

ATTACHMENT 71111.19

INSPECTABLE AREA: Post-Maintenance Testing

CORNERSTONES: Mitigating Systems (90%)
Barrier Integrity (10%)

INSPECTION BASES: Inadequate maintenance activities that are not detected prior to returning the equipment to service can result in a significant increase in unidentified risk for the subject system. This inspectable area verifies aspects of the mitigating system and barrier integrity cornerstones not measured by performance indicators.

LEVEL OF EFFORT: Review 20-28 post-maintenance testing activities in a year. Although the number of required samples is an annual goal, available post maintenance testing (PMT) samples should be inspected each quarter to ensure a reasonable distribution throughout the year. For multi unit sites, attempts should be made to evenly balance the PMT samples between each unit on site. Where special conditions or circumstances warrant, such as unit specific PMT deficiencies, deviations from evenly balanced PMT samples may be appropriate.

71111.19-01 INSPECTION OBJECTIVE

01.01 This inspection will verify that the post-maintenance test procedures and test activities are adequate to verify system operability, and functional capability.

71111.19-02 INSPECTION REQUIREMENTS

02.01 Inspection Planning. Select post-maintenance testing activities each calendar quarter that affect risk significant systems or components. Sufficient preparation time should be devoted to reviews of deficiency identification and maintenance documents, and discussions with plant personnel to understand the scope and details of the maintenance activity performed. If any risk significant systems or components have a recent record of performance problems and the maintenance activities performed are complex in nature, then preferentially select post-maintenance testing activities that affect those systems or components

02.02 Inspection Activity

- a. For each testing activity selected, identify the affected system(s) and/or component(s), and:
 1. Review applicable licensing basis and/or design-basis documents to identify the safety function(s) of the affected system(s) and/or component(s);
 2. Review the associated maintenance activity, to identify the safety function(s) that may have been affected by that activity; and

3. Review the licensee's test procedure to verify that the procedure adequately tests the safety function(s) that may have been affected by the maintenance activity, that the acceptance criteria in the procedure are consistent with information in the applicable licensing basis and/or design-basis documents, and that the procedure has been properly reviewed and approved.
- b. Either witness the test and/or review the test data, to verify that:
1. The performance of the affected system(s) and/or component(s) satisfies the procedure's acceptance criteria;
 2. The effects of testing on the plant have been adequately addressed;
 3. The test equipment is calibrated, and is within its current calibration cycle;
 4. The test equipment used is within its required range and accuracy;
 5. The applicable prerequisites described in the test procedure are satisfied;
 6. The affected systems or components are removed from service in accordance with approved procedures;
 7. The test is performed in accordance with the test procedure and other applicable procedures;
 8. Jumpers installed and/or leads lifted during testing are controlled and restored;
 9. The test data/results are accurate, complete, and valid;
 10. The test equipment is removed after testing;
 11. After completion of testing, equipment is returned to the positions/status required to maintain the system operable, in accordance with approved procedures;
 12. Any problems noted during testing are appropriately documented.

Note: As a minimum, perform a review of the completed test procedure and the recorded data. However, for most inspection samples the inspector should also attend the prejob briefing, witness the test when it's performed, and attend any post-test critiques, as applicable.

02.03 Problem Identification and Resolution. Verify that the licensee is identifying post-maintenance testing problems at an appropriate threshold and entering them in the corrective action program. For a sample of significant post-maintenance test 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.

Cornerstone	Inspection Objective	Risk Priority	Example
Mitigating Systems Barrier Integrity	Identify any system, credited by the licensee as operable or available, which is adversely impacted by failure to adequately test, realign, or remove test equipment after maintenance.	<p>Select activities with potential for common mode failures and activities where there is a recent record of maintenance & testing errors.</p> <p>Select activities across technical disciplines [electrical, mechanical, I&C]</p> <p>Select activities that are more difficult to test at power.</p>	<p>Post maintenance testing of:</p> <p>on-line emergency diesel generator engine repairs</p> <p>newly installed electrical/instrumentation components that control integrated multiple systems, for example LOOP/LOCA circuits</p> <p>containment air lock leakage</p>

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RESOURCE ESTIMATE

The annual resource expenditure for this inspection procedure is estimated to be 71 to 97 hours to review post-maintenance testing activities at a site regardless of the number of reactor units at that site.

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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 20 post-maintenance testing activities in a year regardless of the number of reactor units at the given site.

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REFERENCES

Inspection Procedure 71111.12, "Maintenance Rule Implementation"

Inspection Procedure 71111.13, "Maintenance Risk Assessments and Emergent Work Control"

Inspection Procedure 71152, "Identification and Resolution of Problems"

END