



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NRC INSPECTION MANUAL

NMSS

INSPECTION PROCEDURE 88102

SURVEILLANCE OBSERVATIONS

PROGRAM APPLICABILITY: 2630

88102-01 INSPECTION OBJECTIVES

- 01.01 To ascertain whether the facility operator has developed programs for control and evaluation of:
- a. Surveillance testing, calibration, and inspection required by the Technical Safety Requirements (TSRs), nuclear criticality safety evaluations/approvals (NCSE/As), the material control and accountability program, and other application programs.
 - b. Calibration of Q and NCS-AQ safety related instrumentation not specifically controlled by TSRs.
- 01.02 To ascertain, by direct observation of activities, whether surveillance of safety significant systems and components are being conducted in accordance with TSRs, NCSE/As, and other requirements.

88102-02 INSPECTION REQUIREMENTS

02.01 Surveillance Testing Program

- a. Verify that a master schedule for surveillance testing/calibration/in-service inspection and testing required by TSRs, NCSE/As, and other application safety/safeguard programs has been established that includes:
 1. Frequency for each test/calibration/inspection.
 2. Plant group responsible for performing each test/calibration/inspection.
 3. Surveillance test status.
- b. Verify that responsibility has been assigned in writing to maintain the master surveillance test/calibration/inspection schedule up to date.
- c. Verify that the master schedule has been updated to reflect TSRs, NCSE/As, or other certificate/application revisions.

- d. Determine that formal requirements have been established for conducting surveillance tests, calibrations, and inspections in accordance with approved procedures that include acceptance criteria.
- e. Determine that formal methods and responsibilities have been defined for review and evaluation of surveillance test/calibration data, including procedures for reporting deficiencies, failures, malfunctions, etc., identified during the tests/calibrations or inspections, with required verification that limiting condition for operation (LCO) requirements were satisfied.
- f. Verify that responsibility has been assigned for ensuring that required schedules for all tests and inspections are satisfied.

02.02 Calibration - Q and NCS-AQ Safety Related Components Not Identified in TSRs or NCSE/As

- a. Determine that calibration requirements have been established for components associated with Q or NCS-AQ safety-related systems or functions, but which are not specified in the TSRs as requiring calibration. The calibration requirements should be specified in a master schedule or equivalent that includes the following:
 - 1. Calibration frequency for each component.
 - 2. Plant group responsible for performing the calibration.
 - 3. Calibration status.
- b. Verify that responsibility has been assigned in writing to maintain the "master calibration schedule" up-to-date.
- c. Determine that formal requirements have been established for performing component calibrations in accordance with approved procedures that include acceptance criteria.
- d. Verify that responsibility has been assigned for ensuring that required component calibration schedules are satisfied.

02.03 Surveillance Observations - Major. At least once every month witness the performance of a major surveillance test involving a Q or NCS-AQ safety related system. Witness surveillance tests on alternate building/areas, if possible, such that no more than two successive observations are spent witnessing tests for the same building/area. Perform the following steps:

- a. Review the surveillance procedure for conformance to TSR or NCSE/As requirements and verify proper facility review/approval.
- b. Verify that required administrative approvals and tagouts are obtained before test initiation.
- c. Verify that operating system and test instrumentation is within its current calibration cycle.
- d. Observe portions of the removal of the system from service. Confirm that LCOs are met.
- e. Observe portions of the conduct of the surveillance test.

- f. Observe portions of the restoration of the system to service.
- g. Review test data for accuracy and completeness. Independently calculate selected test results data to verify their accuracy.
- h. Confirm that surveillance test documentation is reviewed and test discrepancies are rectified.
- i. Verify that test results meet TSR or NCSE/A requirements.
- j. Verify testing is done by qualified personnel.
- k. Verify that the surveillance schedule for this test was met and conformed with TSR requirements.

02.04 Surveillance Observations - Other. Observe portions of selected surveillance tests involving different technical disciplines for Q or NCS-AQ safety significant systems. Observe portions of at least one test for each building/area every month. Determine through observation and review of records, where appropriate, that:

- a. The surveillance test procedure conforms to TSR or NCSE/A requirements.
- b. Required administrative approvals and tagouts are obtained before initiating the test.
- c. Testing is being accomplished by qualified personnel in accordance with an approved test procedure.
- d. Required system and test instrumentation is within its current calibration cycle.
- e. LCOs are met.
- f. The test data are accurate and complete. Independently calculate selected test result data to verify the accuracy.
- g. Independently verify that the system was properly returned to service.
- h. Test results meet TSR or NCSE/A requirements and test discrepancies are rectified.
- i. The surveillance test was completed at the required frequency per TSR or NCSE/A requirements.

02.05 Effectiveness of Facility Controls

- a. Evaluate the effectiveness of the facility's controls in identifying, resolving, and preventing problems by reviewing such areas as corrective actions systems, root cause analysis, safety committees, and self-assessment in the area of surveillance.
- b. Determine whether there are strengths or weaknesses in the facility's controls for the identification and resolution of the reviewed issues that could enhance or degrade plant operations or safety.

03.01 Surveillance Testing Program. The inspection effort in this area should be directed at ensuring that the facility operator has developed a formal system to control and evaluate testing, calibration, and inspection required by the TSRs, NCSE/As, the materials control and accountability program, and other application programs.

Chapter 6 of the Safety Analysis Report (SAR), requires the use of procedures for all activities used to implement the SAR, TSRs, and other items in the application. Appendix A of Chapter 6 includes TSR surveillances as an activity requiring the use of procedures. TSRs require that these procedures be used.

The sample size for this verification should be the three most recent TSR, NCSE/A or other certificate program amendments, at least one of which involves a change to surveillance test requirements.

03.02 Calibration - Q and NCS-AQ Safety Related Components Not Identified in TSRs or NCSE/As. For the plant to operate within certain LCO and surveillance requirements of the TSRs, operators are required to monitor various plant parameters. The TSRs do not specify calibration requirements for some of these instruments. The inspection effort in this area should be directed at ensuring that the facility operator has developed a formal system to control and evaluate calibration of these safety related instruments.

03.03 Surveillance Observations - Major. This inspection requirement is designed to provide a comprehensive examination of all aspects of a single surveillance activity. Vary systems selected for witnessing; candidates include those safety systems listed in Chapter 3 of the SAR, in NCSE/As, and those relied on for material control, chemical and fire safety. Emphasis should be placed upon those systems associated with high risk activities, (i.e. liquid uranium hexafluoride (UF₆) feed, withdrawal, or movement, and criticality safety).

Instrument calibration procedures can also be considered as candidates for surveillance witnessing.

- Conduct a detailed technical review of the procedure. As part of the review, the inspector should include in the evaluation: (1) the adequacy of the surveillance test to demonstrate, to the extent practicable, that the system components will function under design basis conditions; and (2) the acceptability of preconditioning, if any, of equipment, in preparation for performance of the surveillance test. If detailed evaluation is needed, consult regional management on the need for additional followup inspection. Additional guidance can be found in the following documents. Inspection Procedure 93801, "Safety System Functional Inspection," provides inspection requirements and associated guidance for verifying that surveillance testing demonstrates system function under design basis conditions (Sections 02.04.d. 3&4 and 03.07). Inspection Manual Part 9900: Technical Guidance, "Operable/Operability: Ensuring the Functional Capability of a System or Component" discusses testing in safety and normal operational configurations (Section 6.5, "Surveillance and Operability Testing in Safety Configuration").
- Perform an independent calculation of test results when it is within the technical capability of the inspector.

Observing surveillance activities in different functional areas on successive surveillance observations is desirable. These areas include mechanical, electrical, instrumentation, operations, engineering, and quality assurance.

Verify that the surveillance activity is being conducted in accordance with the facility's administrative controls and that the equipment clearance was properly prepared. Verify that the main, area, and feed facility control room operators are aware of the effect of the surveillance activity on system operability and plant safety.

Depending on the type of surveillance and the pace of facility activities, it may not be possible to directly observe all portions of a particular surveillance activity. Witness a portion of each of these items.

In cases where the system fails to perform properly on the initial test, the inspector should determine whether repetitive testing was inappropriately used to achieve acceptable test results without identifying the root cause or correction of any problem in a previous test.

Verification of qualification can be done by observation and questioning of the individuals conducting or participating in the test. Training records for these individuals can be reviewed if observation and questioning identify problems.

03.04 Surveillance Observations - Other. The intent of this requirement is to obtain a "sampling" of portions of various surveillance activities; these activities are not to be inspected to the depth required by item 02.01. Surveillance test activities inspected can include candidates from functional areas such as the following, to provide the opportunity to observe plant personnel in different technical disciplines:

- Criticality safety
- Mechanical systems
- Electrical systems
- Instrumentation
- Chemical safety
- Pump and valve inspection tests

If time allows observation of additional surveillance tests, select tests equally between the most safety significant areas of the plant (i.e. feed, withdrawal, criticality control, fire protection pumps), unless a particular area warrants increased attention.

Verify that the surveillance activity is being conducted in accordance with the facility's administrative controls and that the equipment clearance was properly prepared. Verify that the main, area, and feed facility control room operators are aware of the effect of the surveillance activity on system operability and plant safety.

In cases where the system fails to perform properly on the initial test, the inspector should determine whether repetitive testing was inappropriately used to achieve acceptable test results without identifying the root cause or correction of any problem in a previous test.

03.05 Effectiveness of Facility Controls

- a. When safety issues, events, or problems are reviewed, the adequacy of the results of facility controls may be assessed by determining how effective the facility was in performing the following:

1. Initial identification of the problem.
 2. Elevation of problems to the proper level of management for resolution (internal communications and procedures).
 3. Root cause analysis.
 4. Disposition of any operability issues.
 5. Implementation of corrective actions.
 6. Expansion of the scope of corrective actions to include applicable related systems, equipment, procedures, and personnel actions.
- b. The determination of whether there are strengths or weaknesses in the facility's controls will be limited to those issues, events, or problems reviewed in detail. The evaluation will not draw sweeping conclusions about the facility's overall control programs but will be very specific in identifying any facility strengths or weaknesses encountered with the individual items reviewed.

Note: For additional guidance on facility controls, please refer to IP 40500, "Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems."

88102-04 RESOURCE ESTIMATE

An inspection performed using this inspection procedure is estimated to require 40 hours of inspector resources. This estimate is only for the direct inspection effort and does not include preparation for and documentation of the inspection.

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