

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

Report No. 99900100/80-01

Program No. 51400

Company: Limitorque Corporation
5114 Woodall Road
Lynchburg, Virginia 24501

Inspection
Conducted: March 18-20, 1980

Inspector:

R. E. Oller

R. E. Oller, Contractor Inspector
Components Section II
Vendor Inspection Branch

4-1-80
Date

Approved by:

D. M. Hunnicutt

D. M. Hunnicutt, Chief
Components Section II
Vendor Inspection Branch

4/1/80
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Summary

Inspection on March 18-20, 1980 (99900100/80-01)

Areas Inspected: Implementation of 10 CFR 50 Appendix B criteria and other applicable requirements including: action on previous inspection findings, equipment calibration, manufacturing process control, procurement control, and a potential construction deficiency report on Limitorque Operators in Grand Gulf Nuclear No. 1. The inspection involved 24 inspector-hours on site.

Results: In the five (5) areas inspected, no deviations or unresolved items were identified in three (3) areas. The following were identified in the remaining areas.

Deviations: Equipment Calibration: Failure to maintain a calibration card for Rockwell Hardness Tester and failure to include an employee owned measuring tool on the required calibration list. (See Notice of Deviation Item A)
Manufacturing Process Control: Failure by the First Piece QC Inspector and Final Parts QC Inspector to complete Travel Inspection Cards as required and file the cards after final inspection on a daily basis. (See Notice of Deviation Item B)

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Unresolved Item: Manufacturing Process Control; Standard Operating Procedure QCP-5.B does not describe the recording of the final parts inspection on Form L-375 prior to placing the parts in the storeroom. Limitorque management will revise the procedure, if appropriate. (See Details Section, paragraph D.3.b.)

DETAILS SECTIONA. Persons Contacted

- *H. Beers, Plant Manager
- F. Denum, Administrative Vice President
- P. Fergeson, QC Final Inspector
- *K. Groome, QC Manager
- J. Haley, Group Leader Test Bench
- F. McKenzie, Gage Lab. Technician
- *T. Mignogna, Sr. Vice President of Manufacturing
- P. McQuillan, QA Administrator
- D. Pillow, QC Receiving Inspector
- C. St. Clair, QC Receiving Inspector

*Attended the exit Meeting.

B. Action on Previous Inspection Finding

(Closed) Deviation (Report 79-02): Failure to provide signoffs by the Operator and/or Manufacturing Supervisor on three (3) Variation Reports (V.R.). The NRC inspector found that in accordance with Limitorque's response letter dated December 3, 1979, the Manufacturing Supervisors were notified in writing by the QC Manager that the Supervisor's Approval Block on the V.R.s must be signed off by the Supervisor in the department where the rejection occurred, and that it is the Supervisor's responsibility to have the V. R. signed by the Operator and return it to the QC Inspector. In addition the NRC inspector verified, that "Proper signoff of V.R.s" was added to the internal audit checklist Revision No. 3, as an item to be audited to assure prevention of recurrence.

C. Equipment Calibration1. Objectives

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

- a. A written system has been established to assure that equipment calibration is performed and controlled in accordance with the QA Manual and applicable NRC 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 against certified measurement standards which have known relationship to National Standards, where such standards exist.
- e. The control measure include provisions for test equipment identification and calibration status by marking, or on records traceable to the equipment.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the QA Manual Section VIII "Control of Measuring and Test Equipment."
- b. Review of Standard Operating Procedure QCP-7 "Gage Laboratory Procedures."
- c. Observation in the shop of the calibration status of the following types of personal and company owned measuring and test devices:
 - (1) Vernier Calipers
 - (2) Depth Vernier
 - (3) Inside Depth Micrometer
 - (4) Outside Micrometers
 - (5) Plug Gages
 - (6) Hardening Heat Treatment Furnaces Controls consisting of:
 - (a) Strip Chart Temperature Recorder
 - (b) Overtemperature Controller
 - (c) Vacuum Strip Chart Recorder
 - (d) Draw Furnace Temperature Chart Recorder

- (7) Rockwell Hardness Tester
- (8) Knoop Micro Hardness Tester
- (9) Surface Plates
- (10) Gear Caliper
- (11) Dial Indicator and Transfer Stands
- (12) Dry Film Thickness Checker
- (13) Hydraulic Pressure Gage
- (14) Precision Calibrator
- (15) Load Cells
- (16) Hand Tachometer
- (17) Test Bench Ammeters and Voltmeters
- (18) Hypot Dielectric Tester
- (19) Portable Digital Strain Gage Indicator Set
- (20) Coordinate Measuring Machine
- (21) Optical Comparator
- (22) Pla-check Gage
- (23) Standard Block Set
- (24) Three (3) Micrometer Rod Standard Sets

- d. Review of Limitorque calibration records and subcontractor's certificates of calibration for the above company owned devices, as applicable.
- e. Review of Limitorque's computer list of personal calibrated tools, included in the above list.
- f. Discussions with cognizant personnel.

3. Findings

a. Deviations from Commitments

See Notice of Deviations, Item A

b. Unresolved Items

None

D. 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 the QA Manual and applicable NRC requirements.

- a. A written system has been established to assure that manufacturing processes are controlled in accordance with applicable NRC requirements.
- b. Measures have been established and implemented to control the manufacturing processes by use of the 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, inspection or tests conformed; the results of completion of the specific operations; the signature, initials or stamp of the manufacturer's responsible representative and the dates were shown for operations completed.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the QA Manual Section V "Manufacturing Process Control."
- b. Review of Standard Operating Procedures No. QCP-4 "Machine Shop Inspection Procedures," and No. QCP-5 "Assembly Inspection Procedures."
- c. Review of 10 Daily Inspection Reports covering parts manufacture and operator assembly work.
- d. Review of seven (7) Final Parts Inspection Reports.
- e. Examination of in-process Inspection Travel Cards, Shop Order Cards and Engineering Drawings at machining stations and at the final parts inspection area.
- f. Examination of Bills of Material and records of Final Inspection and Test Reports in the assembly and test bench area.
- g. Observation of inspection accepted tags on completed valve operators in the painting area of the shop.

3. Findings

a. Deviations From Commitments

See Notice of Deviations, Item B.

b. Unresolved Item

It was determined that final parts visual inspection, prior to placing the finished parts in the storeroom, was being recorded on Form L-375. These inspection records were being maintained by the QC Manager. Although the final parts inspection activity was described in the Standard Operating Procedure QCP-5.B, the recording, inspections, and maintenance of the Form L-375 records were not delineated. Limitorque management will review this matter and revise procedure QCP-5.B to reflect the records and their use, if it is appropriate to do so.

E. Procurement Control

1. Objectives

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

- a. A written system has been established to assure that procurement is controlled.
- b. Procedures have been prepared and approved by the company to prescribe systems for the following activities which are consistent with the commitments of the QA program.
 - (1) Procurement Source Selection, Bid Evaluation and Contract Award.
 - (2) Evaluation of Supplier Performance.
 - (3) Product Acceptance.
- c. The above procedures are being properly and effectively implemented by the company.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Review of the QA Manual Section III "Vendor Procurement Control."
- b. Review of Standard Operating Procedures No. QCP-3 "Receiving Inspection Procedures," and No. QCP-10 "Purchasing Department Procedures."
- c. Review of Limitorque's "Approved Vendor List" dated January, 1980.
- d. Examination in the Receiving Inspection Department of records consisting of Receiving Inspection Reports and Purchase Orders for raw materials designated for critical operator parts such as bronze bushings, thrust adapter housings, main housing, and worm shafts.
- e. Review of vendor evaluation records called "Quality Assurance Vendor Appraisal Forms."
- f. Review of the summary report "Vendor Evaluation Report dated February 4, 1980, for the period of July through December, 1979.
- g. Review of accepted Material Certifications and the related purchase orders for raw material castings.
- h. Discussions with cognizant personnel.

3. Findings

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

F. Potential Construction Deficiency 50.55(e) Report, Grand Gulf Nuclear Unit No. 1

Introduction: On March 14, 1980, the OIE Region IV, Vendor Inspection Branch was notified by OIE Region II, that a potential construction deficiency had been identified at Grand Gulf Nuclear Unit No. 1. This deficiency involved Limitorque valve operators with valve stem (thimble type) protectors which caused misoperation. The protectors had excess threading on the end, which allowed the protector to be screwed too far into the operator cover. This caused the protector to bind against the valve stem lock nut. This in turn caused the opening torque switch to trip prematurely on high torque. The problem appeared to be associated with some Limitorque operators on William Powell and Anchor-Darling valves in use in the reactor water cleanup, residual heat removal, and high pressure core.

spray systems. This condition may be generic. A written report is due from the licensee on April 13, 1980.

On March 18, 1980, this matter was reviewed with Limatorque management by the Region IV inspector during a routine QA program inspection at the Limatorque plant in Lynchburg, Virginia.

1. Objectives

The objectives of this follow-up inspection were to ascertain whether Limatorque management was aware of this problem, had experienced it before, and had supplied the protectors having the excess threading.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Discussions with cognizant personnel.
- b. Review of Limatorques customer files, including the Shipping Copy Order acknowledgement of the Bechtel/William Powell orders for two (2) type SMB-1 operators and six (6) type SMB-2 operators for end use at Grand Gulf Unit No. 1.
- c. Review of the Limatorque Bill of Materials for the above operators.
- d. Review of Limatorque Engineering drawings of operator cover for the above operators.
- e. Observation of typical valve stem protectors.

3. Findings

a. Deviations From Requirements

None.

b. Unresolved Items

None.

c. Other Findings

(1) Sequence of Events

On arrival at the Limatorque plant, the NRC inspector discussed the operator problem with Messrs. Mignogna,

Denum, McQuillan and Groome. Mr. Denum indicates this was the first time he had heard of this problem at the specified location and had not previously heard of this type of problem. He indicated that for Limitorque to supply specific information on the operators involved Limitorque needed the serial numbers of the effected operators at the Grand Gulf site.

The Cognizant OIE, Region II inspector was contacted by telephone. He supplied the name of the Assistant Plant Manager at Grand Gulf as a source of information. This party was contacted and a call was received on March 19, 1980, by Limitorque from the Bechtel representative at the Grand Gulf site, Mr. R. Valquiz, who provided the following information on the operators in question for William Powell valves only:

Operator Units

SMB-1 type, Limitorque SN-245542, Limitorque Order 334574, Item B.

SMB-2 type, Limitorque SN-225188, Limitorque Order No. 384454, Item A.

The NRC inspector reviewed Limitorque's customer order files for the above orders, including the Limitorque Bills of Material for the SMB-1 and SMB-2 operators and determined that they did not require valve stem protectors to be furnished by Limitorque.

The files also disclosed that two (2) SMB-1 type and six (6) SMB-2 type operators were shipped for William Powell valves for end use at Grand Gulf Unit No. 1.

(2) Conclusions

- (a) Limitorque did not furnish the problem valve stem protectors.
- (b) Limitorque management were not previously aware of the Grand Gulf problem.
- (c) Limitorque management had not previously experienced the subject problem.
- (d) It is not known by the NRC inspector whether the protectors were furnished and installed by William Powell or by other parties at the Grand Gulf site.

G. Exit Interview

1. The inspector met with management representative denoted in paragraph A. above, at the conclusion of the inspection on March 20, 1980.
2. The following subjects were discussed:
 - a. Areas inspected.
 - b. Status of corrective and preventative action for the previous outstanding items.
 - c. The deviations and unresolved item identified in this report.
 - d. The Grand Gulf valve operator problem.
3. The manufacturer's representatives were requested to formulate their corrective and preventative action response to deviations in accordance with the three (3) conditions identified in the inspection report cover letter.
4. Management's questions related to clarification of the above items.