MANUAL CHAPTER 2513

LIGHT WATER REACTOR INSPECTION PROGRAM - PREOPERATIONAL TESTING AND OPERATIONAL PREPAREDNESS PHASE

2513-01 PURPOSE

The purpose of the preoperational testing and operational preparedness phase inspection activities is to verify through direct observation, personnel interviews, and review of facility records that:

01.01 Systems and components important to the safety of the plant are fully tested to demonstrate that they satisfy their design requirements.

01.02 Management controls and procedures, including quality assurance programs, necessary for operation of the facility have been documented and implemented.

2513-02 APPLICABILITY

This phase of the inspection program becomes effective approximately 24 months before issuance of the operating license. It includes those activities directed toward operational readiness of the plant and will coincide with the final portions of the construction inspection program (IE MC 2512). Initial phases of the startup testing inspection program (IE MC 2514) will also overlap the latter phases of this program. The general requirements identified are applicable to both BWR and PWR facilities; however, the detailed inspection procedures in some cases differ dependent upon the type of facility. The requirements identified in this inspection program should normally be completed before issuance of an operating license.

2513-03 DEFINITIONS

03.01 Milestone. A reference point used to sequence the inspection program.

Milestone	Reference Point
305	Start of Preoperational Testing
320	Hot Functional Test Start
330	CILRT and Integrity Test Complete
340	Operating License Issued

03.02 Preoperational Testing Program. For the purposes of this program, the Preoperational Testing Program includes the testing categories normally identified as construction verification tests, and preoperational tests as defined below:

a. Construction Verification Tests. Tests performed under the direction of construction management personnel before system or component turnover to the operating group for preoperational testing. These tests include those activities such as chemical cleaning, flushing, continuity testing, and initial calibration of instrumentation necessary to prepare a system for operation. They also include tests such as containment integrity and hydrostatic testing of piping systems necessary to demonstrate component, system or structure design and construction adequacy. Baseline inservice inspection is also included in this category.

b. Preoperational Tests. Tests performed by or under the direction of the applicant's operations staff to demonstrate the proper functioning and conformance to design requirements of components, systems and structures. Containment leak rate tests may fall in this category or may be combined with the containment integrity test. Preoperational testing frequently forms the contractual basis for custody transfer from the constructor to the operator.

03.03 Quarterly (Q). The inspection effort should be performed 4 times each year, so that the interval between inspections is no less than 2 months and no greater than 4 months.

03.04 Monthly (M). The inspection effort should be performed at least 12 times each year so that the interval between inspections is no less than 20 days and no greater than 40 days.

03.05 Weekly (WK). The inspection effort should be performed at least 48 times per year so that the interval between inspections is no less than 4 days and no greater than 11 days.

03.06 When Required (W). The inspection effort should be performed when the activity or event occurs at the facility or as specified in the guidance section of specific inspection procedures.

2513-04 RESPONSIBILITIES AND AUTHORITIES

04.01 Director, Appropriate Regional Office Division. Overall administration and implementation of the inspection program outlined in this chapter for power reactors within regional boundaries.

04.02 Chief, Appropriate Branch (Regional Office). Administration and implementation of the inspection program outlined in this chapter for power reactors assigned.

04.03 Section Chief (Regional Office). Administration and implementation of the inspection program outlined in this chapter for power reactors assigned.

2513-05 DISCUSSION

This chapter provides guidance for scheduling inspections and for implementing the inspection program. The program establishes uniform inspection methodology but leaves sufficient flexibility to the region for optimizing its inspection resources.

This chapter defines the minimum inspection program for a finding of readiness for license issuance (IP 94300). In some cases, testing delays make it impossible to verify completion of all preoperational tests. In these cases, these items would be identified as exceptions in

the finding of readiness. In any event, the requirements of this portion of the inspection program will require completion following system readiness or as defined in the facility technical specifications. Inspection requirements related to testing for twin or sister facilities would not normally be reduced because of the typical time lag between the two plants. In dual plant cases, a specific objective of the inspection program is to assure that testing and procedure development take proper cognizance of the lead facility and its status. For those procedures and programs which would be identical to those already in use at the operating facility (i.e., quality assurance program, operating procedures, security and emergency plans, etc.), inspection requirements may be reduced to those necessary to assure implementation, and to assure that proper revisions have been made to reflect the new facility. The region may increase the sample size or extent of the program on the basis of assessed need or problems at a facility as well as on the availability of inspectors to perform such work.

Appendices A and B list those inspection procedures which must be completed before the NRC can make a finding of readiness. Appendix A lists those procedures applicable to verifying that systems and components important to safety of the plant are fully tested to demonstrate that they satisfy their design requirements. Appendix B lists those procedures applicable to verifying that management controls and procedures, including quality assurance programs, necessary for operation of the facility, have been documented and implemented. For planning purposes, the listing of procedures is coded to the specific programmatic milestones for the facility. These are indicated as either a milestone alone, or as a time period referenced to a milestone.

Examples:

305 Indicates that the inspection procedure should be complete before the start of preoperational testing.

340-18 Indicates that the inspection procedure should be complete 18 months before fuel loading. All time differentials are indicated in months.

Those IE inspection procedures which should be completed before a facility milestone are identified in Appendices A and B.

Certain procedures included in this phase of the inspection program cannot by their nature be completed during a single inspection. Activities such as review of procedures and manuals may also be conducted over a relatively long time period. For these activities, inspection time will be coded to the module reflecting the end product of the inspection; however the module shall not be reported as complete until the final inspection has been performed. As an example, review of the draft test procedures should be coded to the module for review of the applicable test procedures; however, the module should not be reported as complete until the approved issue of the test procedure has been inspected.

2513-06 PREOPERATIONAL TEST PROGRAM

The Preoperational Test Inspection Program is composed of three inspection procedure classifications. The first classification is the mandatory test inspection procedure. These are the inspection procedures which shall be completed at each unit.

The second classification is the primal test inspection procedure. The inspector is required to select five of these tests for the following: test procedure review, testing witnessing, and test results evaluation. Primal tests chosen for procedure review are not required to be the same as those selected for test witnessing or test result evaluation. Specific inspection procedures are provided for primal tests concerning test procedure review, test witnessing, and test results evaluation.

The third classification includes all preoperational tests required by the FSAR except those designated as mandatory tests and those selected from the primal test list. The primal tests not chosen are to be included in this classification.

Regulatory Guide 1.68 identifies the tests to be included in the preoperational testing program. The inspection requirements listed in this Manual Chapter are centered upon these tests. Regulatory Guide 1.68 states that the applicant should make the test procedures available 60 days before the scheduled test, but not less than 60 days before the scheduled fuel loading date. Drafts of the procedures should be made available as soon as possible to provide sufficient time for the inspector to perform the required review function.

2513-07 RESIDENT INSPECTION PHILOSOPHY

A Resident Inspector is assigned to each construction site where construction is more than 15% complete. At single-unit construction sites, a second Resident Inspector for operations is assigned at the beginning of preoperational testing. The Resident Inspector for construction activities is normally reassigned elsewhere at some point during startup testing, after the OL has been issued. For multiunit sites, units under construction have one dedicated Resident Inspector assigned for that function. One or two Resident Inspectors for operations are also assigned, depending on the number of units in operation or preoperational testing.

The Resident Inspector provides the major onsite NRC presence for direct observation and verification of an applicant's activities. The Resident Inspectors are also the primary onsite evaluators for the NRC inspection effort stemming from events or incidents. It is expected that the greater part of initial event-related inspection effort will be performed by the Resident Inspectors (who may be supplemented by other inspectors depending on the type of event). Regional managers will decide when normal inspection activities will be resumed by those involved with inspecting the event.

The inspection program provides for 20% independent inspection for Resident Inspectors. It is expected that as a direct result of the Resident Inspectors' increased onsite time coupled with their broad facility knowledge, they will identify certain areas where an independent inspection may be warranted.

This inspection program prescribes inspection activities to be performed on backshifts or weekends each week. Backshift and weekend inspections will be performed by both the Senior Resident Inspector and Resident Inspector. The goal for backshift and weekend inspection activities is 20% of an inspector's normal work week, averaged over a year. It is expected that this effort will include normal inspector coverage of items in the program (e.g., test witnessing) as well as those specifically designated for the backshifts. There is no requirement that the inspector leave the site and return on the backshift for backshift inspection effort.

2513-08 REGIONAL INSPECTION PHILOSOPHY

Region-based inspectors will conduct inspection procedures as directed by their supervisors. Region-based inspectors often will be involved in inspection activities of a more specialized nature than those inspection activities performed by the Resident Inspectors. Certain aspects of their inspection activity (i.e., portions of procedure review and administrative program inspection) should be conducted in the Regional Office.

The region-based inspector may also conduct independent inspection activities. There is no stated goal for region-based inspections on backshift or for independent inspection. However, backshift inspection will be performed whenever required to complete the inspection.

The Senior Resident Inspector must be kept apprised of region-based inspector activities at his facility. The appropriate section chief shall ensure coordination of regional inspection activities and keep the Senior Resident Inspector informed.

Region-based inspectors should contact the Senior Resident Inspector before the inspection to obtain information concerning the availability of specific licensee personnel and the status of plant conditions which may affect the planned inspection. In addition, region-based inspectors shall make contact with the Senior Resident Inspector as soon as is convenient after their arrival at the site to ensure a coordinated NRC presence at the facility. They should advise the Senior Resident Inspector of changes to their planned inspection effort and schedule for the licensee exit interview. The region-based inspectors will inform the senior resident inspectors of any unique activities in progress and will brief the Senior Resident Inspector about the results of their inspection before the exit interview with licensee management. The Senior Resident Inspector and/or the Resident Inspector should attend all exit meetings where significant enforcement action or other significant unresolved issues are expected to be discussed.

2513-09 GENERAL GUIDANCE

Although each inspection procedure contains many line items, these items are provided as guidance and the individual inspector is expected to apply professional judgment regarding the need for completing each specific item. For example, he may have assurance that the basic requirement has been satisfied via some other source (i.e., CDR followup, independent inspection effort, temporary instruction followup). In such cases he should not perform these specific items. In summary, the line items in Section 02 of inspection procedures list the attributes which should be considered when evaluating the area covered by the inspection procedure.

As stated in 10 CFR and elsewhere in this Manual (IE MC 2500), NRC inspectors perform a basic mission in determining that an applicant meets current regulatory requirements and commitments. Identifying specific instances where an applicant fails to meet such requirements and commitments, although important, has frequently in the past resulted in correction of symptoms rather than correction of underlying causes of licensee problems. Because of limited number of inspectors, the NRC inspection program covers only a very small sample of licensee activities in an area. Thus, it is important that an applicant evaluate whether a noted noncompliance or deficiency represents an isolated case or may signify a broader, more serious problem in that area. To provide the perspective to perform this evaluation, the inspector should:

a. Keep currently informed of deficiencies, audit findings, and plant problems identified by the applicant's own organization.

b. Ascertain whether additional personal inspection effort is merited in the area under consideration.

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