ATTACHMENT 71111.22

INSPECTABLE AREA: Surveillance Testing

CORNERSTONES: Mitigating Systems (95%)
Barrier Integrity (5%)

INSPECTION BASES: Inspection of this area ensures that safety systems are capable of performing their safety function and would support the Mitigating Systems and Barrier Integrity Cornerstones. The failure to identify and resolve performance degradation of structures, systems and components, could result in long periods of unknown equipment unavailability. This inspectable area verifies aspects of the associated cornerstones not measured by performance indicators.

LEVEL OF EFFORT: Review 18 to 26 surveillance tests per year regardless of the number of reactor units at the site. Although the number of required samples is an annual goal, available risk-significant surveillance test samples should be inspected each quarter to ensure a reasonable distribution throughout the year.

71111.22-01 INSPECTION OBJECTIVE

This inspection will focus on verifying that surveillance testing (including inservice testing) of risk-significant structures, systems, and components (SSCs) are capable of performing their intended safety functions and assessing their operational readiness.

71111.22-02 INSPECTION REQUIREMENTS

02.01 Inspection Planning. Select risk-significant surveillance activities each calender quarter based on risk information, and the guidance contained in the inspection guidance, Section 03.

Every quarter select one inservice testing (IST) activity for a risk-significant pump or valve as one of the surveillance activities. Consider selection of the IST activity based on the component performance history (known deficiencies), or if the component had recently undergone corrective or preventive maintenance.

Include one or two containment isolation valves each refueling cycle as part of the surveillance testing samples. Also, for ice condenser containment design sites, select one or two ice condenser system surveillances to observe during each refueling outage as part of the surveillance testing samples.

02.02 Inspection Activity

a. Verify by witnessing surveillance tests and/or reviewing the test data, that SSCs selected meet the Technical Specifications, Updated Final Safety Analysis Report (UFSAR), and licensee procedure requirements, and demonstrate that the SSCs are capable of performing their intended safety functions (under conditions as

close as practical to accident conditions or as required by Technical Specifications) and their operational readiness.

b. Significant surveillance test attributes for consideration include the following:

1. Preconditioning.

2. Effect of testing on the plant has been adequately addressed by control room and/or engineering personnel.

3. Acceptance criteria is clear and demonstrates operational readiness and is consistent with the supporting design calculations and other licensing documents.

4. Test equipment 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 TS, UFSAR, licensee procedures and commitments.

5. Test is performed in sequence and in accordance with written procedure.

6. Jumpers installed or leads lifted during testing are properly controlled.

7. Test data is complete, verified and meets procedure requirements.

8. Test frequency was adequate to demonstrate operability (meets Technical Specification requirements),and reliability.

9. Test equipment is removed after testing.

10. After completion of testing, equipment is returned to the positions/status required for the SSCs to perform its safety function.

11. For IST activities, testing methods, acceptance criteria, and required corrective actions are in accordance with the applicable version of the ASME Code, Section XI. Review reference values or changes to reference values for consistency with the design bases.

12. Unavailability of the tested equipment is appropriately considered in the licensees performance indicator data.

13. For test results that do not meet the acceptance criteria, results of engineering evaluations, root cause analyses, and bases for returning to operable status are acceptable.

14. For selected safety related instrumentation and control surveillance test (i.e. RPS, NIs, etc.) verify that reference setting data has been accurately incorporated to the test procedure.

02.03 Identification and Resolution of Problems. Verify that the licensee is identifying surveillance testing problems at an appropriate threshold and entering them in the corrective action program. For a sample of significant surveillance testing problems documented in the corrective action program, verify that the licensee has identified and implemented appropriate corrective actions. See Inspection Procedure 71152, “Identification and Resolution of Problems,” for additional guidance.

The following table outlines the general inspection guidance.

Cornerstone	Inspection Objective	Risk Priority	Example
Mitigating Systems	Identify any mitigating system, credited by the licensee as operable when assessing risk, which is adversely impacted by surveillance testing related failures such as failure to adequately test, failure to meet test criteria or, failure to realign equipment after the surveillance.	Focus in areas with potential for common mode failures. Select surveillance tests which cross technical disciplines (electrical, mechanical, I&C) IST of pumps and valves that perform important functions in mitigating systems.[1]	Integrated safeguards testing Emergency diesel start/load testing Battery performance testing Reactor protection and safety injection instrumentation testing Safety bus loss of voltage and degraded voltage relay testing Pumps that provide injection water flow and valves that change position to provide injection water flow to the reactor coolant system.

[1]For additional guidance on IST inspection refer to IP 73756, “Inservice Testing of Pumps and Valves” and NUREG-1482, “Guidelines for Inservice Testing at Nuclear Power Plants.”

Cornerstone	Inspection Objective	Risk Priority	Example
Barrier Integrity	Identify any containment integrity supporting system, credited by the licensee as operable when assessing risk, which is adversely impacted by surveillance test failures such as failure to adequately test, failure to meet test criteria or failure to realign equipment after the test.		Containment isolation valve testing, ventilation/filtration system testing

71111.22-04 RESOURCE ESTIMATE

The annual resource expenditure for this inspection procedure is estimated to be 112 to 152 hours to review surveillance testing activities at a site regardless of the number of reactor units at that site.

71111.22-05 COMPLETION STATUS

Inspection of the minimum sample size will constitute completion of this procedure in the Reactor Programs Systems (RPS). That minimum sample size will consist of 18 surveillance testing activities in a year regardless of the number of reactor units at the site.

71111.22-06 REFERENCES

Inspection Procedure 73756, “Inservice Testing of Pumps and Valves”

Inspection procedure 61720, “Containment Local Leak Rate Testing”

Inspection Procedure 71152, “Identification and Resolution of Problems”

Bulletin 88-04, "Potential Safety-Related Pump Loss," May 5, 1988.

Code of Federal Regulations, Title 10, Part 50, Section 50.55a, "Codes and Standards."

Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," April 3, 1989.

Information Notice 97-90, “Use of Nonconservative Acceptance Criteria in Safety-Related Pump Surveillance Tests,” December 30, 1997

10CFR50, Appendix J including Option B.

NUREG-1482, “Guidelines for Inservice Testing at Nuclear Power Plants”

ASME Boiler and Pressure Vessel Code, Section XI, “Rules for Inservice Inspection of Nuclear Power Plant Components”

Inspection Manual Part 9900, Technical guidance, “Maintenance - Preconditioning of Structures, Systems, and Components Before Determining Operability”

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