

NRC INSPECTION MANUAL

HICB

INSPECTION PROCEDURE 56700

CALIBRATION

PROGRAM APPLICABILITY: 2515

SALP FUNCTIONAL AREA: MAINTENANCE (MAINT)

56700-01 INSPECTION OBJECTIVE

To ascertain whether the licensee has developed and implemented a program for the calibration of plant instrumentation that is in conformance with license requirements, technical specifications, licensee commitments and industry guides and standards.¹

56700-02 INSPECTION REQUIREMENTS

02.01 Verification of Frequency of Calibration. Through review of licensee records, verify that the frequency of calibration specified in the technical specifications has been met for the following systems:

- a. Channel Functional Tests and Calibrations. Review frequency of calibration as specified in the technical specifications for 50% of the channel functional tests and channel calibration of instrumentation in the following systems:
 1. Reactor protection
 2. Emergency core cooling activation
 3. Isolation activation (BWR)
- b. Selected Systems. Review frequency of calibration as specified in the technical specifications for 20% of the instrumentation in each of the following systems:
 1. Reactivity control
 2. Plant auxiliary

¹ This inspection procedure does not address the calibration of measuring and test equipment against recognized standards.

3. Reactor coolant
4. Emergency core cooling (LWR)
5. Liner cooling (HTGR)
6. Containment
7. Electrical distribution

02.02 Completed Test Documentation Review. Sample completed test documentation from the systems of 02.01, above and establish whether the following has occurred:

- a. The test documentation is complete.
- b. Acceptance criteria have been met.
- c. The proper, approved test procedure was used.
- d. For two systems, the personnel performing the procedure were properly qualified.

02.03 Technical Content Review. Examine the technical content of procedures utilized to conduct the following tests and calibrations:

- a. Reactor protection system, one channel functional test.
- b. Isolation activation system, one channel functional test (BWR).
- c. Emergency core cooling activation system, one channel functional test
- d. Reactor protection system, one channel calibration.
- e. Isolation activation system, one channel calibration (BWR).
- f. Emergency core cooling activation system, one channel calibration.
- g. Reactor protection system, one time response test.
- h. Isolation activation system, one time response test (BWR).
- I. Emergency core cooling activation system, one time response test.
- j. Calibration of one instrument each from three of the systems listed in 02.01b, above.

02.04 Calibration of Components Not Addressed in Technical Specifications. The licensee's system for calibration of components associated with safety-related systems or functions, but not addressed in technical specifications, should be reviewed regarding the following:

- a. Check if there is a backlog of past due calibrations.
- b. Sample 5 components used to make technical specification-related measurements.

- c. Sample 5 components that provide automatic control or activation of a process, or that are used by an operator during normal operations or post-accident conditions.
- d. For the components selected in 02.04b and 02.04c, above:
 - 1. Verify that the range and accuracy of the component is consistent with its application and/or specified range and accuracy.
 - 2. Verify that reviewed and approved procedures are available for calibration of the component.
- e. For three of the procedures identified in 02.04d2, above examine their technical content.

02.05 Calibration Witnessing. By witnessing two components actively undergoing calibration, verify that the procedures used have been reviewed and approved and that the calibration is in accordance with these procedures.

56700-03 INSPECTION GUIDANCE

03.01 Verification of Frequency of Calibration. No inspection guidance provided.

03.02 Completed Test Documentation Review

- a. The following characteristics indicate the test or calibration documentation is complete:
 - 1. Prerequisites indicated as achieved and as-found conditions recorded.
 - 2. Procedural steps initialed or signed off and all necessary values entered. All attachment sheets included.
 - 3. Post-test/calibration reviews conducted.
 - 4. Post-test/calibration valve and switch lineups completed and as-left conditions recorded.
 - 5. Where components were found to be out of calibration, or where functional tests were unsatisfactory, do licensee procedures address the possible safety significance of the situation (i.e., possible instances of out of specification conditions or periods of time where limiting conditions for operation were exceeded)? Do licensee procedures address the potential need for rework using recalibrated components? Do licensee procedures address potentially required reports under the provisions of 10 CFR 50.73, Licensee Event Report System?
- b. No inspection guidance provided.
- c. No inspection guidance provided.
- d. ANSI N18.1 provides qualification standards for personnel conducting calibrations. Although such standards are typically referenced in technical specifications, inspectors should consult the FSAR for the

facility under inspection to ascertain the licensee's commitment to training in this area.

03.03 &

03.04e Procedures should address the following criteria:

- a. Are limiting conditions for operation normally recognized and met during the procedure?
- b. Will calibration be to the accuracy required by technical specifications or made necessary by the application for which the component is utilized?
Consider:
 1. Tolerances of test instruments
 2. Necessary corrections and signal compensation for elevation, temperature, etc.
 3. Correctness of conversion factors
- c. Are the test instruments utilized referenced by serial number?
- d. Are proper controls placed on the processes by which components are removed and returned to service (e.g., tags, log entries, lineup sheets)?
Are the valve and switch lineups correct?
- e. Are the points of signal insertion and signal readout specified?
- f. Are readings taken at selected cardinal points over the full operational range of the component?
- g. Are calibrations conducted at selected cardinal points over the full operational range of the component?

03.04 Calibration of Components Not Addressed in Technical Specifications. Technical specifications do not establish requirements for calibration of all instruments that perform safety-related functions; however, a regulatory basis for this exists in 10 CFR 50, Appendix B, Section XII. Many local or remote indicating instruments serve as the bases for assuring that a system or subsystem is in conformance with the limiting condition for operation (LCO) of technical specifications. For example, the LCO for the borated water storage tank at a PWR establishes minimum limits for solution temperature and tank volume. Typically, the instruments that provide these indications are not identified in the technical specifications for calibration at a specific periodicity. Therefore, the licensee should develop a plan and schedule for such calibrations and incorporate this program into plant procedures.

56700-04 REFERENCES

(Plant specific) facility operating license

Technical Specifications of the facility operating license

ANSI N18.1

END