but a candidate's immediate supervisor or OJT Instructor/Mentor may recommend, or require, attendance in a training course where they believe it is essential to close a knowledge gap.

b. OJT Instructors/Mentors.

1. The RI-CBQ Program is designed as a Structured OJT development process and highly dependent upon OJT Instructors/Mentors for both instruction and assessment. Regional management should ensure that an adequate number of mentors are available to support all the candidates in the Region. This support will require both virtual and in-person instruction at any location and including travel with the inspector candidate to reactor sites.

2. OJT Instructors/Mentors should be highly skilled inspectors with a desire to support the development of others. Mentors may be volunteers or appointed, but in either case

must be given adequate time away from their normal inspection duties to provide support to candidates.

3. Once an OJT Instructor/Mentor is identified, they must complete the OJT Instructor assessment process in TMS and utilize the Skills-Based Mentor Development program, also available in TMS to develop their mentoring skills.

4. To ensure consistency in instruction and assessment, a “mentor notes” tab is provided for each critical task in the CLE. These notes provide mentors with guidance, resources, scenarios, or ideas about how to teach certain skills, and notes or guidelines specific to the assessment. This is intended to ensure fairness and equity in the program across all regions and all OJT Instructors.

05.06 Deviations.

This program was built with maximum flexibility in mind. The requirements for each assessment in each critical task must be completed and documented. Although the phases were sequenced based on expected experience level and skill development capabilities, they do not need to be completed in order. A critical task from any phase can be completed by a candidate with the assistance of an OJT Instructor/mentor, but in general, the phases will normally be completed in order. Site assignments, temporary or permanent, should not be made until the candidate successfully completes the Site Readiness Assessment. However, if an opportunity arises to complete a critical task in the Apprentice phase while visiting a site during the Basic Phase, and the mentor believes the candidate is capable, completion of that activity is acceptable.

Because the requirements of this program are competency-based, deviations will not normally be required. If the candidate can demonstrate proficiency of a task through the assessment process, it should be documented as a completed assessment. If formal training is selected as a method for knowledge acquisition, any normal course prerequisite sequencing policy, practice, or guidance should be followed.

RI_CBQ-06 POST-QUALIFICATION TRAINING

Post qualification training will continue following the guidance contained in section 1245-06 “Post-Qualification Training” of IMC 1245. If the decision is made to fully implement the RI-CBQ program, adjustments will be made to the manual chapter to address any modifications in post-qualification training requirements.

RI_CBQ-07 ASSESSING PROGRAM EFFECTIVENESS

RI_CBQ-08 PROGRAM REVISIONS

END

Attachments:

[Attachment 1: Resident Inspector Performance Standards](#)

[Attachment 2: KSA Comparison between IMC 1245 and CBQ](#)

SUBJECT: REQUEST APPROVAL TO IMPLEMENT A PILOT ALTERNATE TRAINING
PROGRAM FOR RESIDENT INSPECTORS DATED AUGUST 23, 2022

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