

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

Report No. 99900330/79-01

Program No. 51400

Company: Westinghouse Electric Corporation
Switchgear Division
700 Braddock Avenue
East Pittsburgh, Pennsylvania 15112

Inspection Conducted: November 27-29, 1979

Inspector: *D M Hunnicutt* 12/14/79
for J. R. Agee, Contractor Inspector Date
Components Section II
Vendor Inspection Branch

Approved by: *D M Hunnicutt* 12/14/79
D. M. Hunnicutt, Chief Date
Components Section II
Vendor Inspection Branch

Summary

Inspection on November 27-29, 1979 (99900330/79-01)

Areas Inspected: Implementation of 10 CFR 50, Appendix B, criteria and applicable codes and standards including: action on previous inspection findings; QA Program Review; Design Review/Design Tests/Production Tests; Quality Assurance Records; and Control of Measuring and Test Equipment. The inspection involved twenty-four (24) inspector-hours on site by one (1) NRC inspector.

Results: In the five (5) areas inspected no deviations or unresolved items were identified as in four (4) areas. The deviation is described as follows:

Deviation: Quality Assurance Records- QA Manual procedures do not address requirements for QA records for Class 1E, safety-related products (See Notice of Deviation).

DETAILS SECTIONA. Persons Contacted

D. A. Acosta - Quality Control Engineering Manager
 A. P. Coloiaco - Development Engineering Section Manager
 L. H. Horvat - Test Foreman
 Kozlovic - Senior Engineer, Design and Development
 L. Magarac - Quality Control Supervisor
 *H. L. Miller - Assistant Manager of Quality Assurance
 B. G. Patterson - Quality Control and Test Manager
 *D. M. Sauter - Division Manager
 *H. I. Stahr - Manager of Quality Assurance
 J. Subasic - Instrument Laboratory Foreman

*Attended exit interview.

B. Action on Previous Inspection Findings

1. (Closed) Deviation (Inspection Report 78-02): QA Manual did not commit to meet applicable requirements to 10 CFR 50, Appendix B. The inspector verified the QA Manual, Revision 78-01, dated August 1978, was revised to display commitment to 10 CFR 50, Appendix B, and applicable ANSI standards.
2. (Closed) Deviation (Inspection Report 78-02): QA Manual had not been reviewed or revised since February 20, 1974. The inspector verified the QA Manual was revised August 1978.
3. (Closed) Deviation (Inspection Report 78-02): Certain departments' personnel (example: purchasing and engineering) had not received QA indoctrination and training. The inspector verified that a QA indoctrination and training program had been initiated for personnel whose activities affect quality. Training sessions were conducted September 20, 1978, and September and October 1979, concerning QA program overview including: 10 CFR 50 Appendix B; ANSI N45.2; Part 21; IEEE 323/344; and switchgear program for qualification of Class 1E nuclear safety related switchgear. Personnel in attendance were from the following functional groups: sales; low and medium voltage switchgear engineering; Engineering; switchgear assembly; purchasing; customer services; and AST Engineering Services.
4. (Closed) Deviation (Inspection Report 78-02): An audit program had not been implemented nor had audit records been maintained in the files of the Manager of Reliability Control. The inspector verified that an audit program had been implemented and audits records are being maintained in the files of the Quality Assurance Manager.

5. (Closed) Deviation (Inspection Report 78-02): Provisions had not been implemented for source evaluation and inspections at contractor or subcontractor sources. The inspector verified that a program had been implemented for source inspection and evaluation of selected suppliers or subcontractors at designated intervals dependent upon the importance, complexity, and quantity of the product or services.
6. (Closed) Deviation (Inspection Report 78-02): Quality assurance requirements were not transmitted to certain suppliers. The inspector verified that procedures had been implemented requiring compliance to applicable portions of 10 CFR 50 Appendix B and ANSI N45.2 by suppliers of special purchases and critical items for Class 1E equipment.

C. QA Program Review

1. Objectives

The objectives of this area of the inspection were to:

- a. Discuss with QA and senior management personnel the status of the QA Manual and organizational structure.
- b. Determine that status and location of production of Class 1E products.
- c. Discuss the status of QA procedures and manuals that have been compiled and implemented since the last NRC inspection.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Discussions with QA management concerning the QA Manual which previously had failed to address such areas as compliance to 10 CFR 50 Appendix B and ANSI N45.2 that had been imposed as QA requirements by customers for Class 1E switchgear and circuit breakers.
- b. Review of the QA Manual Section 2.0, Organization, dated August 1978.
- c. Review of the Purchasing Manual dated September 11, 1978, which previously had not been implemented.

3. Findings

a. Deviation

None.

b. Unresolved Items

None.

c. Comments

- (1) The Switchgear Division manufactures two (2) major types of products: Switchgear assemblies that are designed on a "Customer Order" basis wherein each assembly is customized to the number and arrangement of standard components to customer order and specifications, and switchgear components that are standard devices, such as, circuit breakers, power fuses, control switches, etc. Class 1E products are in the first category with the switchgear assemblies and low voltage circuit breakers being built in East Pittsburgh, Pennsylvania, and the medium voltage circuit breakers being built in Puerto Rico.
- (2) The document No. NQD-351-00, Westinghouse Switchgear Division Program for the Control of Bought Outside Components used in Class 1E Equipment dated November 1979 is being implemented as a supplement to the Purchasing Manual for procurement of products to be used in Class 1E equipment.

D. Design Review/Design Tests/Production Tests1. Objectives

The objectives of this area of the inspection were to verify that:

- a. Procedures have been established for performing design tests and production tests on Class 1E equipment that are consistent with applicable national codes and standards.
- b. Established test procedures are being implemented for Class 1E equipment.
- c. Service conditions identified in procurement documents are satisfied by equipment qualifications.
- d. Test sequences identified in the qualification test procedures satisfy the test sequence requirements identified in IEEE standard 323-1974.
- e. Sub-components that determine the life of the equipment have been adequately qualification tested or analyzed.
- f. Production test procedures are consistent with applicable national standards, test criteria.

- g. Design review of Class 1E products are subject to design review by another engineer acting independently who signs all job original drawings.
- h. Verify that production orders (manufacturing/shop orders) are completed, fully stamped and signed off by quality control inspectors at completion of final production tests.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Discussions with the engineering manager and development engineering personnel regarding progress in the development and qualification of Switchgear Division generic switchgear for Class 1E applications.
- b. Verifying that qualification testing of generic switchgear and its safety related components has been completed and the final qualification reports will be completed and approved by the second quarter of 1980. Current documentation concerning this qualification test program includes the following:

- (1) Seismic Simulation Test Report No. 43443-J, June 2, 1977 (this is the test facility report).
- (2) Westinghouse Document No. NQD-024-00, Switchgear Assemblies for Class 1E Applications, Projected Qualified Life Rating for Type DS Basic Breaker, August 29, 1977, which contains the conclusion that states in part,

. The basic breaker will satisfactorily perform its intended function for at least 40 years with routine inspection and maintenance. During the projected 40-year period, the non-metallic materials, which may age, will retain their important characteristic sufficiently to prevent a common mode failure during a design basis earthquake; and, during a seismic event, the unit will properly perform its function within the limits described in the seismic report.

"Therefore, it may be reasonably concluded that the basic breaker has a projected qualified life of 40 years within the limits of the operational life specifications."

- c. Verifying by reference to customer purchase orders reviewed in previous inspections that service conditions, codes and standards referenced in the purchase orders and related specifications had been satisfied by the qualification tests conducted.

- d. Review of Quality Control Instruction (CQI) No. 106, Air Circuit Breaker type 150 DHP, November 10, 1978. Verified by inspection of assembly and production line activities that assembly of the low voltage circuit breaker inspected was assembled in compliance with CQI No. 106.
- e. Review of Electrical - Insulation - Test - Specification Switchgear, Test Specification for Type DHP Air Circuit Breakers, T-Spec. No. 710030, March 20, 1979. Verified by inspection of production testing of a low voltage circuit breaker that production testing of this circuit breaker was completed in compliance with T-Spec. No. 710030.
- f. Review of CQI No. 134, Inspection of DHP Metalclad Switchgear, November 10, 1978. Verified by inspection of production assembly that metalclad switchgear is assembled in compliance with CQI.
- g. Review of Test Specification Switchgear, Commercial Test Specification for Low Voltage Metal Enclosed Switchgear, T-Spec. 347880-F, July 25 1969. Verified by inspection of the test/checkout of a low voltage switchgear assembly that production line test of low voltage switchgear is completed in compliance with this test specification.
- h. Verified the above test specifications meet the applicable test criteria of ANSI standards C37.09 and C37.20 for the testing of circuit breakers and switchgear assemblies, respectively.
- i. Verified that approved checklists were punched, stamped or initiated by QC inspectors for each major step in the assembly and test of low voltage circuit breakers and switchgear assemblies and that typical manufacturing instructions (MI's) for these products were signed off before release of the products for packaging and shipment.

3. Findings

Within this area of the inspection, no deviations or unresolved items were identified.

E. Quality Assurance Records

1. Objectives

The objectives of this area of the inspection were to verify that:

- a. Sufficient records are maintained to furnish evidence of activities affecting quality.

- b. Records include evidence of design and qualification of Class 1E products, production and inspection records, certificates of conformance.
- c. Records are consistent with applicable regulatory requirements concerning record retention, duration, location and assigned responsibility.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the QA Manual for evidence of requirements for storage and retention of records concerning Class 1E products.
- b. Examination of the three-hour fire-rated storage vault for retention of original documents concerning design and qualification testing for Class 1E products.
- c. Examination of the areas for storage of original tracings (drawings), aperture cards, and manufacturing records.

3. Findings

a. Deviation

See Notice of Deviation

b. Unresolved Items

None.

F. Control of Measuring and Test Equipment

1. Objectives

The objectives of this area of the inspection were to verify that:

- a. A system has been established and is maintained to assure that tools, gages, instruments and other measuring devices used in activities affecting quality are properly controlled, calibrated and adjusted at specified periods to maintain accuracy within specified limits.
- b. Calibration records are kept for each instrument and that these records include the following information:
 - (1) Purchase date and calibration history.
 - (2) Accuracy required and calibration results.
 - (3) Location for use.

- (4) Present calibration interval and date due.
- (5) All maintenance and repair details.
- (6) Person or agency performing all calibration.
- (7) Serial number or identification of each standard used to perform the calibration.
- (8) Number or name of the calibration procedure.
- (9) Environmental conditions used during calibration.
- (10) Equipment recall schedules.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the Quality Assurance Manual, Sub-Section 7.7, Inspection Equipment Control.
- b. Review of QCI-7000, Instrument Calibration Control, and QC1-7002, Automatic Sensor Tester Programming.
- c. Verification of calibration status of randomly selected instruments, examples: O.D. micrometers, voltmeters, AC amplifiers, surface plates, master breaker cells and gages.
- d. Interviews with cognizant technical and management personnel in the calibration laboratory.
- e. Review of the Master List that establishes frequencies of calibration.
- f. Examination of the separate calibration facilities in the calibration laboratory for the calibration of various types of instruments such as mechanical, electrical AC, electrical DC, and temperature sensors.

3. Findings

Within this area of the inspection, no deviations or unresolved items were identified.

G. Exit Interview

The inspector met with those individuals identified in paragraph A above at the conclusion of the inspection on November 29, 1979, at the East Pittsburgh facility. In this meeting the inspector summarized the scope and the findings of the inspection including:

1. Action on previous inspection findings.
2. QA Program Review.
3. Design Review/Design Tests/Production Tests.
4. Quality Assurance Records.
5. Control of Measuring and Test Equipment.

Subsequent to the exit meeting Mr. D. H. Sauter, Division Manager, was apprised by telephone of the scope and findings of the inspection since he was unable to attend the exit meeting at the East Pittsburgh facility. Management acknowledged the statements made by the inspector.