

NRC INSPECTION MANUAL

QASIP

INSPECTION PROCEDURE 88025

MAINTENANCE AND SURVEILLANCE TESTING

PROGRAM APPLICABILITY: 2600

88025-01 INSPECTION OBJECTIVE

To determine whether general maintenance operations, surveillance tests and calibrations are being conducted in accordance with license requirements and approved procedures, and to determine specifically whether emergency utility services and process monitoring instrumentation is being maintained and calibrated as required.

88025-02 INSPECTION REQUIREMENTS

02.01 Maintenance

a. Work control procedures and system maintenance

1. Verify that work control procedures contain requirements for operations personnel to approve and control maintenance activities performed within the boundary of the operating plant or within process operations areas or within the proximity of vital equipment.
2. Verify that work control procedures require: 1) special authorization for activities involving welding, open flame, or other ignition sources, and 2) a special survey or evaluation of the proposed work area to identify nearby flammable material, vital cable runs, critical process equipment, etc.
3. Verify that work control procedures require: 1) a fire watch, and 2) if the maintenance activity is to be performed in the proximity of flammable material, vital cable runs, etc., the fire watch to have a capability for communicating with the central control area, process area, or watch area of the plant.
4. Verify for two maintenance operations on systems important to safety that administrative approvals required by the licensee's procedures were obtained prior to initiat-

ing maintenance work, and, if applicable, that the procedural elements were followed.

5. Verify that the maintenance operations were inspected by the licensee upon completion and that appropriate functional testing and calibrations (as specified by license requirement or licensee

procedures) was performed prior to returning the component or system to operational status.

6. Verify that maintenance operations were conducted by qualified personnel using approved procedures.
7. Verify that licensee procedures require a periodic QA or management surveillance audit of maintenance activities to assure that proper authorizations are obtained, and conformance with established controls for nuclear safety, radiological safety, and ignition sources and firewatch.
8. Verify that licensee procedures for housekeeping control are implemented and are effective.

02.02 Surveillance Testing

- a. Verify that the required frequency of surveillance tests has been met for systems important to safety that are specified in license requirements.
- b. Verify that surveillance tests required by the license are conducted using properly approved procedures.
- c. Examine the technical content of procedures selected in (b) above to determine that satisfactory tests will be conducted.
- d. Verify, for tests selected in (a) above, that test results conform with license requirements, and that test results have been reviewed and approved by appropriate supervision.

02.03 Calibrations

- a. Verify that the required frequency of calibration has been met for "monitors" in the systems important to safety that are specified in license requirements.
- b. Verify that during the calibration of the monitoring components selected in (a) above, that the service status of the system was in conformance with the applicable limiting conditions of operation specified in license requirements.
- c. Verify that procedures used to calibrate the monitoring component selected in (a) above contain: review and approval requirements of license conditions, acceptance values for trip settings that conform to license requirements, and detailed stepwise instructions.
- d. Examine the technical content of procedures selected in (c) above, to determine that satisfactory calibration of monitoring components will result.
- e. Verify that trip points of components selected in (a) above conform to applicable license requirements.
- f. Verify the qualifications of individuals having responsibility for performing calibrations.

- g. For gauges, instruments, or other measuring/testing devices used as primary standards in the calibration of plant equipment, verify that:
 - 1. calibration frequency was met and accuracy verified as prescribed by internal procedures or license requirements,
 - 2. accuracy is traceable to the National Bureau of Standards or other independent testing organization,
 - 3. storage and control of the selected devices is proper.

88025-03 INSPECTION GUIDANCE

03.01 Maintenance

- a. Work control procedures. Work control procedures should require the use of a "special work permit." Administrative control procedures should define the review and approval sequence for obtaining a work permit and require that all maintenance activities within the operating areas of the plant or in the proximity of critical or vital equipment be performed under the work permit system. A work permit should include the following essential elements:

- Identification of work activity
- Work group(s) involved
- Foreman in charge
- Ignition source controls
- Firewatch requirements
- Special work controls
- Foreman signature
- Operating staff review signature
- Operations supervision approval signature

Work control procedures should define criteria under which work in process areas or vital areas of the plant will be permitted. A prudent and safe policy would be to specify that only emergency work will be permitted in process areas or vital areas during plant operation. Work not necessary for continued safe operation should be deferred until a plant or process outage, unless there are extenuating circumstances. In the latter case, precautions and controls should be commensurate with the risk to the plant or process operation. Work in process or vital areas should not be started without notification of the plant or area supervisor.

In the review of maintenance records, check to see if provisions are included to acknowledge that any applicable limiting conditions (specified by license or procedural requirements) related to the process system are in effect following removal of the component or system for maintenance.

Establish from review of maintenance documents, that internal procedures provided instructions on formal release of equipment for maintenance.

Skills normally possessed by qualified maintenance personnel may not require detailed step-by-step procedures for simple tasks, e.g., adjusting valve packing, etc. Some work may be carried out by people not belonging to the staff of the plant. In these cases, attention must be given to assuring that such persons receive appropriate instruction and familiarization with licensee procedures and appropriate supervision by plant personnel.

Procedure contents should normally include testing provisions following maintenance. Review maintenance document or other records to assure that testing was performed and satisfactory results were obtained.

03.02 Surveillance Testing. The surveillance tests to which this procedure applies are those specified in license requirements. The systems which may be included for such tests may be:

- . Plant protection system
- . Mechanical process systems
 - . fuel receiving, storage, handling, transfer, and
 - . feed preparation and hull handling, or
 - . fissile material receiving, storage, handling, transfer, and
 - . fuel manufacturing
- . Chemical process systems
- . Process offgas systems
- . Confinement barriers and systems
- . Ventilation systems
- . Emergency utility services
 - . electrical supply systems
 - . water supply systems
 - . compressed air supply systems
 - . lighting systems
 - . fire protection system
 - . safety communications and alarms systems

- a. Select 1 surveillance test required by the license for each of the systems important to safety. Required frequency is determined from the license requirements. Test records containing raw data should be used for this determination using the following sample sizes:

<u>Required frequency</u>	<u>Sample size of test results to be reviewed</u>
Yearly	1
Semiannual	2
Quarterly	4
Monthly	4
Weekly	6
Daily	14

- b. Procedures should be developed, reviewed, and approved under the licensee's procedural control system. The procedures should specify:

- prerequisites and preparation for the test,
- functional tests of instruments in conducting the surveillance test,
- acceptance criteria,
- operational checks to be made before returning equipment to service.

Examine those procedures related to the tests selected in 1 above.

- c. The objective is to determine whether the procedure will satisfy the applicable license requirement. The surveillance requirement and the bases of the license requirements, or description in the SAR or the application, should be used to aid in this determination. Examine the procedure and check-off sheets to determine if valve lineup, or other similar requirements, appear correct for the test activity and the return of the component or system to service.
- d. The test results should be reviewed and approved by someone other than the person performing the test or the person directing the test.

03.03 Calibrations. The systems to which this procedure applies are:

- Plant protection systems
- Mechanical process systems
- Fuel receiving, storage, handling, transfer, and
- Feed preparation and hull handling, or

- . Fissile material receiving, storage, handling, transfer, and
 - . Fuel manufacturing
 - . Chemical process systems
 - . Process offgas systems
 - . Confinement barriers and systems
 - . Ventilation systems
 - . Emergency utility services
 - . electrical supply systems
 - . water supply systems
 - . compressed air supply systems
 - . lighting systems
 - . steam supply system
 - . Fire protection system
 - . Safety communications and alarms systems.
- a. Select 1 component for each system which is covered by a license requirement. Required frequency is determined from the license requirements. Calibration records containing raw data should be used for this determination using the following sample sizes:

<u>Required frequency</u>	<u>Sample size of test results to be reviewed</u>
Yearly	1
Semiannual	2
Quarterly	4
Monthly	4
Weekly	6
Daily	14

- b. During the review of calibration procedures and calibration records determine whether provisions are included to acknowledge that applicable license requirements for limiting conditions for operation are in effect.
- c. In the review of procedures, look at a sample of stepwise instructions to determine if the following considerations have been included:
- . appropriate signal compensations are included,
 - . point of signal insertion is specified,

- . calibrations are made at selected cardinal points appropriate to the range and use of equipment.
- d. The objective is to determine whether the procedure will satisfy applicable license requirements. The surveillance requirements and the bases of the license requirements, or description in the SAR or the application, should be used to aid in this determination. Examine the procedure and check-off sheets to determine if valve lineup, or other similar requirements, appear correct for the calibration activity and the return of the component to service.
- e. During the review of raw data calibration records, determine whether "as-found-settings" are also recorded.
- f. Use the company policy regarding personnel qualification requirements. ANSI N18.1 may be used as "background" guidance.
- g. No requirements are presently established; establish by direct observation that any information tagged on the testing equipment conforms to that in calibration records, and that storage control is consistent with the special use of this equipment.

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