

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

Report No. 99900100/81-01

Program No. 51400

Company: Limatorque Corporation
5114 Woodall Rd.
Lynchburg, Virginia 24501

Inspection Conducted: May 12-15, 1981

Inspector: R. E. Otter 6-23-81
R. E. Otter, Contractor Inspector
Components Section
Vendor Inspection Branch
Date

Approved by: D. E. Whitesell 6-23-81
D. E. Whitesell, Chief
Components Section
Vendor Inspection Branch
Date

Summary

Inspection on May 12-15, 1981 (Report No. 99900100/81-01)

Areas Inspected: Implementation of 10 CFR Part 50, Appendix B criteria and other applicable NRC requirements including: action on previous inspection findings, general review of vendor activities, design control, manufacturing process control, testing of completed products, and equipment calibration. The inspection involved 26 inspector-hours on site.

Results: In the six areas inspected, no nonconformances or unresolved items were identified.

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DETAILS SECTIONA. Persons Contacted

*T. Mignogna, President
*H. Beers, Plant Manager
*K. Groome, QC Manager
P. McQuillan, QA Administrator
W. Mocre, Test Laboratory Manager
G. Siska, Supervisor - Electrical Assembly

*Attended the preinspection and exit meetings.

B. Preinspection Meeting

A preinspection meeting was held on May 12, 1981, with the above denoted management representatives. The NRC inspector defined the scope of the inspection, designated a date and time for the exit interview, and discussed changes in the Vendor Inspection Branch, vendor inspection documentations, and identification of deficiencies.

C. Action on Previous Inspection Findings

1. (Closed) Deviation A (Report No. 80-02): Failure to provide the Manufacturing Supervisor's approval signature on two variation reports in the block designated for it, or enter the notation "N.A." to show that the signature did not apply.

The NRC inspector found that in accordance with Limitorque's response letter dated December 1, 1980, that all variation reports are being reviewed and initialed by the QC Supervisor: Review of eight current variation reports, selected at random, established that they were all complete and properly initialed. To provide preventive action a special audit of variation reports was performed by the QC Manager and the QA Administrator.

2. (Closed) Deviation B (Report No. 80-02): Failure to provide signatures of attending Material Review Board members on five M.R.B. Reports No. 018 through No. 022.

The inspector found that in accordance with Limitorque's response letter dated December 1, 1980, that the above condition has been corrected. Review of four current M.R.B. Reports, Nos. 023 through 026, verified that all attendees at each of the meetings had signed the respective reports. To provide preventive action, a special audit of M.R.B. Records was performed by the QC Manager and the QA Administrator.

3. (Closed) Deviation C. (Report No. 80-02): Failure to include a representative of the Manufacturing Engineering group in the M.R.B. membership listed in M.R.B. Report No. 022.

The inspector found that in accordance with Limitorque's response letter dated December 1, 1980, that in four current M.R.B. reports, a representative of the Manufacturing Engineering group was included. To provide preventive action a special audit of this area was performed by the QC Manager and the QA Administrator.

4. (Closed) Deviation D. (Report No. 80-02): Failure to perform a follow-up audit within 30 day after receipt of the completed Audit Deficiency Notification for three items Nos. G.3, F.5, and C.8, which were identified during a July 29, 1980 audit of the Limitorque Manufacturing Plant.

The inspector found that the above condition did not apply to item F.5, and in accordance with Limitorque's response letter dated December 1, 1980, that reaudit checklists showed that items G.3 and C.8 were reaudited on March 5, 1981. To provide preventive action this area was added as a special addendum to the internal audit checklist and also audited on March 5, 1981.

D. General Review of Vendor's Activities

1. Objective

The objective of this area of the inspection was to assess the vendor's activities and their impact on future NRC inspection.

2. Method of Accomplishment

The preceding objective was accomplished by:

- a. Discussions with cognizant personnel.
- b. Review of a list of Limitorque customers.

3. Results - Comments

- a. Limitorque is a major manufacturer of electric motor operators for valves and other devices used in nuclear power facilities.
- b. Currently Limitorque has contracts to supply operators to eight domestic utilities involving 12 nuclear sites and several foreign customers.
- c. Limitorque is not an ASME Code shop.

E. Design Control

1. Objectives

The objectives of this inspection were to ascertain the following:

- a. The manufacturer has developed and implemented a QA Program for design activities, which is consistent with 10 CFR Part 50, Appendix B criteria.
- b. The manufacturer's customer purchase orders and/or specifications specify the function, service and most adverse loadings, and identify whether or not the components are required to operate satisfactorily after a loss of coolant accident.
- c. The manufacturer invokes, the requirements of 10 CFR Part 21 on equipment designated for nuclear service even if it is not specified in the procurement documents.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the following sections of the QA Manual:
 - (1) Section II, "Product Design, Standards and Engineering Document Control."
 - (2) Section IV, "Order Entry, Order Processing and Customer Specification Review."
- b. Review of Procedure QCP-15, Revision 2, "Design Control Procedure."
- c. Discussions with cognizant personnel.
- d. Review of the following procurement documents common to Anchor Darling P.O. No. S-2981 for two SMB-00-25 motor operators.
 - (1) P.O. No. S-2981.
 - (2) Bechtel Specification No. 7220-G-9, R/1.
 - (3) Limitorque review sheet covering the Bechtel specification requirements.

- (4) Anchor Darling's valve operator data sheet.
- e. Review of the following procurement documents common to Johnson Control's P.O. No. 18662 covering motor operators for valves and other equipment.
 - (1) P.O. No. 18662, dated 4-21-81.
 - (2) The following C. F. Braun Specifications:
 - (a) No. 139-07, "Air Distribution System."
 - (b) No. 400-22, "Motor Operators For Valves."
 - (c) No. 300-03-AB, "Seismic Qualification of Engineered Equipment."
 - (d) No. 500-09, "Electric Requirements for Packaged Equipment."

3. Findings

- a. Within this area of the inspection, no nonconformances or unresolved items were identified.
- b. Other Findings - Comments
 - (1) Review established that the Limatorque QA System includes appropriate measures for control of: design activities; application engineering; engineering document control; and changes.
 - (2) Review established that the Limatorque operators are standardized products designed by the Engineering Department to specification requirements dictated by the Design Review Committee. The Engineering Department develops Limatorque "Standards" and establishes service condition limitations for these standards. Limatorque products are "applied" not designed for every order received, from engineering data and qualification testing accepted by the Design Review Committee and QA Department. The Application Engineering group functions as a consulting body for the Sales Engineering force. The following consulting activities may be provided in processing of an order:

- (a) Determination of applicable Codes and Industry Standards.
 - (b) Interpretation of conditions which appear outside of Limatorque qualifications.
 - (c) Outlining quality assurance requirements for handling customer orders which are beyond the Limatorque standards.
 - (d) Review of the Bill of Material for nuclear Class IE equipment for acceptability before they are issued to the Manufacturing Department.
- (3) Discussions with the QA Administrator verified that whether or not a customer's procurement documents specifies 10 CFR Part 50 Appendix B and 10 CFR Part 21 requirements, Limatorque imposes these requirements on the manufacture of all equipment ordered for Class IE service.
- (4) Review and discussion verified that the customers' specifications, data sheets and any calculations are thoroughly reviewed and double checked by Limatorque engineering, to assure all information is complete, accurate, and applicable.

F. Manufacturing Process Control

1. Objectives

The objectives of this area of the inspection were to verify that the following items were controlled in accordance with applicable NRC requirements:

- a. A written system has been established to assure that manufacturing processes are controlled in accordance with applicable requirements.
- b. Measures have been established and implemented to control the manufacturing processes by use of process sheets, travelers, checklists or procedures.
- c. The process sheets, travelers, checklists or shop procedures used included: the document numbers and revisions to which the processes; inspections or tests conformed; the results of completion of the specific operations; the signature; initials or stamp of the manufacturer's responsible representative and date were shown for operations completed

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the following sections of the QA Manual:
 - (1) No. V, "Manufacturing Process Control;"
 - (2) No. VII, "Inspection and Test Control."
- b. Review of Procedure No. QCP-4, Revision 2, "Machine Shop Inspection Procedures."
- c. Observations in the machine shop and review of: Shop Routing (traveler) sheets; Inspection Travel Cards; and Engineering Drawings in the following areas for the indicated work:
 - (1) Automatics Machine area for Part No. 60-141-0091-2, "Spring Cartridge Cap."
 - (2) Lath area for Part No. 60-114-005-1, "Cover."
 - (3) Profile Milling Machine area for Part No. 60-322-0019-2, "First Input Shaft and Pinion."
 - (4) Tape Controlled Milling Machine for Part No. 60-135-0023-4, "Motor Adapter."
- d. Observations in the Final Parts Inspection Area and review of Daily Inspection Sheets, Final Inspection Cards, and Final Inspection Travel Cards on file.
- e. Review of Procedure QCP-21 "Nuclear Service Procedure" covering additional visual, dimensional and dye penetrant inspection of operator parts ordered for nuclear service.
- f. Observations in the Inspection Station No. 1 where the above procedure QCP-21 is implemented.
- g. Review of record packages consisting of the following records associated with procedure QCP-21 inspections, for Limitorque Order No. 3E9127-A, and Order No. 3E9127-B.

- (1) Bill of materials record.
- (2) Final Inspection and Test Electric Operator record.
- (3) Dye Penetrant Test Report.
- (4) Special inspection record (QCP-21, Sample "C").

3. Findings

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

G. Testing of Completed Products

1. Objectives

The objectives of this area of the inspection were to verify that the following items were controlled in accordance with the applicable NRC requirements.

- a. A written system has been established to assure that final assembly, and electrical and mechanical tests, are controlled in accordance with applicable procedures, specifications, drawings and standards.
- b. Final inspections during assembly, and during functional testing are performed in accordance with approved procedures, instructions, specifications or drawings.
- c. The results of tests are documented and reviewed for acceptability.
- d. The test equipment is calibrated where required.
- e. The assembly, tests and inspections, are performed by qualified personnel.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the following sections of the QA manual:
 - (1) No. V, "Manufacturing Process Control."
 - (2) No. VII, "Inspection and Test Control."
- b. Review of Procedure QCP-5 "Assembly Inspection Procedures," and Procedure QCP-9, "Test Laboratory Procedures."
- c. Observations of work at the electrical assembly benches and final assembly and inspection benches, including the assembly and inspection of geared limit switches, torque switches, and motor operator electrical control units.
- d. Review of "Final Inspection and Test - Electric Operator" completed records for Limitorque Orders No. 3D-8947-D and No. 3F2864-A.
- e. Review of Torque Test Reports for Limitorque orders No. 3D-8947-D4, No. 3D-8947-D13, and No. 3D-8947-D14.
- f. Discussions with responsible personnel.

3. Findings

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

H. Equipment Calibration

1. The objectives of this area of the inspection were to verify that the following items were controlled in accordance with applicable NRC requirements:
 - a. A written system has been established to assure that equipment calibration is performed and controlled in accordance with applicable requirements.
 - b. A written procedure has been developed and approved which contains provisions to assure that tools, gages, instruments and other inspection, measuring and testing equipment and devices used in activities affecting quality, are of the proper range, type and accuracy, and are calibrated and properly adjusted at specified periods or use intervals.
 - c. The devices are identified in the documented system and/or procedure and are calibrated in accordance with the system and procedure.

- d. The calibration is performed in accordance with certified measurement standards, which have known relationship to National Standards.
- e. The control measures include provisions for test equipment identification and calibration status by marking, or on records traceable to the equipment.
- f. The Manufacturer provides corrective action for materials and items checked with measurement, or testing devices which are later found to be out of calibration.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the Section VIII, "Control of Measuring and Test Equipment" of the QA Manual.
- b. Review of Procedure QCP-7, Revision 10, "Gage Laboratory Procedures."
- c. Observations of the calibration label status of the following types of measuring devices located in the various inspection stations throughout the plant.
 - (1) Micrometers
 - (2) Calipers
 - (3) Height Gages
 - (4) Dial Indicators
 - (5) Optical Comparator
 - (6) Parallel Bars
 - (7) Surface Plates
 - (8) Hardness Testers
 - (9) Film Thickness Tester
 - (10) Load Cells
 - (11) Oscillograph

(12) Hydraulic Pressure Gages

(13) Ammeters

(14) Voltmeters

- d. Review of the Limatorque and subcontractor records of calibration for the above devices.
- e. Discussions with responsible personnel.

3. Findings

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

I. Exit Interview

- 1. The inspector met with management representatives denoted in paragraph A; above, at the conclusion of the inspection on May 15, 1981.
- 2. The following subjects were discussed:
 - a. Areas inspected.
 - b. Status of actions on the previous outstanding items.
 - c. Findings identified in this report.
- 3. Management's questions related to clarification of the above items.