

NRC INSPECTION MANUAL

DQASIP

INSPECTION PROCEDURE 70312

PREOPERATIONAL TEST WITNESSING

PROGRAM APPLICABILITY: 2513

70312-01 INSPECTION OBJECTIVES

01.01 Verify that the testing is conducted in accordance with approved procedures.

01.02 Verify the adequacy of test program records, including preliminary evaluation of test results.

70312-02 INSPECTION REQUIREMENTS

The inspector shall witness and review the following for each preoperational test witnessed:

¹02.01 Overall Crew Performance

- a. Latest revision of test procedure available and in use by all crew members.
- b. Minimum crew requirements are met.
- c. Test prerequisites are met (50% sampling).
- d. Proper plant systems in service (50% sampling).
- e. Test equipment required by the procedure is calibrated and in service.
- f. Test is performed as required by the approved procedure.
- g. Criteria for interruption of testing and continuation of an interrupted test are adhered to.
- h. Significant events, unusual conditions, test discrepancies, or interruptions to testing are documented.

¹ Satisfies inspection requirements of IP 71302-02.03b and 02.03d.
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- i. Crew actions are correct and timely during the performance of the test. Adequate coordination exists among crew members to conduct the test properly.
- j. All data are collected by the proper personnel.
- k. Temporary modifications such as jumpers, strainers, spool pieces, or blank flanges are installed and tracked per established administrative controls.

02.02 Verify by inspector observations that overall test acceptance has been met.

02.03 Review the preliminary test results to assure that licensee's preliminary test evaluation is consistent with inspector observations.

02.04 Review data sheet entries for legibility, traceability, and permanence.

²02.05 Design Change Control

- a. Review the design change package(s) for the selected system since turnover to determine that reviews, processing and implementation were according to procedural controls.
- b. For modification review in 02.06a, verify that the appropriate changes were made to test procedures.
- c. For design changes reviewed in 02.06a verify that the cognizant engineer is or will be aware of the change.

³02.06 Document Control

- a. Verify that procedure review and approval were in accordance with administrative controls.
- b. Examine selected drawings and vendors' manuals which are being used by test personnel and verify that they are current issues.
- c. Select one field-changed drawing, if applicable, and verify that the change was referred to the design engineer for review and revision of drawings.

⁴02.07 Training. Verify by review of training records or direct interview of two responsible test personnel that they have received the required training. This training should include the following:

- a. administrative controls for testing
- b. QA/QC indoctrination
- c. technical training as appropriate

² Satisfies inspection requirements of IP 70302-02.04.

³ Satisfies inspection requirements of IP 70302-02.03.

⁴ Satisfies inspection requirements of IP 70302-06.

03.01 Overall Crew Performance

- a. The inspector should determine the proper procedure revision by examination of the licensee's master index or the "up-to-date" procedure file. Ensure by examination and discussions that crew members are using the procedure with the latest revision number and are familiar with the procedural requirements, especially the limitations and precautions.
- b. The test procedure will normally specify minimum crew requirements. The inspector should assure that the requirements are met.
- c. The inspector should verify that procedural prerequisites and initial conditions have been met. To accomplish this the inspector should review the required records (valve lineup list, instrumentation calibration procedure, system checklist, or signoff item in the listed procedure), or should directly observe monitoring instrumentation indications, valve positions, equipment start position switches, or personnel actions.
- d. No guidance offered.
- e. Test equipment is normally required for measuring important parameters to demonstrate system designs. This equipment must be calibrated. The inspector must verify that calibration was performed in a recent time period. Once this has been done for a piece of equipment, the inspector need not repeat the verification each time that piece of equipment is used.
- f-h No guidance required.
- i. Crew coordination is an important part of any test. Each crew member performs procedural steps, and each should be knowledgeable of the expected events at his station. Many of these steps are coordinated activities involving two or more crew members. The inspector must observe that the person assigned to direct the test activities has knowledge of the activities of these crew members and of the time sequence of these activities when time sequence is important. The test sequence may be interrupted or modified. These interruptions or modifications must be communicated to crew members and modifications must be handled in accordance with existing procedures. These modifications in many cases will be in accordance with existing administrative procedures. The inspector should verify on a sampling basis adherence to the procedural limitations and precautions and the individual test steps.
- j. The acceptance criteria should be stated in the test procedure and should be known to the person in charge so that an evaluation may be made soon after the test. Events or data taken individually may be within expectations but collectively indicate unexpected results. All necessary raw data must be gathered in a timely manner following the test. The person in charge must ensure that these data are collected, assembled, and transferred to person(s) performing the final analysis.
- k. No guidance offered.

03.02 No guidance offered.

⁵ The digits and letters following "03" numbers in this Section refer to equivalent digits and letters following the "02" numbers in Section 70321-02, "Inspection Requirements." For example, Section 03.01a offers guidance for Inspection Requirement 02.01a.

03.03 The inspector should also, independent from the licensee evaluation, observe and evaluate certain events or data gathering during and following the tests. These events or data gathering activities should be selected during the inspector's review of the procedure. He should be knowledgeable of the expected measurements for important test parameters. The inspector should observe or evaluate at least two of the most important events or data recording. For identified deficiencies, the inspector's review should include such things as witnessing maintenance, calibration, retesting, review group evaluation, etc.

03.02 - 03.04 Performance of these activities will ensure that the inspector is cognizant of test activities, test results, and test discrepancies or other plant problems affecting testing.

03.05 No guidance offered.

03.06 a,b. No guidance offered.

- c. Recent changes (i.e., these completed during the past 3 to 6 months) may not be reflected in formally revised as-built drawings. However, the inspector should expect to locate, at the site, official marked-up or working copies of as-built drawings which would reflect all of the latest changes or modifications. The procedure for revision of drawings to accommodate field changes should also be verified to be functioning to ensure "as-built" conformance.

03.07 Training. ANSI 45.2.6 N45.2.6-1978, which is endorsed by Regulatory Guide 1.58, requires that qualification records, including training received, shall be kept for personnel involved in inspection, examination, or testing, including preoperational testing.

03.08 General

- a. The inspector is required to witness, on a sampling basis, the overall conduct of the preoperational test program. This includes the witnessing of those tests and activities covered by this procedure and other tests included in the licensee's procedure at the inspector's option. Communications must be maintained between the inspector and the licensee so that the licensee's test dates are known far enough in advance for the inspector to be onsite for witnessing of the tests. Licensees are not expected, nor should they be requested, to delay conduct of a test pending arrival of the inspector.
- b. The inspector should review the test procedures and the overall test sequencing document (or procedure) before test performance. It is not expected that these reviews be thorough relative to those reviews performed by other regional inspectors. The intent of these reviews is primarily for inspector familiarization of the licensee's test program and requirements and secondarily for identification of major test deficiencies, if present, which could otherwise go undetected because of the sampling requirements in the inspection procedures.
- c. Accounting. Inspection effort in utilizing this inspection procedure will be recorded on the 766 system by the specific system inspection procedure number.

END