

RESIDENT INSPECTION PROGRAM SURVEILLANCE TESTING

Effective Date: 01/01/2021

PROGRAM APPLICABILITY: 2600C

88135.22-01 INSPECTION OBJECTIVES

The objectives of this procedure are to provide requirements and guidance for evaluating and ensuring that items relied on for safety (IROFS) are available and reliable to perform their function when needed, to comply with the performance requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 70.61 and 10 CFR 70.62. This inspection will focus on surveillance testing of risk-significant systems to ensure that IROFS are capable of performing their intended safety functions.

88135.22-02 GENERAL GUIDANCE

The license, licensee procedures, and/or integrated safety analysis (ISA) will specify which IROFS and safety controls require periodic surveillance and calibration tests. The risk-significance of particular IROFS and/or safety control is specified in the ISA. For Part 70 licensees, these surveillance tests and calibrations are to verify that IROFS are available and reliable to perform their function when needed.

Test procedures should be developed, reviewed, and approved under the licensee's procedural control system. The procedures should specify:

- a. Prerequisites and preparation for the test.
- b. Functional tests of instruments in conducting the surveillance test.
- c. Acceptance criteria.
- d. Operational checks to be made before returning equipment to service.
- e. Deficiency reports documented for failures.

Examine the technical content of procedures for the selected surveillances and calibration activities to determine that satisfactory tests will be conducted. The objective is to determine whether the procedure will satisfy the applicable license requirement and/or will demonstrate that IROFS are available and reliable. The surveillance requirement and the bases of the license requirements, or description in the safety analysis report or the application, should be used to aid in this determination.

Verification of activities under this procedure should focus on performance-based field observations of complete surveillance/testing evolutions, followed by verification of the bases and of the proper demonstration of performance that supports operability/functionality determinations.

For each sample, conduct a routine review of problem identification and resolution activities using the guidance in Inspection Procedure (IP) 88135.02, "Plant Status," Section 03.05, "Identification and Resolution of Problems." Examples of significant surveillance testing problems and appropriate inspector follow-up include:

- a. Licensee actions to address failed or degraded IROFS performance identified during surveillance and calibration tests. When degraded performance is revealed, inspectors should review the condition reporting database to determine if the licensee is implementing appropriate corrective actions such that the IROFS's availability and reliability performance assumed in the ISAs is being maintained.

Part 70 licensees are required to maintain records of IROFS or management measures that have failed to perform their function upon demand or have degraded such that the performance requirements are not satisfied. These records should be readily retrievable and inspected. These records should identify the IROFS or management measure that has failed and the safety function affected, the date of discovery, date (or estimated date) of the failure, duration (or estimated duration) of the time that the item was unable to perform its function, any other affected IROFS or management measures and their safety function, affected processes, cause of the failure, whether the failure was in the context of the performance requirements or upon demand or both, and any corrective or compensatory action that was taken. A failure should be recorded at the time of discovery and the record of that failure updated promptly upon the conclusion of each failure investigation of an IROFS or management measure (10 CFR Part 70.62(a)(3)).

- b. Licensee actions to address measuring and test equipment (M&TE) that fails calibration. Inspectors should assess the adequacy of corrective actions and whether the licensee properly assesses the impact to the operability of affected SSCs.

88135.22-03 INSPECTION REQUIREMENTS

03.01 Surveillance and Calibration Testing.

- a. Inspection Requirement. Verify, at least once per quarter, that surveillance and calibration testing activities and results provide objective evidence that IROFS and other safety controls are available and reliable to perform their intended safety function to comply with the performance requirements of 10 CFR 70.61 and 10 CFR 70.62 and maintain their operational readiness consistent with the facility's design and licensing bases.
- b. Inspection Guidance.
 1. **Surveillances.** Observe surveillance activities to ensure tests are adequately and safely conducted and in accordance with approved procedures and license

requirements. **Select surveillance activities based on the risk significance of the equipment involved.**

Verify that surveillance tests and/or test data for the selected IROFS meet the requirements of the **ISA** and/or other license requirements. If identified as a management measure, **verify that surveillance tests** adequately demonstrate that the IROFS is capable of performing its intended safety function under conditions as close as possible to those described in the ISA.

Other significant surveillance test attributes for consideration include the following:

- (a) **Preconditioning does not occur.** Unacceptable preconditioning is defined as the alteration; variation; manipulation; or adjustment of the physical condition of a structure, system, or components (SSCs) before or during surveillance testing such that it will alter one or more of the SSC's operational parameters, which results in acceptable test results. Such changes could mask the actual as-found condition of the SSC and possibly result in an inability to verify the operability of the SSC. In addition, preconditioning could make it difficult to determine whether the SSC would perform its intended function during upset and/or accident conditions in which the SSC might be needed (See Inspection Manual Part 9900, Technical Guidance, "Maintenance - Preconditioning of Structures, Systems, and Components Before Determining Operability," for additional guidance).
- (b) **Effects of testing on the facility** have been adequately addressed by licensee personnel;
- (c) Acceptance criteria is clear and demonstrates operational readiness, and is consistent with the supporting design calculations and other licensing documents;
- (d) **M&TE range and accuracy** are consistent with the application and has current calibration. Verify the plant equipment calibration is correct, accurate, properly documented, and the calibration frequency is in accordance with licensee procedures and commitments.
- (e) For selected safety instrumentation and control surveillance tests verify that reference setting data has been accurately incorporated to the test procedure.
- (f) **Applicable prerequisites** described in the test procedure are satisfied.
- (g) **Affected systems or components** are removed from service in accordance with approved procedures.
- (h) Test is performed in **sequence and in** accordance with **written** procedures.
- (i) **Jumpers installed or leads lifted** during testing are controlled.

- (j) Electrical connections are secure and maintain their intended design function.
- (k) Annunciator and other alarms are demonstrated to be functional and setpoints are consistent with design documents.
- (l) Alarm response procedure entry points and actions are consistent with plant design/licensing documents
- (m) Test data is complete, verified, and meets procedure requirements.
- (n) Test frequency was adequate to demonstrate operability (meets license or procedure requirements) and reliability.
- (o) M&TE is removed after testing and equipment is returned to the positions/status required for the performance of its safety function.
- (p) Functionality/operability determinations of SSCs for test results that do not meet the acceptance criteria are acceptable.
- (q) Problems noted during testing are appropriately documented

Attend a sample of pre-job briefings, witness the test when it is performed, and attend any post-test critiques, as applicable.

If it is not possible to observe the test as it is performed, as a minimum, perform a review of the completed test procedure and the recorded data. Determine if the documentation contains any anomalies or unexpected data.

Based on the availability of time, the inspector may also verify testing is being conducted in accordance with vendor manuals for selected components.

2. Calibrations. Determine whether calibrations are performed at the required frequency for safety controls and IROFS. Examine the technical content of procedures for the selected calibrations to determine if it supports the satisfactory calibration of monitoring components. In reviewing stepwise instructions of procedures, determine if the following considerations have been included:

- (a) Appropriate signal compensations are included,
- (b) Point of signal insertion is specified, and
- (c) Calibrations are appropriate to the range and use of equipment.

Determine whether procedures used to calibrate selected monitoring components contain:

- (a) Review and approval requirements of license conditions,
- (b) Acceptance values for trip settings that conform to license requirements,

- (c) Detailed stepwise instructions, and
- (d) Deficiency reports documented for out-of-tolerances.

During the review of raw data calibration records, determine whether "as-found-settings" are also recorded. Determine whether trip points of components selected conform to applicable license requirements.

Review the qualifications of individuals having responsibility for performing calibrations against the licensee's personnel qualification requirements.

For gauges, instruments, or other measuring/testing devices used as primary standards in the calibration of plant equipment, determine whether:

- (a) Accuracy is traceable to the National Bureau of Standards or other independent testing organization.
- (b) Storage and control of the selected devices is proper.
- (c) Information tagged on the testing equipment conforms to that in calibration records.
- (d) The M&TE was in calibration at the time of use.
- (e) The M&TE is calibrated against standards that have an accuracy that is better than or equal to the instrument being calibrated.

88135.22-04 RESOURCE ESTIMATE

The annual resources to complete this inspection are estimated to be 24 hours. This estimate is only for direct inspection effort and does not include preparation for and documentation of the inspection. Time spent conducting activities associated with this procedure should be charged to IP 88135.22. Completion of surveillance testing inspection activities should be documented in the quarterly inspection report for the quarter in which they were performed.

88135.22-05 PROCEDURE COMPLETION

This procedure is completed when the inspection requirements are performed with a minimum of one (1) surveillance or calibration test inspection sample per quarter and a total of six (6) samples per year.

88135.22-06 REFERENCES

04.01 10 CFR 70.61, "Domestic Licensing of Special Nuclear Material," Subpart H, "Performance Requirements"

04.02 10 CFR 70.62, "Safety Program and Integrated Safety Analysis"

04.03 NUREG-1513, "Integrated Safety Analysis Guidance," June 2004

END

Attachment: Revision History for IP 88135.22

Attachment 1 - Revision History for IP 88135.22

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML13233A177 01/31/14 CN 14-004	Initial issuance. IP 88135.22, is a new attachment to IP 88135 (which is being revised in its entirety).	N/A	ML13354B914
N/A	ML20302A475 12/02/20 CN 20-067	Revision to incorporate recommendations from the Smarter Fuel Cycle Inspection Program working group (ML20077L247 and ML20073G659).	N/A	N/A