

RESIDENT INSPECTION PROGRAM POST-MAINTENANCE TESTING

Effective Date: 01/01/2021

PROGRAM APPLICABILITY: 2600C

88135.19-01 INSPECTION OBJECTIVES

The objectives of this procedure are to provide requirements and guidance for evaluating and ensuring that the facility 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. The purpose of the inspection is to verify that the post-maintenance test procedures and test activities are adequate to verify system operability, and functional capability.

88135.19-02 GENERAL GUIDANCE

Select post-maintenance testing activities that affect risk-significant systems or components. The risk-significance of particular IROFS and/or safety control is specified in the Integrated Safety Analysis (ISA). Select a reasonable distribution of post-maintenance testing samples each quarter that covers different fuel processing areas, if possible, throughout the year. Performing more post-maintenance testing samples during facility outages may be appropriate.

The preferred sample candidates are risk-significant systems or components that have experienced recent performance problems or involve complex maintenance. Additional good candidates include:

- a. Activities with the potential for common-mode failures or systems.
- b. Activities with a recent record of maintenance and testing errors.
- c. Activities across technical disciplines (e.g., electrical, mechanical, instrumentation and control).
- d. Activities that have undergone a change in work scope or experienced problems.

Post-maintenance testing activities are often conducted by performing a related, existing surveillance procedure for operability/functionality determination. Inspectors should assure that the testing performed not only provides a snapshot of the safety controls' or IROFS' operability, but actually evaluates the adequacy of the maintenance or repairs to the controls being tested.

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."

88135.19-03 INSPECTION REQUIREMENTS AND INSPECTION GUIDANCE

03.01 Post-Maintenance Testing.

- a. Inspection Requirement. Verify, at least once per quarter, that post-maintenance test procedures and test activities for IROFS and other safety controls are adequate to assure that IROFS and controls are available and reliable to perform their intended safety function to comply with the performance requirements of 10 CFR 70.61 and as required by the license, procedure, and/or other NRC requirements.
- b. Inspection Guidance. Procedure contents should normally include testing provisions following maintenance. Written procedures should be available for performing maintenance, calibration, and surveillance requirements for safety controls, including where applicable, NCS control systems and IROFS identified in the integrated safety analyses (ISAs). There should be records to confirm that the work was performed. Observe post-maintenance testing activities which affect safety-significant systems and components, to ensure activities are adequately and safely conducted. For each testing activity selected, identify the affected systems and/or components and review the following:
 1. The applicable ISA documents to identify the safety function(s) of the affected system(s) and/or component(s).
 2. The associated maintenance activity to identify the safety function(s) that may have been affected by that activity.
 3. 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.

Based on the availability of time, the inspector may also (1) verify testing is being conducted in accordance with the vendor manuals for selected components, (2) discuss the maintenance activity with plant personnel to gain insights, and (3) observe the associated maintenance activity to identify the affected safety function(s).
 4. Either observe the test and/or review the test data to determine whether:
 - (a) The performance of the affected system(s) and/or component(s) satisfies the procedure's acceptance criteria.
 - (b) The effects of testing on the plant have been adequately addressed.

- (c) Measuring and test equipment (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.
- (d) The applicable prerequisites described in the test procedure are satisfied.
- (e) The affected systems or components are removed from service in accordance with approved procedures.
- (f) The test is performed in sequence and in accordance with written procedure.
- (g) Annunciator and other alarms potentially interfacing with performed maintenance are demonstrated to be functional and setpoints consistent with design documents.
- (h) Jumpers installed or leads lifted during testing are controlled.
- (i) Electrical connections are secure and maintain their intended design function.
- (j) The test data/results are accurate, complete, and valid.
- (k) M&TE is removed after testing and equipment is returned to the positions/status required for the performance of its safety function.
- (l) Any problems noted during testing are appropriately documented.

Whenever possible, the inspector should attend the pre-job briefing, 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.

88135.19-04 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 88135.19. Completion of post-maintenance test inspection activities should be documented in the quarterly inspection report for the quarter in which they were performed.

88135.19-05 PROCEDURE COMPLETION

This procedure is completed when the inspection requirements are performed with a minimum of one sample per quarter and a total of six samples per year.

| 88135.19-06 REFERENCES

1. 10 CFR 70.61, "Domestic Licensing of Special Nuclear Material," Subpart H, "Performance Requirements"
2. 10 CFR 70.62, "Safety Program and Integrated Safety Analysis"
3. NUREG-1513, "Integrated Safety Analysis Guidance," June 2004

END

Attachment: Revision History for IP 88135.19

Attachment 1 - Revision History for IP 88135.19

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	ML13233A176 01/31/14 CN 14-004	IP 88135.19, "Post-Maintenance Testing," is a new attachment to IP 88135 (which is being revised in its entirety).	N/A	ML13354B905
N/A	ML20302A474 12/02/20 CN 20-067	Revision to incorporate recommendations from the Smarter Fuel Cycle Inspection Program(ML20077L247 and ML20073G659)	N/A	N/A