

EFCOG White Paper on NQA-1 Part II Application

Introduction

The Integrated Safety Management & QA (ISM & QA) Energy Facility Contractor Group (EFCOG) Working Group was requested to clarify the applicability of American Society of Mechanical Engineers (ASME) NQA-1, *Quality Assurance Requirements for Nuclear Facility Applications (QA)*, Part II when NQA-1 is included in the contract. This white paper summarizes the key points and the overall recommendation of the ISM & QA working group regarding the approach for addressing the applicability of NQA-1, Part II.

Many DOE contractors have chosen ASME NQA -1 as the consensus standard for their site quality assurance program (QAP) or nuclear quality assurance (QA) project plan basis, but have limited their application to the requirements in Part I. The contractor must carefully choose which Part II subparts are incorporated into the QAP or QA project plan basis.

Purpose

To provide Department of Energy (DOE) contractors general guidance on ensuring that site or project specific QAP or QA project plans appropriately address NQA-1 Part II when NQA-1 is chosen as the consensus standard for the QAP or QA project plan.

Background

The DOE requires contractors to develop their QAPs in accordance with DOE Order (O) 414.1C, *Quality Assurance*, and 10 CFR Part 830, Subpart A, *Quality Assurance Requirements*, both of which require the adoption and implementation of a national consensus standard. One of the primary consensus standards chosen for nuclear facilities is ASME NQA-1. Contractors using NQA-1 as the consensus standard for their QAPs or QA project plans have raised questions regarding the depth or breadth to which NQA-1 Part II is to be utilized. The Foreword of NQA-1 (2000 edition) contains the following statements that are used as a basis for the recommendations contained in this white paper. (Similar statements appear in the 2004 and 2008 editions.)

- “Quality assurance program requirements for the siting, design, construction, operation, and decommissioning of nuclear facilities are contained in Part I.”
- “Quality assurance requirements for the planning and execution of identified tasks during the fabrication, construction, modification, repair, maintenance, and testing of systems, components, and structures for nuclear facilities are contained in Part II.”
- “Part III contains non-mandatory guidance and application appendices.”
- “The arrangement of the requirements in Part I (from former NQA-1), requirements for work practices in Part II (from former NQA-2), and

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nonmandatory guidance and applications appendices in Part III (from former NQA-1 and NQA-2) permits judicious application of the entire Standard or portions of the Standard.”

The above statements could be interpreted to imply that the invocation of NQA-1 as the chosen national consensus standard for developing a QAP or QA project plan to meet DOE 414.1 would include Parts I and II, each of which contain many special unique requirements. These statements further imply that judicious application of the requirements in Parts I and II is expected, however they would allow for portions of the standard to not be applied in the contractor’s QAP or QA project plan. This approach is wholly consistent with the graded approach expectations associated with DOE O 414.1C and 10 CFR Part 830. Additionally, the above statements indicate that Part III contains guidance that could be beneficial in the development or implementation of the requirements of Parts I & II.

The Introductions of both Parts I and II of NQA-1 identify that the organization responsible for invoking NQA-1 is responsible for specifying the applicable requirements, or portions thereof. If that organization (e.g., DOE) fails to specify the requirements, then the contractor assumes this responsibility for determining the applicability of Part I and Part II requirements.

Remember that in addition to using a consensus standard to meet your QA requirements, you must also ensure you meet the applicable provisions of 10 CFR Part 830 and DOE O 414.1C (or a subsequent revision as applicable).

Discussion

Understand the NQA-1 Part II Expectations

The process of selecting the appropriate NQA-1 Part II subparts, should be done carefully. The Part II Introduction discusses the purpose, applicability, and responsibilities. This Introduction should be read carefully to understand how to select the appropriate subparts for the project and apply them to the QAP or QA project plan and the subordinate, implementing procedures and processes. Blanket application of all NQA -1 Part II subparts into the QAP or QA project plan may be inappropriate. As stated in the Foreword of NQA-1, judicious application of the entire standard or portions of the standard is expected in accordance with the graded approach process.

Approach Implementation from an Applicability Perspective

When determining applicability of each subpart in Part II, evaluate each subpart from the perspective of:

- How can this subpart help the project attain quality and ensure activities have been properly performed?
- Does this subpart fit within the scope of the project?

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While some subparts may not be applicable in totality, some portions of the subpart can still be beneficial and warrant inclusion in the quality management system or technical requirements. Secondly, the title of a subpart should not be the basis for the decision to not apply the provisions of a subpart, i.e. some subpart titles in Part II include the words “Nuclear Power Plants” while others end with “Nuclear Facilities”; the subparts designated for power plants should be considered for application to other than power plants, possibly with appropriate adaptations. Some interpretations have been narrowly made that excluded those subparts with “Nuclear Power Plants” in the title from projects that have nuclear facilities but are not nuclear power plants – this interpretation based on the title alone is inappropriate. Those subparts with “Nuclear Power Plant” in the title may contain provisions that are valid for your project and should be appropriately considered. (The narrow references to “power plants” are being corrected in the Standard as Part II and Part III subparts are being revised.)

Verify Applicability of any Referenced Standards

When applying a subpart in the Standard to the QAP or project plan, ensure any referenced or identified standards are still valid. Many of the requirements in Part II are not directly applicable to DOE defense nuclear facilities. In other words, the specific requirements in the subparts cannot be directly applied to DOE facilities but can be adapted to address the specific facility structure, systems, and/or components (SSCs). The decision to invoke requirements should be carefully considered during the engineering/construction process phases, and in the development of technical specifications. Additionally, since most versions have had interim addendum issued, ensure those addendums are reviewed to determine if the subpart under consideration is applicable.

Clearly Identify NQA-1 Part II Applicability within the QAP, Implementing Procedures or Technical Requirements

Once specific subparts have been selected, a three-step approach is recommended for developing or revising the QAP or QA project plan:

1. Verify that selected subparts are congruent with the contract. Some contracts impose specific expectations on versions and parts of NQA-1. Additionally, a decision to exclude a subpart may not be consistent with other contractually invoked directives or contractor requirement documents.
2. Review procedures that are currently credited for implementing the QAP or QA project plan requirements to identify any gaps introduced by the new subparts and update those procedures appropriately.
3. Once alignment between the contract and the proposed QAP or QA project plan and implementing procedures has been confirmed, then finalize the QAP and clearly state the version and subparts of NQA-1 that were used in developing the QAP or QA project plan. Two examples are provided below. The verbiage used should clearly communicate which subparts of Part II were used to develop the QAP or QA project plan so as to minimize interpretation issues.

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- List those Part II subparts that were used. For Example: “NQA-1 2000 Part II Subparts 2.4, 2.7, 2.16, & 2.21 were used to develop this QAP.”
- Another example: “This QAP was developed using NQA-1 2000 as the national consensus standard, subparts 1 through 18 in Part I and Subparts 2.4, 2.7, 2.16, and 2.21 of Part II.”

Summary Recommendations:

1. Understand the NQA-1 Requirements – Read the Foreword to understand the intent and applicability of all parts of NQA-1 to the QAP or the QA project plan under consideration.
2. Evaluate which subparts of NQA-1 to apply based on what is appropriate to ensure that the project attains quality and to ensure that activities are properly performed – there are provisions in Parts II and III of the Standard that can help ensure quality in the project and the overall management system and they should be included.
3. Verify applicability of any referenced standards – Part II subparts may not be current in that they may refer to outdated standards. In addition, the subpart or sections of the subpart may have been reassigned to the Part III non-mandatory guidance.
4. Ensure that the QAP or the QA project plan clearly identifies which subparts of NQA-1 are being included (and possibly excluded if it adds clarity) and ensure the documents align with contractual requirements.
5. Recognize that in addition to applying the provisions of NQA-1, ensure that all of the applicable QA provisions of 10 CFR Part 830 and DOE O 414.1C are met.