

POLICY ISSUE
(Information)

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SECY-07-0049

FOR: The Commissioners

FROM: Luis A. Reyes
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SUBJECT: CONSTRUCTION INSPECTION ROLES AND RESPONSIBILITIES

PURPOSE:

The purpose of this paper is to provide additional details and clarifications regarding the roles and responsibilities of the Office of New Reactors (NRO) and the Region II Construction Inspection Organization, as described in SECY-06-0144, "Proposed Reorganization of the Office of Nuclear Reactor Regulation and Region II," for implementing the various aspects of the Construction Inspection Program (CIP) for new reactors. This paper does not address any new commitments or resource implications.

BACKGROUND:

The purpose of the CIP is to gather information that the staff will use when determining the operational readiness of the licensee and when formulating a recommendation to the Commission on the finding required by Title 10, Section 52.103(g), of the *Code of Federal Regulations* (10 CFR 52.103(g)) on whether or not the acceptance criteria in the combined license (COL) are met. The program will require inspection of on-site and off-site activities, including component manufacturers, to evaluate: (1) the work contributing to the completion of the inspections, tests, analyses, and acceptance criteria (ITAAC) of the COL; and (2) the licensee's development and implementation of the required operational programs.

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DISCUSSION:

Since the formation of the Region II Construction Inspection Organization and NRO in late 2006, the staff has evaluated the roles and responsibilities for the inspections needed to support the successful CIP implementation. Table 1, "Responsibilities for Inspection Activities," summarizes the inspections required by the CIP Inspection Manual Chapters (IMC) 2501, "Early Site Permits (ESP)," IMC-2502, "Pre-Combined License (COL) Inspections," IMC-2503, "ITAAC Inspections," and IMC-2504, "Non-ITAAC Inspections." Table 1 shows the inspections in the approximate order that they will occur and identifies the organization assigned lead and support responsibility for each type of inspection.

The first two entries in Table 1 are inspections and reviews of quality assurance (QA), which will occur in the early phases of the ESP process. QA inspections and reviews are used here and throughout the CIP to gain confidence that the QA program is being used effectively to monitor the quality of the materials and services. The ESP inspections and reviews provide regulatory oversight of the actions taken by the applicant to ensure that the information in the application is accurate and was collected with appropriate methods. The inspections consider the applicant's plans for monitoring a variety of activities including analyzing performance, designing, fabricating, handling, shipping, storing, installing, testing, and maintaining structures, systems, and components. On-going inspections then monitor QA program implementation by both the applicant and the various vendors and contractors who are providing equipment or services to the specific project. QA inspections are conducted under both IMC-2501 and IMC-2502. In addition to inspecting the applicant's QA program, the CIP will review of quality oversight of vendors supplying safety-related structures, systems, and components.

The current NRC vendor inspection program is driven primarily by allegation and operational experience follow-up, and observations of a limited number (about two per year) of activities by the Nuclear Procurement Issues Committee (NUPIC). NUPIC is an industry group that conducts periodic audits and surveys of vendors supplying safety-related equipment. The audit and survey results are shared by participating licensees.

With the significant increase in the services provided by vendors and the fabrication of safety-related items necessary to support new reactor construction, the existing vendor inspection program will need to be enhanced substantially to provide the assurance that vendors are providing items and services that are consistent with their safety significance.

The staff is updating the program and inspection documents and will keep the Commission informed of our progress. The Quality and Vendor Branches (QVB) in the NRO Division of Construction Inspection and Operational Programs has been assigned responsibility for developing, managing, and implementing the Vendor Inspection Program.

Personnel from QVB will lead the QA inspections supporting the issuance of an ESP and a COL. Assigning this responsibility to QVB organization in NRO is appropriate because there is a direct connection between the technical reviews and CIP inspections performed by that group. Key to this decision are the synergistic effects realized through routine direct interactions among QVB staff and other new reactor licensing technical reviewers, particularly in the area of codes and standards. As indicated in Table 2, Region II will provide support to off-site inspections of vendors related to the fabrication of components or modules for a specific application or license.

Participation by Region II will help their staff to maintain an awareness of the on-going activities and to develop a comprehensive view of licensee oversight of work activities related to the construction of a specific plant, which may contribute to the successful completion of the acceptance criteria of the combined license.

The last four entries in Table 1 are the major inspections to be led by the Region II construction inspection staff. These inspections will cover the installation and testing of structures, systems, and components and the on-site fabrication of modules. Since this work supports the successful completion of various ITAAC, it will be inspected under IMC-2503. The nature of the acceptance criteria of some of the ITAAC targeted for inspection under IMC-2503 will result in Region II requiring technical assistance from NRO in assessing the success of some installation activities and reviewing the adequacy of some test outcomes. For example, some ITAAC have design commitments requiring that the components be designed and constructed in accordance with the requirements of Section III of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. Although the inspection program can collect information about the installation practices, the NRO technical staff will be needed to evaluate the as-built design to ensure that required detailed design or changes that might have been needed to accommodate field conditions continue to meet the acceptance criteria. There are approximately 100 ITAAC for the AP1000 and approximately 170 ITAAC for the ABWR that fall into this category.

Region II will lead the IMC-2504 inspections of site-specific construction programs including problem identification and resolution (PI&R) and training and qualification of construction staff. Also assigned to Region II are the inspections of the implementation of the site QA program and the development and implementation of the operational programs. The scope and development and implementation schedule for the operational programs will have been reviewed and approved by the NRO technical staff during the COL application review. Region II may require assistance from NRO technical staff to ensure that the operational programs being developed and implemented are consistent with the program descriptions and development schedules approved when the COL was issued. No specific areas for assistance have been identified. However, the potential need for this support is identified in Table 1.

Table 1 illustrates that a combined effort by the Region II construction inspection staff, the headquarters QVB staff, and the NRO technical staff will be needed to ensure adequate inspection of construction and construction-related activities. However, the size of the inspection effort associated with each item is significantly different. While the QVB staff will have the lead on many of the activities listed, the level of effort required to complete those inspections will be less than the effort that will be required by Region II to implement those items for which it has lead responsibility.

Table 2, "Responsibilities for Vendor Oversight Activities," identifies the activities that will be performed by QVB in fulfilling its responsibility for conducting licensing reviews in support of the design certification process and for monitoring fabrication of components for use in nuclear power plants. QVB will focus on the content and implementation of the QA program and may be supported by Region II when the inspections involve the fabrication of modules and components at vendor locations. To the extent possible, Region II will use the results of vendor inspections and reviews to inform its inspections at specific sites. By maintaining a broad

awareness of vendors and their activities, QVB and Region II will be improving their abilities to effectively and efficiently conduct the CIP inspections for which they have assigned responsibility.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection.

/RA/
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Enclosures:

1. Table 1, Responsibilities for Inspection Activities
2. Table 2, Responsibilities for Vendor Oversight Activities

Table 1 - Responsibilities for Inspection Activities

Inspection Focus	RESPONSIBILITIES Legend: L = Lead S = Support		
	<i>Region II</i>	<i>NRO QVB Staff</i>	<i>NRO Tech Staff</i>
QA program implementation used for development of an ESP application (IMC-2501)	S	L	
Data collection, analysis and use of data in support of the ESP application (IMC-2501)	L	S	S
Geotechnical /foundation activity in support of an ESP (IMC-2501)	L	S	S
Procedures used for Geotechnical /foundation activity in support of a COL (IMC-2502)	S	L	S
QA program implementation used for COL application development, fabrication, and procurement (IMC-2502 and new IMC on vendor inspections)	S	L	
Implementation of Architect /Engineer QA program including first-of-a-kind-engineering (IMC-2502)		L	S
QA program implementation at fabricators of components and modules (IMC-2502 and new IMC on vendor inspections)	S	L	
Fabrication and testing of components and modules (IMC-2503)	S	L	S
QA program implementation at a licensee construction site (IMC-2504)	L		
Development and implementation of licensee operational programs (IMC-2504)	L	S	S
On-site fabrication of modules (IMC-2503)	L	S	S
On-site installation of systems, structures, components (IMC-2503)	L	S	S

Table 2 - Responsibilities for Vendor Oversight Activities

	RESPONSIBILITIES Legend: L = Lead S = Support		
Examples of Vendor Oversight Activities	<i>Region II</i>	<i>NRO QVB Staff</i>	<i>NRO Tech Staff</i>
Pre-application inspections of facilities performing testing to support a design certification application (Chapter 21 testing)		L	S
Inspection of QA program implementation for development of design certification application		L	S
Inspections of vendors fabricating components and fabricating modules off-site	S	L	S