

NRC INSPECTION MANUAL

DQASIP

INSPECTION PROCEDURE 50071

SAFETY-RELATED COMPONENTS - PROCEDURE REVIEW

PROGRAM APPLICABILITY: 2512

50071-01 INSPECTION OBJECTIVES

01.01 To determine whether the technical requirements detailed or referenced in Chapters 3, 5, 6, and 9 of the facility SAR associated with safety-related components have been adequately addressed in the construction specifications, drawings, and work procedures, and whether the established system of management controls is adequate.

01.02 To determine whether quality assurance plans, instructions, and procedures for safety-related components have been established in the facility QA manual and whether these documents conform to the QA program as described in Chapter 17 of the facility SAR.

01.03 To determine if specifications or procedural inadequacies associated with safety-related components indicate any potentially generic problems or other weaknesses within the preparing technical organization.

Inspection Schedule

May Be Started

6 months before
start of work

Must Be Started

Before installation of any of these
components into the facility

Must Be Completed

Before work is
10% complete

50071-02 INSPECTION REQUIREMENTS

02.01 For each onsite organization with QA/QC responsibilities relative to safety-related components (other than the RPV and piping) complete the inspection requirements of Inspection Procedure (IP) 35100 relative to these components. Coordination with other NRC inspectors performing similar inspections may be appropriate to avoid duplication of IP-35100.

02.02 Determine whether appropriate and adequate implementing procedures are included or referenced in the QA manual to assure that specific activities associated with safety-related components are controlled and performed according to NRC requirements and SAR commitments. In particular, ascertain whether provisions have been established to assure that:

- a. Procurement documents incorporate the technical and quality requirements in the material requisition. This includes identification of material specifications and, if required, performance test requirements.
- b. Receipt inspections are adequate and capable of detecting damage or out-of-specification conditions including adequacy of performance testing, etc. Also, provisions are in place to prevent nonconforming equipment and materials from being installed and used.
- c. Installation, testing, and inspection activities meet applicable specifications and established procedures.
- d. Specially trained personnel are used whenever complex or unusual activities are involved.
- e. Specifications and installation procedures for motor operated valves provide detailed information relative to the setting of torque switches, limit switches and limit switch bypasses as discussed in IE Circular 77-01 and NRC report AEOD/C203 dated May 1982.
- f. Post-inspection cleaning, preservation, and inspection requirements have been established before need.
- g. Recordkeeping requirements are established and clearly indicate those responsible for record generation, and that provisions exist for their review by appropriate management personnel.
- h. Design changes, including field changes, are properly reviewed and coordinated among affected design and engineering organizations.

02.03 Determine whether the licensee has an established audit program (including audit plans, procedures, and schedules) covering safety-related work and control functions in the area of component installation.

02.04 Determine whether the licensee has an established program for ensuring that all site engineering, craft, NDE, and inspection personnel associated with the installation of safety-related components are qualified to perform their assigned work.

50071-03 INSPECTION GUIDANCE

General Guidance

- a. Applicable portions of the SAR should be reviewed to determine licensee commitments relative to construction and inspection requirements before review in this area. Each inspector should make this determination during inspection preparation.
- b. The NRC inspector(s) is (are) reminded that licensee contracting and installation practices may make it advantageous to perform related inspections, such as those required by IP-49061, Safety-Related Piping, in conjunction with this procedure. In some cases, combining inspection efforts may be more efficient and could avoid some duplication.
- c. As used in this and related procedures, safety-related components pertain to those components important to safety within the reactor coolant pressure boundary (as defined in 10 CFR 50.2(v) and components in quality groups B and C (as defined in

RG 1.26) except the RPV and piping. Pumps, heat exchangers, and valves are typical of components considered to be safety-related components. (See Section II of IP 49063 for a listing of systems containing these components.)

- d. The documents involved will vary from site to site, and may take many forms such as formal procedures, instructions, checklists, drawings, etc. Review the licensee's QC inspection procedures/checklists and compare with the requirements in the principal codes (ASME Boiler and Pressure Vessel Code, for example) and construction specifications that are applicable.
- e. Findings from this inspection activity should address each element covered during this inspection 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 (Numbers/Letters in left margin refer to sections/subsections in -02 above.)

- 02.01 If the inspection requirements of IP 35100 pertaining to safety-related components have been previously completed because the same organization and procedures were recently or are presently utilized at the site for similar work, the inspection requirements of IP 35100 need not be repeated, or not repeated in its entirety, as specified in 02.01 of this procedure.
- 02.02b Material storage procedures should include the requirements that components be identified, properly segregated by type, provided protection from physical or contamination damage during handling and storage, and that controls for component withdrawal are provided to ensure proper issuance.
- 02.02e IE Circular 77-01, issued January 4, 1977 discusses several specific problems with motor operated valve torque and limit switches. Also, NRC report AEOD/C203 dated May 1982 states that a survey of licensee event reports provides sufficient information to indicate that motor operator-related events are the greatest single category of valve operator problems reported and that these events could be further categorized as problems with torque switches, limit switches and motors. The inspectors should review the licensee/contractor installation procedures to determine if adequate attention is provided to this identified industry-wide problem area.
- 02.03 This inspection requirement should provide specific information about licensee commitments, plans, and schedules for performing required comprehensive audits in the above areas of interest. Information should be obtained about audit procedures, checklists, auditor qualifications, and schedules. Assurance is required that those responsible for performing the audits do not have responsibility in the areas audited.
- 02.04 This inspection requirement should provide specific information about licensee/contractor action for ensuring that only qualified personnel are permitted to perform the construction and inspection work covered by this procedure. Information obtained will be useful also during the performance of IPs 50073 and 50075.

03.02 Prevalent Errors and Recent Concerns. The inspector should be alert to potential generic issues in these areas:

- a. Weather protection in the form of canvas or plastic covering. In most deficient cases, the original protective covering was adequate, but inattention to damage and normal "wear and tear" lead to substandard or unacceptable protective provisions.
- b. Sites near salt water should receive special attention to assure that protective storage measures consider potential salt water or salt spray damage, in particular, to components of stainless steel.
- c. Storage areas located on sandy soil or near sandy beaches require special attention to avoid the entry of wind-driven sand particles into piping components, including hydraulic snubbers.
- d. Improper installation and adjustment of motor operated valve torque switches, limit switches and bypass switches. Applicable specifications and instructions have not been adequate to insure proper installation, adjustment and checkout.
- e. Quality certification program not adequate (see IP 35100).
- f. QC inspectors not adequately trained or qualified to inspect or document completed work.
- g. Inspection procedures, instructions and acceptance criteria lack clarity, and in some cases, are difficult to find and use.
- h. Improper and unqualified welding materials and processes.

50071-04 REFERENCES

SAR, Chapters 3, 5, 6, 9, and 17, including pertinent codes and standards referenced in these chapters.

Regulatory Guide 1.26, Quality Group Classifications and Standards

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

Regulatory Guide 1.29, Seismic Design Classification

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

Regulatory Guide 1.39, Housekeeping Requirements for Water-Cooled Nuclear Power Plants

Regulatory Guide 1.58, Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel

Regulatory Guide 1.88, Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records

NRC report, AEOD/C203, dated 5/82, "Survey of Valve Operator-Related Events Occurring During 1978, 1979 and 1980".

IE Circular 77-01, "Malfunctions of Limitorque Valve Operators", dated January 4, 1977.

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