

# NRC INSPECTION MANUAL

DQASIP

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## INSPECTION PROCEDURE 72526

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### BWR INITIAL CRITICALITY WITNESSING

PROGRAM APPLICABILITY: 2514

#### 72526-01 INSPECTION OBJECTIVES

- 01.01 Ascertain conformance of licensee to license and procedural requirements.
- 01.02 Observe operating staff performance.
- 01.03 Ascertain the adequacy of test program records, including evaluation of test results.

#### 72526-02 INSPECTION REQUIREMENTS

- 02.01 Conformance to License Requirements (Prior to Start of Control Rod Pull)
  - a. Identify all technical specifications requirements and license conditions applicable during the initial approach to critical.
  - b. By independent inspection of each of the above requirements, exclusive of staffing requirements, verify that the licensee is meeting his license commitments.
  - c. Verify that SRM and IRM nuclear instruments have been properly calibrated and are operating with required count rate and signal-to-noise ratio.
  - d. Confirm that trips checks have been performed on nuclear instruments, and that instruments trip in noncoincidence (if required).
- 02.02 Conformance to Administrative and Procedure Requirements
  - a. During three separate periods during the test, verify that crew requirements are being met as defined in the procedures, and that staffing satisfies requirements of technical specifications regarding licensed operators.

- b. Verify that the proper version of the procedure is in use and that it is being followed. Confirm that all referenced procedures have been reviewed and approved.
- c. Verify that each of the prerequisites has been satisfied.

- d. Review special instrumentation required by the procedure, its use, and the analysis of data. Review inverse multiplication plots, if they are used.
- e. Evaluate adequacy of onsite technical support, both licensee and contract.

02.03      Review of the "As-run" Procedure

- a. Review all changes or revisions to the test procedure. Confirm that all are properly reviewed and approved.
- b. Review all test deficiencies, their resolution, and retest. Verify that all are reviewed by the appropriate management.
- c. Review data sheet entries for legibility, traceability, and permanence.

02.04      Test Results Evaluation

- a. Using the licensee's procedure, independently predict the critical rod pattern. Establish  $\pm 1\% \Delta k$  tolerances.
- b. During rod pulls, review licensee's inverse count rate calculations for conformance to prediction.
- c. During rod pulls, independently verify the rod pattern after two banks, and at critical.
- d. If the actual critical rod pattern is not within  $\pm 1\% \Delta k/k$  of the predicted value, as confirmed by consultation with the reactor engineer (or equivalent technical representative), immediately notify the Regional Office. Confirm that the licensee complies with his technical specification, if applicable.
- e. Observe and confirm SRM and IRM overlap test.
- f. Review licensee's test results evaluation, including contribution from NSSS technical support.

02.05      Control Room Log. Review the control room log for the period from 48 hours before test initiation to test completion.

72526-03    INSPECTION GUIDANCE

03.01      Conformance to License Requirements (Prior to Start of Control Rod Pull)

- a. Tabulation of technical specification limits and license conditions permits the inspector to familiarize himself with applicable plant requirements. This should normally be done before the inspection. Technical specification LCOs for condition should apply.

- b. Staffing requirements will be verified during rod withdrawal. Proper status of the standby liquid control should be verified by visual observations of valve positions, equipment start position switches, control room indications, and record review.
- c. Review surveillance records for all nuclear instrumentation channels. Review results of the signal-to-noise ratio test, and observe the individual count-rate indications.
- d. Witness trip test of the nuclear instrumentation channels.

03.02      Conformance to Administrative and Procedure Requirements

- a. On a sampling basis the inspector should determine that personnel are familiar with procedural requirements, especially the limitations and precautions.
- b. On a sampling basis the inspector should verify adherence to procedural limitations and precautions and the individual test steps.
- c. The inspector should verify that the procedural prerequisites and license conditions have been met. Verification should be performed by the inspector's review of the required records (valve lineup list, instrumentation calibration procedure, system checklist, or signoff item in the listed procedure), or by direct observation (monitoring instrumentation indications, valve positions, equipment start position, switches, or personnel actions).
- e. Onsite technical support should include a technical representative from the NSSS startup crew, and the licensee reactor engineer at a minimum.

03.03      Review of the "As-run" Procedure

- a. All test interruptions, changes, or corrections shall be made in accordance with technical specifications and should be documented and reviewed by persons equivalent to those reviewing the original procedure.
- b. Deficiency reports should not only document the problem encountered, but also should indicate the resolution and its approval. Documentation of completed corrective action should be included as well.
- c. Data sheet entries should be permanent (not pencil) and legible. All entries should be initialed or signed, and changes to recorded data should be made so that the original entry remains legible and the reason for the change and the person making it are indicated. Missing data should be identified as a test deficiency and resolved accordingly.

03.04      Tests Results Evaluation.    No guidance offered.

03.05 Control Room Log. The control room log should be reviewed for indications of problems or deviations from the procedure, which may not have been adequately documented in the procedure.

03.06 General Guidance

- a. The inspector should begin inspection of this activity with sufficient lead time to verify technical specification conformance and satisfaction of prerequisites and licensee conditions before initiation of rod pulls. If practical, he should witness all significant activities from initiation of rod withdrawal to attainment of IRM overlap verification.
- b. Additional guidance is provided in Reg. Guide 1.68, Revision 2, Paragraph 2, and Appendix B.

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