

# NRC INSPECTION MANUAL

DQASIP

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## INSPECTION PROCEDURE 72524

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### INITIAL FUEL LOADING WITNESSING

PROGRAM APPLICABILITY: 2514

#### 72524-01 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 fuel loading records.

#### 72524-02 INSPECTION REQUIREMENTS

##### 02.01 Conformance to License Requirements

- a. Identify all technical specification requirements and license conditions applicable during initial fuel loading.
- b. By independent inspection of these requirements, exclusive of staffing requirements, verify that the licensee is meeting its license commitments.
- c. Verify that nuclear instruments have been properly calibrated and are operating with a measurable count rate.

##### 02.02 Conformance to Administrative and Procedural Requirements

- a. Verify that all prerequisites and initial conditions have been met and/or those which are waived have been reviewed/approved in accordance with procedure/TS requirements.
- b. Verify that crew requirements are being met as defined in the procedures, communications are properly in place, and that staffing satisfies requirements of technical specifications regarding licensed operators (daily).
- c. Verify that the proper version of the procedure is in use and that it is being followed (daily).

- d. Verify that inverse multiplication plots are being maintained in accordance with procedural requirements (daily).

- e. Verify by records and by observation of one test daily, that the shutdown margin and control blade operability are being verified properly and at the required frequency. (BWR)
- f. Confirm that boron concentration is being verified by proper sampling and analysis, at the required frequency (daily). Witness at least one analysis. (PWR)
- g. Verify surveillance of monitoring instrumentation during interruptions of fuel loading.
- h. Observe one shift turnover for conformance with administrative procedures (daily).
- i. Review control of personnel access to refueling floor (daily).
- j. Observe use of the refueling status boards, if they are used (daily).
- k. Visit each fuel loading station and assure that personnel understand their specific responsibilities (daily).
- l. Review shift work schedules for conformance with maximum work time limits (daily).

02.03 Review of Fuel Loading Procedure

- a. Verify that a "master" copy of a technically adequate procedure is being assembled (daily).
- b. Review changes to the procedure for technical adequacy, for conformance with administrative procedures, and for proper management approval (daily).
- c. Review records of deficiencies or difficulties encountered to assure the adequacy of corrective action, and the review and approval of actions taken (daily).
- d. Review data sheet entries for legibility, traceability, and permanence (daily).

02.04 Review of Control Room Log. Review the control room log for the 48-hr period preceding fuel loading and daily thereafter until fuel loading is completed.

72524-03 INSPECTION GUIDANCE

The inspector will witness parts of the initial fuel loading of each facility. Initial fuel loading is the first operation where crew coordination with specified systems operations are all performed under licensed and controlled conditions. It is preferred that the inspector witness the early phases of the fuel loading operation and return at some later points. Inspector scheduling should include the witnessing of some of the operation of at least two different shifts and at least one shift turnover operation.

This section contains a brief summary of guidance for inspection items listed in Section 02.

03.01 Conformance to License Requirements

- a. Tabulation of technical specification limits and license conditions permits the inspector to familiarize himself with plant requirements. This should be done before the inspection. Technical Specification limits are those pertaining to Mode 6 and Refueling Operations.
- b. Availability of backup poison injection systems should be included in the sample by verifying control system status, boron concentration in storage tanks, and control operator awareness.
- c. Review of instrument calibration records and observance of instrument response to fuel insertion will assure monitoring capability.

03.02 Conformance to Administrative and Procedural Requirements

- a. No guidance is offered.
- b. Constant communication should be maintained between the control room and the fueling floor. Observations should be made to assure that responsible licensed personnel maintain control of all plant activity.

Note: All loading activities must be terminated if communications are lost.

- c. Assure that the approved procedure in use has the appropriate revision number. Assure that all personnel are following this procedure. Assure by observations that each fuel loading increment which is examined by the inspector is installed using the procedure and that properly qualified personnel safely operate all fuel handling equipment.
- d. Observe that at least two plots of inverse multiplication are obtained using separate instrumentation channels. Observe the correlation between the two plotted curves.
- e. Normally the shutdown margin will be verified several times during the core-loading period. It must also be done after the core is constituted. The margin is verified when the strongest worth rod is removed and enough other rods (equivalent in reactivity to that required to meet the Technical Specifications value) are withdrawn.
- f. Normally the boron concentration sampling should be frequent in the early refueling (i.e., once per hour) with increased intervals up to the maximum of about four hours between determinations and should be as stated in the procedure.
- g. Crew actions, especially those pertaining to flux monitoring shall be observed for periods when fuel loading is inter-

rupted. Inspector observations shall include crew action performed before resumption of fuel loading. These activities shall include assurance that plant systems are verified to be as expected, that instrumentation calibrations are current, and that all crew members have been notified of the resumption of fuel loading.

- h. Observe that shift turnover is performed in an orderly manner. Assure also that the supervisor in charge of the loading operation has personal knowledge by either plant records or by personal observation, of the operational status of all plant systems.
- i. Assure that personnel access to the fuel loading area is restricted as required by the appropriate procedure.
- j. Boards should be maintained current and periodically reviewed by the reactor engineer.
- k. By direct questioning assess understanding of responsibility as well as job duties.
- l. No guidance is offered.

#### 03.03 Review of Fuel Loading Procedures

- a. The "master" copy of the as-run procedure may be kept at several locations, i.e., control room, fuel handling machine, access level, etc. It should be verified that all parts are being completed and reviewed. At this point, a quality control program should be apparent to assure consistency and accuracy of records.
- b. All test interruptions, changes, or corrections shall be made in accordance with Technical Specifications and should be documented and reviewed by personnel equivalent to those reviewing the original procedure.
- c. Deficiency reports should not only document the problem encountered, but also should indicate the resolution and its approval. Documentation of completed corrective action should also be included.
- d. 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 Review of Control Room Log

The control room log should be reviewed for indications of problems or deviations from the fuel-loading procedure, which may not have been adequately documented in the fuel-loading procedure.

72524-04 REFERENCES

General guidance is provided in Reg. Guide 1.68, Revision 2, Appendix A, paragraph 2, and Appendix B.

END