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## INSPECTION PROCEDURE 69020 APPENDIX H

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### INSPECTION OF ELECTRICAL COMPONENTS AND SYSTEMS AT NON-POWER PRODUCTION AND UTILIZATION FACILITIES

Effective Date: March 25, 2025

PROGRAM APPLICABILITY: IMC 2550

#### 69020.H-01 INSPECTION OBJECTIVES

- 01.01 To determine if work and related activities associated with safety-related electrical components and systems at non-power production and utilization facilities (NPUF) are being performed in accordance with regulatory requirements, the licensing basis, specifications, drawings, and work procedures.
- 01.02 To determine if the applicant/licensee's system for preparing, reviewing, and maintaining records relative to safety-related electrical components and systems reflect work accomplishment consistent with specifications and procedures.
- 01.03 To verify the as-built condition of safety-related electrical components and systems meets the specified design requirements, specifications, and drawings
- 01.04 To determine if the implementation of the quality assurance program (QAP) related to work activities for safety-related electrical components and systems is effective and to verify that deviations from requirements are appropriately resolved.

#### 69020.H-02 INSPECTION REQUIREMENTS

- 02.01 For the safety-related electrical components and systems selected for inspection, determine if appropriate and adequate procedures in the following areas are compatible with the QAP and prescribe adequate methods to meet the specifications:
  - a. receipt inspection
  - b. storage and handling
  - c. installation
  - d. construction quality control inspection
  - e. construction testing
- 02.02 Determine if the applicant/licensee has an established audit program (including plans, procedures, and audit schedule) for assessing the adequacy of work control functions and requirements for electrical components and systems, and for ensuring that examination, inspection, and test personnel associated with performing tests and inspections of electrical components and systems are qualified and/or certified to perform their assigned work.

02.03 Determine if the following safety-related electrical components and systems activities are being controlled and accomplished in accordance with the requirements of the documents reviewed in Section 02.01, above:

- a. receipt inspection
- b. storage and handling
- c. installation (in-process, completed work, as-built verification)
- d. construction quality control inspection
- e. construction testing
- f. configuration management

02.04 Review the documentation generated for safety-related electrical components and systems. Determine if the applicant/licensee/contractor system for documenting safety-related work is functioning properly. Records should be complete, reviewed by quality control, engineering personnel, or designee and readily retrievable. Review safety-related records in the following areas:

- a. receipt inspection and material certification (if applicable)
- b. installation and construction testing records
- c. nonconformance/deviation record(s)
- d. training/qualification records of craft, and quality inspection personnel (as required)
- e. configuration management records

## 69020.H-03 INSPECTION GUIDANCE

### General Guidance

Inspectors should review the facility description in the safety analysis report (SAR) or equivalent and be familiar with the requirements for safety-significant electrical components and systems being installed at the site. The purpose of these as-built inspections is to verify that the assumptions and critical attributes reviewed during the licensing review process remain valid; the design was appropriately translated to construction specifications; the licensee/applicant constructed the facility in accordance with these specifications; and any changes made to the design described in the SAR comply with the licensee's configuration management program.

Inspectors should also be familiar with the licensee's QAP and use IP 69021, "Inspections of Quality Assurance Program Implementation During Construction of Non-Power Production and Utilization Facilities," to perform "vertical slice" inspections as described in the body of this IP. Inspectors should complete this appendix by inspecting the attributes listed in this appendix with a focus on safety-related electrical components and systems.

Inspectors should contact the applicant/licensee prior to the onsite inspection to help determine what electrical components and systems are to be inspected. Observation during in-progress installation of the electrical components and systems is desirable but not required. If necessary, inspectors may select completed electrical components and systems for inspection. Inspectors should not attempt to inspect all electrical components and systems on the site but may expand if significant concerns with the applicant/licensee's control of electrical components and systems installation/construction arise. Samples should include components or systems within risk-significant areas of the facility. Samples should include work of different subcontractors and work performed at various times throughout the project.

Inspectors should collect applicant/licensee procedures, electrical components and systems specifications, and work completion records in advance, if possible. If unable to review these documents in advance of the on-site inspection, then the licensee should be notified that these documents, and any other relevant documents, should be available when the inspector(s) arrives at the site.

Electrical components and systems consist of those elements of the facility that are designed to supply, use, control, transform, condition, or interrupt electric power. This IP applies, but is not limited, to the following safety-related electrical components and associated items:

(1) raceways; (2) raceway hangers and other supports; (3) switchgear; (4) motor control centers; (5) transformers; (6) batteries and racks; (7) battery chargers; (8) inverters; (9) motor-generator sets; (10) circuit breakers; (11) relays; (12) electrical penetration assemblies; (13) motors; (14) motor operators on valves; (15) electrical-control panels; (16) local cabinets; (17) limit switches; (18) solenoid valves; (19) emergency power system for principal safety-related loads, and (20) other protective devices.

Applicable portions of the licensing basis should be reviewed during inspection preparation. Determine specific licensee procedural and work instruction commitments relative to construction and inspection requirements for electrical components and systems. The inspectors should then use the above information during the review of the licensee's construction specifications, drawings, work, and IPs, to determine if the above requirements are adequately translated into the appropriate documents.

Penetration assemblies, as covered by electrical IPs, refer to assemblies installed in a containment-structure opening (sleeve, nozzle, or barrel) and not to the opening itself. The containment opening is considered to be a part of the containment structure.

Inspectors should choose one or more safety-related electrical components and systems and review the areas listed in Sections 02.01 through 02.04 to the extent practical and may use their judgment in determining which areas to concentrate on if time is limited. However, inspectors should gain an understanding of the applicant/licensee's program to the extent necessary to determine if the applicant/licensee conforms to regulatory requirements. Not all items in the inspection requirements section will be applicable or required in all situations for all safety-related structures, systems, and components.

### 03.01 Inspection Requirement 02.01

- a. Review construction specifications related to safety-related electrical components and systems and determine if the specified technical requirements conform to the commitments contained in the licensing basis.
- b. Review electrical components and systems procedures and verify that they specify provisions for adequate on-site engineering direction, are appropriate and adequate related to procurement and use of materials, specify adequate control of hold points, and provide adequate controls for design changes and incorporation of design changes into as-built drawings.
- c. Determine if appropriate and adequate procedures in the following areas are compatible with the QAP and prescribe adequate methods to meet the construction specifications:

1. Receipt inspection. Receiving inspection and related procedures provide means to ensure the following:
  - (a) Received components are as specified, properly identified, and controlled or otherwise noted.
  - (b) Input from other groups or other organizations to be used during receiving inspection activities are obtained and properly used, such as the results of source inspections, environmental qualification tests, and other required quality tests.
  - (c) Procurement requirements, such as qualification tests (seismic, environmental, etc.), functional tests, certificate of conformance, and other quality tests (material, physical, and chemical), have been successfully completed, or status of how and when such requirements will be satisfied is documented and adequately controlled.
  - (d) Verify that requirements contained in the approved QAP document, or other applicable licensing commitments, have been adequately translated into the licensee's receipt inspection procedures, which may include provisions for the following:
    - (1) Cable, busways (power, control, and data), and termination materials are in conformance with purchase specifications.
    - (2) Adequate marking and identification are provided.
    - (3) As-received cleanliness and protection are adequate.
    - (4) Receiving inspection reports are complete.
    - (5) Control and disposition of non-conforming items are adequate.
2. Storage and Handling.
  - (a) Storage procedures provide means to ensure the following:
    - (1) The proper storage environments (as specified by the construction specifications and the manufacturers) are established for the various types of electrical components and meet applicable storage-classification levels, regardless of the location of the stored component.
    - (2) Storage-inspection procedures require initial verification of storage conditions and periodic verifications (internal preservation, motor and generator-shaft rotation, insulation-resistance tests, etc.) for the duration of the storage period. They should also ensure that special and in-place storage requirements are met.
  - (b) Handling procedures are established to ensure that the following handling activities for receipt, storage, and installation of large electrical equipment:
    - (1) attachment points,
    - (2) use of rigging,

- (3) positioning,
- (4) special handling requirements, and
- (5) temporary covers.

3. Installation. Work procedures are established to ensure the following:

- (a) Procedures should properly translated licensing requirements into the work procedures (construction specifications, drawings, and work instructions) for adequate control and installation of electrical components and associated items. Areas to review should include, but are not limited to, the following:
  - (1) Electrical components are identified, located, oriented, and supported as specified.
  - (2) Physical separation and independence requirements of redundant components are met.
- (b) Interface controls are adequate when multiple contractors are involved.
- (c) Procedures cover special handling, installation, and maintenance requirements, including those pertaining to protection, preservation of internal cleanliness, and maintenance of component-qualification requirements. For example, all covers, seals, plugs, internal preservatives, and protective coatings are left intact until installation and/or use, as appropriate.
- (d) Work procedures are established to verify the following. Raceway completion (edge softeners, bushings, supports, grounding, routing location, pull fittings, pull cords, identification, sharp edges, etc.) and condition (free of debris) before use.

4. Construction quality control inspections.

- (a) The licensee or contractor procedures involved will differ between facilities and may take various forms, such as formal procedures, instructions, checklists, drawings, etc. Review the construction quality control inspection procedures and compare with the applicable requirements and construction specifications. Evaluation should indicate if adequate quality-related procedures are established and are based on appropriate criteria, and further, if the results of the licensee's inspection will be transmitted to responsible quality control and management personnel.
- (b) Provisions should include procedures for monitoring or surveillance of installed cables by construction quality control inspection personnel. They should ensure that maintenance requirements are satisfied and that adequate protection is provided against possible damage from adjacent construction activities, including construction traffic. (Where protective means used during construction may affect proper operation, provisions should be provided for timely removal.)
- (c) Inspection procedures have been established to ensure the following:
  - (1) All safety-related aspects of construction specifications, drawings, and work instructions are included in the scope of planned inspections.

- (2) The technical aspects of inspection requirements and acceptance criteria are sufficient to determine if the components and their installation, testing, maintenance, and protection conform to applicable design and construction specifications.
- (3) Records of initial and follow-up inspections include the specific results of the inspection. This should include the specific characteristics being inspected (or the actual measured values), the inspectors' determination of acceptability, and identification of any nonconformance's found.

5. Construction testing.

- (a) This item does not include preoperational testing. Construction testing generally verifies that certain components pass specific tests but is not a test of system capability, especially systems that include non-electrical equipment. Typical tests that may be required include insulation resistance, continuity, battery load, and breaker trips.
- (b) The intent of this requirement is to determine if adequate procedures have been established to assure that the required testing is satisfactorily completed and corrective action, if required, is properly performed. Procedures for cable system and component testing provide means to verify the following:
  - (1) Data sheets (or equivalent) are being used as specified.
  - (2) Testing procedures are current and approved for use; ranges, accuracies, etc., are specified.
  - (3) Testing techniques are appropriate for the component to be tested.
  - (4) Controls are included for removal and handling of components during testing activities.
- (c) Procedures are established to ensure that special conditions of testing electrical components (prerequisites, sequence, special handling, removal, precautions, etc.) are included and described in proper detail to conduct and monitor the work performed, including the following:
  - (1) Equipment and systems to be tested and the related test procedures are properly identified and controlled. Procedures specify which construction tests are to be performed on each component requiring testing.
  - (2) Proper type of test equipment (range, accuracy, etc.) is specified.
  - (3) Type of data to be recorded and method of reporting results.
  - (4) Review and evaluation of test results by qualified personnel.
  - (5) Resolution of discrepancies.
- (d) One method to determine the adequacy of these protective systems and devices includes a relay-coordination study. The inspectors should determine if provisions are established to ensure that adequate procedures are available for

this activity. The results of this study should be evaluated by qualified personnel to ensure acceptability of the results.

#### 03.02 Inspection Requirement 02.02

- a. Review applicant/licensee's established audit program (including plans, procedures, and audit schedule) for assessing the adequacy of work control functions and requirements for safety-related electrical components and systems.
- b. Review audit program to verify if examination, inspection, and if required, test personnel associated with performing tests and inspections of electrical components and system construction activities are qualified and/or certified to perform their assigned work.
- c. Verify records establish that the required audits were performed and that deficiencies identified during audits were appropriately resolved.

#### 03.03 Inspection Requirement 02.03

Determine if the following safety-related electrical components and systems activities are being controlled and accomplished in accordance with the requirements of the documents reviewed in 02.01, above:

Select a sample of electrical systems and components for inspection. Inspection should be accomplished by observation and evaluations of both in-process and completed work if possible. Sample selection should be based on importance to operational safety.

Note: Choose a sampling of safety-related electrical components and systems. The sampling may include a variety of locations, uses and types (e.g.: large motors; diesel generators; motor-operated valves; solenoid valves; control centers; control room panels and cabinets; local panels and cabinets; coaxial and triaxial connectors; fiber optic connectors; and stress-cone terminations).

- a. Receipt Inspection. Observe and evaluate portions of receiving-inspection activities pertaining to the electrical components and systems selected for inspection in the appropriate subsections of Section 02.02, above.
  1. Determine if receiving-inspection activities are being controlled and performed in a manner that will ensure requirements. Samples may include:
    - (a) Identification appears on components and in receiving documents.
    - (b) Physical conditions (damage, deterioration, etc.) are indicated.
    - (c) Documentation regarding quality requirements (e.g., results of functional and qualification testing) received with components is reviewed to, and meets, requirements. Where qualification testing of components to be placed in a harsh environment (e.g., inside containment) is not a requirement of the specification, follow-up with the licensee to determine what means will be used to ensure that applicable environmental qualification will be satisfied.
    - (d) Control of nonconforming electrical components and associated items is conducted in accordance with applicable procedures and meets requirements.

- (e) An adequate number of qualified personnel are available to perform the receiving-inspection function.
- 2. Received components are as specified, properly identified, and controlled or otherwise noted.
- 3. Verify procurement requirements such as qualification tests, certificate of conformance, functional tests and other quality tests (material, physical, and chemical) have been successfully completed or status of how and when such requirements will be satisfied is documented and adequately controlled. Refer to the applicant/licensee's licensing basis for tests and criteria requirements.
- b. Storage and Handling. Special storage requirements are typically specified by the manufacturer or an industry standard, committed to by the licensee. The requirements should include such things as taping or sealing cable ends, controlling material and cable or cable reel identification, maintaining proper ambient temperature, separation from nonconforming items, and placement on dunnage.
  - 1. Observe and evaluate storage activities and conditions for the components selected in the appropriate subsections of Section 02.02. Verify the following:
    - (a) Components are stored in the proper storage-level designation.
    - (b) Components are properly identified.
    - (c) Storage conditions (temperature, humidity, cleanliness, etc.) and requirements are controlled and monitored as directed by the applicable specification and by the manufacturer's specifications.
    - (d) Licensee and contractor inspection and monitoring activities are being performed in accordance with procedural requirements, if in progress during NRC inspection.
    - (e) Nonconforming items placed in storage are identified and/or segregated as required.
    - (f) In-place storage requirements are satisfied.
    - (g) An adequate number of qualified personnel are available to perform the required storage functions.
    - (h) Observe and evaluate handling activities and conditions for the components selected in the appropriate subsections of Section 02.02. Verify if conditions are controlled and performed during receipt, storage, and installation of large electrical equipment:
      - (i) Attachment points,
      - (j) Use of rigging,
      - (k) Positioning,
      - (l) Special handling requirements, and



(m) Temporary covers.

c. Installation (in-process, completed work, as-built verification).

1. In-Process Installation. If possible, observe and evaluate in-process installation pertaining to the components and associated items selected in the appropriate subsections of Section 02.02. Determine if:
  - (a) The latest approved revision of applicable construction specifications, drawings, and/or construction procedures are available and used by the installers.
  - (b) The components are as specified, such as type, size or rating, and material.
  - (c) The components are installed in the proper location and orientation by qualified craft personnel using suitable equipment and tools.
  - (d) Associated mounting hardware, supports, and anchors are of the type (welded, bolted, etc.,) and material specified, and are properly located.
  - (e) The required component identification is properly established or maintained.
  - (f) Installed components are adequately protected from damage by adjacent construction activities.
  - (g) Licensee and contractor inspections are performed or scheduled to be performed, before “covering up” the work to be inspected; QC hold points are observed.
  - (h) Inspection activities are completed in a timely and proper manner by qualified personnel.
  - (i) Documentation of installation and inspection activities is completed in a proper and timely manner.
  - (j) Nonconformance’s are identified and handled in accordance with established procedures. Where corrective action is being taken, determine if it meets the appropriate requirements.
2. Completed Work. Evaluate the completed installation of electrical components and associated items selected in the appropriate subsections of Section 02.02. Determine if:
  - (a) Components are installed in accordance with design, construction specifications, and work procedures; components are at the correct location, configuration, and orientation.
  - (b) Specified materials are used.
  - (c) Bolts, anchors, weldments, other fasteners, and supports are as specified and properly mounted and secured. Anchor bolts holding or mounting electrical components should be of the type, size and length specified. Provisions should exist to prevent indiscriminate cutting of reinforcement steel during the drilling of anchor holes.

- (d) Protective coatings, softeners, bushings, and other specified materials have been used as specified.
  - (e) Equipment and item identifications have been maintained.
  - (f) Equipment and components are protected from hostile environments, such as high-pressure pipe, rotating equipment, and non-seismically supported equipment.
  - (g) Electrical components, such as conduit, tray, motors, and power distribution centers maintain specified physical and electrical separation and independence between redundant components.
  - (h) Statuses of completion, maintenance, and readiness for pre-operational testing are indicated or otherwise documented.
  - (i) Adequate actions or provisions have been taken and/or maintained (as needed) to ensure that the validation of the environmental qualification of components is maintained.
3. As-Built Verification. When electrical components and associated items, as selected in appropriate subsections of Section 02.02, are completely (or essentially) installed and inspected, review construction specifications and other applicable work instructions referenced by the drawings or otherwise applicable to the installation. Compare the actual installation with the above drawings and associated documents. For each drawing selected, determine if several components shown on the drawing are of the type specified, (function, range, qualification, material, etc.) and if they have been installed, located, oriented, supported, protected, etc., in accordance with this drawing.
- (a) Before performing the above, verify the number and statuses of outstanding design changes on the selected drawings (and related specifications).
  - (b) Discrepancies observed may result from in-process changes, such as those initiated in the field. If in-process changes are involved, determine if the licensee has properly controlled and documented these changes for engineering review, approval, and subsequent incorporation into the as-built drawings.
- d. Construction quality control inspection. For the activities observed during Inspection Requirement 02.03., items 3 above for in-process installation, completed work, and as-built verification, and item 5 for construction testing, verify if construction quality control inspectors are properly qualified and are present and performing their assigned tasks during handling and installation activities. Verify Construction quality control inspections documentation is complete and accurately reflects the inspection performed and results. Nonconformances are appropriately documented and resolved as required.
- e. Construction Testing. If possible, observe construction-testing activities for the electrical components selected in the appropriate subsections of Section 02.02. Determine if:
- 1. The latest revisions of applicable test procedures and/or specifications are available at the work location and used by personnel performing the testing.

2. Properly identified, traceable, and calibrated measuring and test equipment are used.
  3. Equipment or components are able to obtain the degree of accuracy and tolerance specified or otherwise meet specified requirements.
  4. Required testing results are recorded during the activity; not after the testing has been completed. (Where test results are immediately available to the NRC inspectors, note if they are within specified limits.)
  5. Components that have been tested are adequately identified as to their statuses, (i.e., specified requirements have been met or deficiencies noted).
  6. Personnel performing the testing are properly qualified.
  7. Test personnel adhere to any special handling or removal requirements.
  8. Test discrepancies are properly identified for resolution.
- f. Configuration management. For the activities observed during Inspection Requirement 02.03 for in-process installation, completed work, and as-built verification, and for construction testing, verify if changes occurred during these construction activities, the applicant/licensee properly controlled and documented these changes for engineering review, approval, and subsequent incorporation into the final as-built drawings. Verify these actions were completed in accordance with their procedures and QAP.

#### 03.04 Inspection Requirement 02.04

Determine if for the electrical systems and components activities, the applicant/licensee/contractor system for documenting safety-related work is functioning properly.

- a. Receipt Inspection and Material Certification (if applicable). Select records applicable to the receipt of lots or shipments. Select records applicable to the storage, and storage inspection of lots or groups of electrical systems, components and associated items.
  1. Receiving-Inspection Records. Review and evaluate a selected sample of receiving-inspection records, and determine if:
    - (a) Receiving-inspection documents properly and uniquely identified received electrical components and associated items.
    - (b) Applicable engineering and functional specifications (regarding size, type, material, etc.) of received items and components were met or otherwise noted.
    - (c) The required electrical component characteristics, material, performance tests, environmental and seismic qualification tests, nondestructive tests, and other specification requirements were met or otherwise noted.
    - (d) Original records or certification system met requirements of applicable criteria.

2. Storage Records. Review and evaluate a selected sample of storage records, and determine if the records reflect that:
  - (a) Specified storage conditions and requirements were maintained (e.g., internal preservation, shaft rotation, insulation-resistance tests).
  - (b) Storage inspections were properly made at specified intervals.
  - (c) Records of nonconforming items in storage areas were properly maintained.
- b. Installation and Construction Testing Records. Review records to confirm that correct materials and components were installed, the installation was performed correctly, and that the required construction inspections were performed. A sample selection should include installation records, and system and component testing records.
  1. Installation Records. The records selected should represent a diversity of electrical system, components, and associated items and include some cable and terminations located inside the process facility. Review and evaluate a selected sample of quality records pertaining to installation activities, and determine if these records reflect the following:
    - (a) Most recent and approved design and construction documents were used during installation.
    - (b) Specified electrical components and associated items were installed in the location specified or otherwise noted.
    - (c) Materials and methods used for supports and anchors (including welds) met applicable specifications.
    - (d) Qualified personnel performed, recorded, reviewed, and evaluated required inspections.
    - (e) Inspection records were complete and satisfy documentation requirements.
    - (f) Physical separation and independence requirements were met.
    - (g) Required protection was provided after installation.
  2. Review and evaluate pertinent quality records in the areas listed below. Determine if:
    - (a) adequate preparation, control, review, and evaluation of these records have been made;
    - (b) the records reflect that requirements have been met; and
    - (c) the system of records is functioning properly.
  3. The selection should include records of diverse safety-related electrical systems and components, from a sampling of areas of the plant such as:
    - (a) raceway and raceway supports;

- (b) switch gear and associated breakers;
  - (c) emergency diesel generator and electrical auxiliaries;
  - (d) transformers;
  - (e) motors;
  - (f) dc systems;
  - (g) motor control centers;
  - (h) electric valve operators; and
  - (i) containment-penetration assemblies.
4. Construction-Testing Records. Review and evaluate a selected sample of construction-testing, and determine if:
- (a) Required tests were performed as required.
  - (b) Records indicate that approved procedures were followed.
  - (c) Test equipment was periodically checked and calibrated as specified.
  - (d) Test data and results were properly documented and evaluated, and corrective action, if required, was taken.
5. Test data/records should include:
- (a) specific identify of the component tested
  - (b) the specific identity of the measuring and testing equipment used to perform the testing
  - (c) identity of the technician performing the test and date of test
  - (d) approval signature of responsible individual
  - (e) acceptance criteria
6. Certificates of calibration should be available at the site for test instruments used to perform tests. These certificates should show that the standards used to establish the accuracy of the test instruments are traceable to a nationally recognized standard. Procedures should require that the performance and accuracy of test equipment are demonstrated by periodic checking.
7. Fault protection, which may include: (1) manual and automatic interconnections between buses, buses to loads, and buses to supplies, and capability of components to withstand anticipated fault conditions; (2) interconnections between safety-related and non-safety-related buses; (3) circuit protection network (e.g., selective trip), including setting criteria, protection for overvoltage, under voltage, and frequency; and (4) load shedding devices.

c. Nonconformance/Deviation Record.

1. Records include current status of these items. Nonconformance reports include the status of corrective action or resolution, (e.g., determine if adequate corrective action is being taken when moisture density test results are not within tolerance or acceptance criteria.)
2. The sample size and diversification of selection should be sufficient to determine if the system used to handle and control nonconformance issues is working in an effective manner. The effectiveness of the QAP this area can be determined, in part, by how adequately and promptly the root cause of nonconforming activities are identified and corrected.
3. For the inspection, review and evaluate a sampling of reports applicable to non-conformances or deviations in cables, terminations and cable system installation. Determine if:
  - (a) Records are complete and promptly reviewed by qualified personnel.
  - (b) Records have been routinely processed, evaluated in a timely manner and controlled through established channels, for resolution of the root-cause as well as the immediate problem.
  - (c) Records are properly identified and stored, indicate current status, and can be retrieved in a reasonable time.
  - (d) Nonconformance reports include the status of corrective action or resolution, and adequate justification is provided for use-as-is disposition.

d. Training/Qualification Records of Craft, and Quality Inspection Personnel. Records establish that quality inspection personnel are adequately qualified for their assigned duties and responsibilities and that craft personnel have been trained in their assigned tasks.

1. Verify if a program has been established, if required, for ensuring that craft, examination, and inspection personnel associated with safety-related electric system and components are trained and qualified to perform their assigned duties. The program includes:
  - (a) The proper use of installation equipment (tension devices, pulling compounds, etc.).
  - (b) The proper handling, supporting and protection of electric system and components stored in place.
  - (c) The system of craft and inspection personnel qualification records meets stated requirements and is being maintained in a current status.
  - (d) The records are sufficient to reasonably support qualification in terms of certification, experience, proficiency, training, testing, etc.
  - (e) Responsible licensee/contractor organizations have acted to independently authenticate the record material.

- e. Configuration Management Records. Review and evaluate a selected sample of configuration management records, and determine if:
  - 1. Records associated with design and field changes, as well as related work and IP changes, reflect that timely review and evaluation of design and field change documents have been performed by personnel who are qualified.
  - 2. Records of periodic inspections ensure that only the most recent approved documents, including design changes, were used in the field.
  - 3. Design changes are subject to adequate design control, including consideration of the impact of the change on the overall design and on as-built records.
  - 4. Records of nonconformance's to design requirements include preparation of a nonconformance report even if the nonconformance is resolved through the design-change process.

### 03.05 Additional Guidance

Note: Determine if enough adequately qualified quality control inspection personnel are at the construction site, commensurate with the work in progress, and adequately performing their assigned duties through the established organizational structure.

Prevalent Errors and Concerns. Prevalent errors and recent concerns are areas in which the inspector should be alert to potential generic issues. These areas include:

- a. Adequate procedures or other means have not been established to ensure and document that all safety-related electrical components and subsystems have met applicable acceptance criteria or are nonconforming in specific areas.
- b. IPs do not include adequate inspection requirements and acceptance criteria.
- c. Inadequate means to control location and status of electrical components; especially during removal for repair, modification, or replacement.
- d. Inadequate procedures to control the evaluation, approval, and use of field changes. (The licensee/contractor should establish means to ensure that only the latest approved field changes and other revisions or changes are being used for construction and inspection activities.)

### 69020.H-04 RESOURCE ESTIMATE

The appendices, or sections of the appendices, and inspection samples and hours, applicable to a specific facility should be in the range of 40–80 hours. Inspection preparation, including review of licensing basis, safety analysis report (SAR), and applicable codes and standards, is not included in this estimate.

### 69020.H-05 PROCEDURE COMPLETION

This inspection procedure appendix is complete when one inspection sample is complete. Refer to section 69020-05, "Procedure Completion," of IP 69020, "Inspection of Safety Related Items

(and Services) During Construction of Non-Power Production and Utilization Facilities,” for details on what constitutes a completed inspection sample. Inspectors are not expected to complete every activity in the appendices of this IP. Instead, inspectors should prioritize inspection activities based on 1) importance of the activity to safety, 2) availability of the onsite activity at the time of the inspection, and 3) available inspection resources. An appendix to this IP need not be completed if there are no safety-related items (or services) covered by that appendix at an NPUF.

#### 69020.H-06 REFERENCES

None

END

List of Attachments:

Revision History for IP 69020 Appendix H



Attachment 1: Revision History for IP 69020 Appendix H

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment and Feedback Resolution Accession Number (Pre-Decisional, Non-Public)
N/A	ML24264A200 03/25/25 CN 25-005	Procedure was rewritten for conformance with changes to IMC 2550 and is now a standalone appendix to IP 69020.	N/A	N/A