

NRC INSPECTION MANUAL

DQASIP

INSPECTION PROCEDURE 53051

CONTAINMENT PENETRATIONS (MECHANICAL) PROCEDURE REVIEW

PROGRAM APPLICABILITY: 2512

53051-01 INSPECTION OBJECTIVES

01.01 To determine whether the technical requirements detailed or referenced in Chapters 3 and 6 of the facility SAR and SER associated with containment penetrations have been adequately addressed in the construction specifications, drawings, and work procedures, and whether these specifications, drawings, and work procedures reflect the appropriate manufacturer's recommendations.

01.02 To determine whether quality assurance plans, instructions, and procedures for the installation of containment penetrations have been established in the facility QA manual and the facility QA/QC implementing procedures, and whether these documents conform to the QA program as described in Chapter 17 of the facility SAR.

01.03 To determine whether specification or procedural controls associated with containment penetrations are adequate.

Inspection Schedule

May Be Started

Must Be Started

Must Be Completed

Start of installation
of containment liner

Before work is
10% complete

53051-02 INSPECTION REQUIREMENTS

02.01 For each onsite organization with QA (including QC) responsibilities relative to containment penetrations (all types), ascertain whether quality assurance plans, instructions, and procedures have been established, and whether they conform to the facility's QA program as described in Chapter 17 of the facility SAR. This shall be accomplished by completing the inspection requirements of IP 35100, relative to containment penetration (mechanical) installation.

02.02 In completing the IP 35100 procedure review of Section 02.01 above, specifically ascertain whether appropriate and adequate inspection and work procedures exist to assure that the following specific activities are controlled and performed to the appropriate requirements:

- a. Shipping, receipt, identification, storage, handling, and protection of penetration assemblies and associated components, including protection of the assemblies and the associated components after installation is completed.
- b. Installation methods, including assembly, erection, and welding.
- c. Testing (NDE and leak testing) and inspection, including leak control or leak testing components which are part of the penetration assembly and which form part of the containment pressure boundary.
- d. QA audits of inspection (QC) activities relative to containment penetration installation.

02.03 Review the construction specifications, drawings, and work procedures for containment penetrations and ascertain whether the technical requirements of the facility SAR and SER are appropriately reflected in those documents.

02.04 Determine whether manufacturer's recommendations relative to the handling, care, installation, or testing of containment penetrations are considered in the applicable work procedures.

02.05 Determine whether the licensee has an established program for ensuring that all craft, examination, and inspection personnel associated with implementing work procedures for containment penetrations are trained and qualified to the appropriate requirements.

53051-03 INSPECTION GUIDANCE

General Guidance

- a. Applicable portions of the SAR should be reviewed to determine specific licensee procedural and work instruction commitments relative to construction and QA requirements for penetrations. For example, installation and testing of penetrations should be accomplished according to written procedures and drawings; inspection (QC) procedures should define the inspection activity required, and what information is to be recorded. The SAR information should be used to review the licensee's construction specifications, drawings, work and inspection procedures to determine whether SAR requirements are adequately translated into the appropriate documents.
- b. For the purpose of this inspection procedure, the term "work procedure" includes construction specifications, drawings, and work instructions.
- c. Findings from this inspection activity should address each element as being satisfactory, being unresolved and requiring resolution, or being in violation and requiring correction. When significant inadequacies are identified in specifications or procedures indicating weakness within the preparing technical organization, the inspector should inform cognizant regional supervision. The issue should be addressed at the appropriate level of licensee management.

03.01 Specific Guidance

- a. Inspection Requirement 02.01. Refer to Section 03 of IP 35100 for additional information applicable to QA programs.

- b. Inspection Requirement 02.02a. The licensee's work and inspection (QC) procedures should provide for performance and verification of the following:
 - 1. Packaging and protection of components during storage and handling; R.G. 1.38 (ANSI N45.2.2) requirements are applicable.
 - 2. Receipt inspection to detect possible damage and to determine conformance with purchase specifications.
 - 3. Identification of components maintained throughout the installation processes.
- c. Inspection Requirement 02.02b
 - 1. Work procedures should be reviewed to assure that they reflect the technical requirements of the SAR.
 - 2. For welding performed to the requirements of the AWS Code, refer to Section 03.01b of IP 55100; for welding to the ASME Code, refer to Section 03.01b of IP 55050.
- d. Inspection Requirement 02.02c. The intent of this requirement is to determine whether adequate QC procedures have been established to assure that the required inspection and testing is satisfactory and corrective action, if required is properly performed.
 - 1. The inspection (QC) procedures should include provisions to monitor installation activities such as:
 - (a) Welding.
NOTE: Some weld procedures may require qualification for notch-sensitive containment materials.
 - (b) Nondestructive examination.
 - (c) Leak testing.
NOTE: External surfaces of welds must be accessible for visual examination.
 - 2. The inspection (QC) procedures covering these activities should require that test and inspection of installed equipment and components be performed in a manner consistent with purchase specifications, work procedures, drawings, and manufacturer's specifications. The procedures should contain sufficient hold points, and the sequence of these hold points should be such that the previous activity is verified.
- e. Inspection Requirement 02.05. The intent of this inspection requirement is to review the licensee's program for training and qualification of craft, examination and inspection personnel to determine if it incorporates the appropriate requirements. The NRC inspector should verify the implementation of those requirements for training and qualification activities in progress.

53051-04 REFERENCES

Applicable portions of the SAR and SER, including pertinent codes and standards referenced in these chapters

Section 03 of IP 55050

Section 03 of IP 55100

Regulatory Guide 1.28, Quality Assurance Program Requirements (Design and Construction)

Regulatory Guide 1.38, Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants

Regulatory Guide 1.63, Electric Penetration Assemblies in Containment Structures for Water-Cooled Nuclear Power Plants

10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors"

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