ATTACHMENT 71111.22

INSPECTABLE AREA: Surveillance Testing

CORNERSTONES: Mitigating Systems
Barrier Integrity

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.

EFFECTIVE DATE: January 1, 2010

LEVEL OF EFFORT: Review 18 to 26 surveillance tests per year regardless of the number of reactor units at the site. See IMC 2515 and IMC 2515 Appendix A for further guidance on deviating from this sample size and on sample selection.

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 based on risk information, and the guidance contained in the inspection guidance, Section 03.

Annually select 3 to 4 inservice testing (IST) activities for risk-significant pumps or valves as part of the sample. 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.

In addition, select one to three Reactor Coolant System (RCS) leakage detection surveillances each calendar year 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.

IMC 2515 emphasizes observing plant activities over reviewing procedures and records.

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. Electrical connections are secure and maintain their intended design function.

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

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

10. Test equipment is removed after testing.

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

12. 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.

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

14. 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.

15. 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.

16. Annunciator and other alarms are demonstrated to be functional and setpoints are consistent with design documents. Alarm response procedure entry points and actions are consistent with plant design/licensing documents.

17. *For RCPB leakage, to verify that licensees have programs and processes in place to (1) monitor plant-specific instrumentation that could indicate potential RCS leakage, (2) meet existing requirements related to degraded or inoperable leakage detection instruments, (3) use an inventory balance check when there is unidentified leakage (4) take appropriate corrective action for adverse trends in unidentified leak rates, and (5) pay particular attention to changes in unidentified leakage.* [C1]

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, AIdentification and Resolution of Problems,@ for additional guidance.

71111.22-03 INSPECTION 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, RCS leakage detection, and safety injection instrumentation testing Safety bus loss of voltage and degraded voltage relay testing Pumps that provide injection water flow and valves that

Cornerstone	Inspection Objective	Risk Priority	Example
			change position to provide injection water flow to the reactor coolant system.
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

1. For additional guidance on IST inspection refer to IP 73756, AInservice Testing of Pumps and Valves@ and NUREG-1482, AGuidelines for Inservice Testing at Nuclear Power Plants.@

71111.22-04 RESOURCE ESTIMATE

The annual resource expenditure for this inspection procedure is estimated to be 100 hours to review surveillance testing activities at a site regardless of the number of reactor units at that site. See IMC 2515 Appendix A for guidance on deviating from this resource estimate.

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 Manual Chapter 2515, “Light-Water Reactor Inspection Program - Operations Phase”

Inspection Manual Chapter 2515, Appendix A, “Risk-Informed Baseline Inspection Program”

Inspection Procedure 73756, AInservice Testing of Pumps and Valves@

Inspection procedure 61720, AContainment Local Leak Rate Testing@

Inspection Procedure 71152, AIdentification 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, AUse of Nonconservative Acceptance Criteria in Safety-Related Pump Surveillance Tests,@ December 30, 1997

10 CFR 50, Appendix J including Option B.

NUREG-1482, AGuidelines for Inservice Testing at Nuclear Power Plants@

ASME Boiler and Pressure Vessel Code, Section XI, ARules for Inservice Inspection of Nuclear Power Plant Components@

Inspection Manual Part 9900, Technical guidance, AMaintenance - Preconditioning of Structures, Systems, and Components Before Determining Operability@

Regulatory Guide, 1.45, AReactor Coolant Pressure Boundary Leakage Detection Systems@

Regulatory Issue Summary 06-17, ANRC Staff Position on the Requirements of 10 CFR 50.36, Technical Specifications, Regarding Limiting Safety System Settings During Periodic Testing and Calibration of Instrument Channels@

Information Notice 2010-25, “Inadequate Electrical Connections”

END

Attachment 1 – Revision History for IP 71111.22

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	01/17/2002 CN 02-001	Revised to incorporate minor changes to the inspection requirements. In addition, inspection resource estimates and inspection level of effort are revised to provide a band for more inspection flexibility.	NO	N/A	N/A
C1 Reference: Davis-Besse Lessons Learned Task Force Item 3.2.1(3)	05/11/2004 CN 04-013	Revised to include RCS leak detection system surveillance as part of the surveillance testing samples. Revision also includes surveillance testing attributes for reviewing annunciator/alarm setpoints and alarm response procedure actions.	YES	9/24/2003	N/A
N/A	01/05/2006 CN 06-001	Reduced the estimated resources required to complete this inspection activity based on inspection hours charged to this IP during last several ROP cycles. Completed historical CN search.	NO	N/A	N/A
N/A	02/27/07 CN-07-007	IP 71111.22 address feedback form 71111.22-912 to clarify Section 02.02 to more clearly describe what is to be accomplished when conducting the leakage detection surveillance inspection.	NO	N/A	N/A

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	12/24/09 CN-09-032	Revised IP to make changes recommended by 2009 ROP Realignment process. (Ref. ML092090312.) • Did not make changes recommended by FF71111.19-1334; see FF for details. • Incorporated FF2515-1309 by adding reference to IMC 2515 in Section 2.02 to emphasize observation of plant activities. • Incorporated FF2515-1325 by removing quarterly sample requirements in Level Of Effort section and Section 2.01. Quarterly samples are not required by IMC 2515. • In Section 04, reduced the resource estimate by 5 hours.	NO	N/A	N/A
N/A	11/08/11 CN 11-031 ML11213A004	Revised to incorporate feedback associated with Feedback Form No. 71111.22-1550. For historical reference, ADAMS Accession number for previous revision is ML092780504.	NO	N/A	ML112840035