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

Report No. 99900058/81-01 Program No. 51300

Company: Rockwell International
Flow Control Division
1700 South Saunders St.
Raleigh, North Carolina 27603

Inspection Conducted: February 2-5, 1981

Inspector: Wm D Kelley Feb-26,1981
Wm. D. Kelley, Contractor Inspector Date
Components Section I
Vendor Inspection Branch

Approved by: D E Whitesell
D. E. Whitesell, Chief Date
Components Section I
Vendor Inspection Branch

Summary

Inspection on February 2-5, 1981 (99900058/81-01)

Areas Inspected: Implementation of 10 CFR Part 50, Appendix B, and applicable codes and standards including, design and document control - design input; procurement document control; control of special processes - forming and bending of pressure retaining materials; inspection and tests - liquid penetrant examination; calibration; nonconformances and corrective actions; and the quality assurance records. Also; reviewed vendor's activities and previously identified items and conducted an exit interview.

The inspection involved twenty-three (23) inspector-hours on site by one (1) NRC inspector.

Results: In the seven (7) areas inspected, no nonconformances or unresolved items were identified.

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DETAILS SECTION

A. Persons Contacted

Rockwell International - Flow Control Division (RI-FCD)

R. A. Bandukwala - Manager Quality Assurance
J. B. Cobb - Welding Liaison Technician
*D. Creech - Supervisor Materials Engineering
B. K. Norris - QA Documentation Technician
T. E. Kunkle - Design Engineer Supervisor
*W. G. Rains - Supervisor Quality Assurance Engineering

Hartford Steam Boiler Inspection and Insurance Company

*D. B. Ashley - Authorized Nuclear Inspector

*Denotes those persons who attended the Exit Interview (See paragraph K).

B. General Review of Vendor's Activities

1. There has been no change in the status of the ASME Certificates of Authorization, the authorized inspection agency, or the authorized nuclear inspector as previously reported in Report No. 99900058/80-01.

2. RI-FCD contribution to the nuclear industry represents approximately 30 percent of its total workload.

C. Previously Identified Items

(Closed) Unresolved Item (Report 99900058/80-01 - Details paragraph D.3.c). An actuator had a flange welded to a cylinder and the inspector did not have time to review the stress calculations to determine whether they met Code requirements.

The stress calculation for the actuator flange to cylinder weld area was made available to the inspector for his review and it was verified that the code requirements were met. The unresolved item is closed.

C. Design and Document Control - Design Computer Input

1. Objectives

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

a. Procedures had been prepared and approved by the vendor which prescribes a system for the control of the design computer

inputs, in a manner consistent with NRC rules and regulations, and his commitments in the ASME accepted Quality Assurance Manual.

b. The design input procedures are properly and effectively implemented.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the ASME accepted Quality Assurance Manual, Revision 8;

(1) Section 1.0 "Organization," and

(2) Section 3.0, "Design Control;"

to verify the vendor had established procedures which prescribes a system for control of design inputs.

b. Review of the following procedures;

(1) S01-70-16-02 "Engineering Computer Program" and

(2) S01-70-11-03 "The Administration and Management of Design Engineering Records;"

to verify that they had been prepared by the designated authority, approved by management, and reviewed by QA.

c. Review of the following documents;

(1) RAL-8004, Revision 0 "Determination of Fundamental Frequency Using Raleigh Method," and

(2) RAL-8002 Revision 0, "Lock Ring Stress Analysis Based on Design Rules Given in B&PV Code, Section VIII, Appendix Z, Winter '78 Addendum," to verify they had been properly and effectively implemented. Also verify that the design input is correct, and had been verified and documented.

d. Interviews with personnel to verify that they are knowledgeable in the procedures applicable to design input.

3. Findings

a. The inspector verified that:

(1) Procedures had been prepared and approved by the vendor which prescribes a system for the control of the design computer inputs in a manner consistent with NRC rules and regulations, and commitments in the ASME accepted Quality Assurance Manual.

(2) The design input procedures are properly and effectively implemented.

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

E. Procurement Document Control

1. Objectives

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

a. Procedures had been prepared and approved by the vendor that prescribes a system for procurement document control which is consistent with NRC rules and regulations, and the vendor's commitments in the ASME accepted Quality Assurance Manual.

b. The procurement document control procedures are properly and effectively implemented by the vendor.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the ASME accepted Quality Assurance Manual, Revision 8,

(1) Section 6.0, "Document Control," and

(2) Section 7.0, "Control Purchased Material, Items, and Services;"

to verify that the vendor had established procedures that prescribed a system for procurement document control.

b. Review of the following procedures:

(1) 40-23-03, "Qualification and Training of Auditors Performing Vendor Audits."

(2) 36-23-12-02, "New Vendor Selection."

(3) 36-23-19-02, "Vendor Certification Submittals."

(4) 36-32-01-03, "Reject Material - Shop Rework, Shop Scrap, Vendor Rework, Vendor Scrap;" and

(5) 36-41-021-05, "Source Inspection;"

to verify they have been prepared by the designated authority, approved by responsible management and reviewed by QA.

c. Reviewed the following purchase documents:

(1) Purchase Order 36-67260

(2) Purchase Order 36-67265

(3) Quality Assurance Special Instructions and Documentation Checklist for Purchase Material, 36-67265

(4) Purchase Order 36-67314

to verify that the scope of work to be performed is identified, the technical requirements are specified, test and inspection criteria are identified, special instructions and requirements identified, suppliers are required to have a documented QA program, and procurement documents are reviewed prior to release for bid and/or contract award.

d. Review of the purchase orders, requisitions, and technical documents identified in paragraph c. above, to verify that the procurement procedure requirements are being properly implemented and that the interface control of procurement documents is effectively and properly performed in accordance ith procedures, and the distribution list for procurement documents had been established and is current.

e. Interviews with personnel to verify they are knowledgeable in the procedures applicable to procurement document control.

3. Findings

a. The inspector verified that:

(1) Procedures had been prepared and approved by the vendor that prescribed a system for procurement document control which is consistent with NRC rules and regulation, and the vendor's commitments in the ASME accepted Quality Assurance Program.

(2) The procurement document control procedures were properly and effectively implemented by the vendor.

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

F. Quality Assurance Records

1. Objectives

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

a. Procedures had been prepared and approved by the vendor which prescribed a system for the control of quality assurance records in a manner consistent with NRC rules and regulations and the vendor's commitments in the ASME accepted Quality Assurance Program.

b. The quality assurance record control procedure is being properly and effectively implemented by the vendor.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the ASME accepted Quality Assurance Manual, Revision 8,

(1) Section 6.0 "Document Control," and

(2) Section 17.0, "Quality Assurance Records;"

to verify that the vendor had established procedures that prescribed a system for the control of quality assurance records.

b. Review of the following procedures:

(1) 40-19-04, "Gathering and Processing of Documentation for Traceable and "N" Stamp Valves and "U" Stamp Actuators."

(2) 40-45-03, "Transferring Inactive Quality Assurance Plans and Quality Assurance Documentation Files Into Raleigh Archives Plant."

(3) 36-40-16-01, "Requirements for Storage of Quality Assurance Records for Nuclear Power Plant Components;"

to verify they have been prepared by the designated authority, approved by responsible management, and reviewed by QA.

c. Review of the procedures identified in paragraphs a. and b. to verify that they identify the records that are to be retained, where and how they are to be stored for preservation and safe-keeping, and provide for their retrieval without undue delay.

d. Review of the following quality assurance records for three (3) shop orders:

(1) Checklist for Permanent Records - Index Specific Files

(2) Form NPV-1 N Certificate Holder's Data Report

(3) Customers Certificate of Inspection

(4) RI-FCD Certificate of Compliance

(5) Mill Text Reports

(6) Heat Treatment Charts

(7) Radiographic Inspection Reports

(8) Filler Material Actual Testing Reports

to verify that the vendor's procedures pertaining to quality assurance records are being properly and effectively implemented.

e. Verifying that the procedures and necessary resources are available to the personnel responsible for identifying and filing quality assurance records and documents.

f. Interviews with personnel to verify that they are knowledgeable in the procedures applicable to the identification and filing of quality assurance records and documents.

3. Findings

a. The inspector verified that:

(1) Procedures had been prepared and approved by the vendor that prescribed a system for control of quality assurance records which is consistent with NRC rules and regulations and the vendor's commitments in the ASME accepted Quality Assurance Program.

(2) The quality assurance records procedure are being properly and effectively implemented by the vendor.

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

G. Nonconformance and Corrective Action

1. Objectives

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

a. Procedures have been developed and approved by the vendor which prescribes a system for the control of nonconformances, and assures positive corrective action in a manner which is consistent with NRC rules and regulation, and the vendor's commitments in the ASME accepted Quality Assurance Manual, and that

b. Procedures for controlling nonconformances and corrective actions, are being properly and efiectively implemented.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the ASME accepted Quality Assurance Manual Revision 8:

(1) Section 15, "Nonconforming Materials or Items," and

(2) Section 16, "Corrective Action System;"

to verify that the vendor has established procedures which prescribes a system for identifying and reporting nonconformances and assures appropriate corrective actions.

b. Review of the following documents:

(1) 36-32-01-03, "Reject Material - Shop Rework, Shop Scrap, Vendor Rework, Vendor Scrap;"

(2) 36-40-09-08, "Material Review Board Disposition for Defective Materials, Including Corrective Action Control," and

(3) 36-40-10-06, "Nonconforming Material Control - Rejection Procedure;"

to verify that procedures for controlling nonconformances have been reviewed and approved, and the procedures established the responsibility for the receipt of nonconformance reports,

evaluation of nonconformances, recommending corrective action, and follow-up activities to verify that the corrective action has been achieved and action initiated to preclude recurrences. Also, to verify that the procedures provide for management's participation in reviewing nonconformance reports and enforcing the recommended corrective action.

c. Review of fifteen (15) nonconformance reports to verify that the nonconformance and corrective action procedures relating to assigned responsibilities, the identification and reporting of nonconformances, and the evaluation for corrective action are being properly implemented. Also, to verify that the disposition of the corrective action was timely, and that a follow up inspection had been performed to verify that the corrective action was correctly implemented.

d. Interviews with personnel to verify they are aware of, and had access to, the nonconformance and corrective action procedures.

3. Findings

a. The inspector verified that:

(1) Procedures have been developed and approved by the vendor which prescribes a system for the control of nonconformances, and assured effective corrective action, in a manner consistent with NRC rules and regulations, and the vendor's commitments in the ASME accepted Quality Assurance Program.

(2) The nonconformance and corrective action procedures are being properly implemented by the vendor.

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

H. Equipment Calibration

1. Objectives

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

a. Procedures had been prepared and approved by the vendor to prescribe a system 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 which is consistent with NRC rules and regulations and the

vendor's commitments in the ASME accepted Quality Assurance Program.

b. The equipment calibration procedures are properly and effectively implemented and the results adequately documented.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the ASME accepted Quality Assurance Manual, Revision 8;

(1) Section 5.0, "Instructions, Procedures, and Drawings,"

(2) Section 10.0, "Examinations, Tests, and Inspections," and

(3) Section 12.0, "Control of Measuring and Test Equipment;"

to verify that the vendor had established procedures to prescribe a system for equipment calibration.

b. Review of the following procedures;

(1) No. 36-40-06-07, "Gage Control,"

(2) No. 36-40-18-03, "Calibration of Ammeters and Voltmeters,"

(3) No. 40-10-03, "Inspection, Calibration and Control of Pressure Gages," and

(4) No. 40-22-02 "Calibration of Testing Equipment in Metallurgical Process Control;"

to verify that they had been prepared by the responsible authority, approved by management, and reviewed by Quality Assurance. Also to verify that the procedures specify the items to be calibrated, the frequency, and provides a method for documenting the calibration results.

c. Review of the equipment recall schedules, calibration results, and calibration records, tracking twenty (20) instruments, gages, and meters, through the calibration process, to verify that the procedures and standards use for calibration, are being properly implemented.

3. Findings

a. The inspector verified that:

(1) Procedures had been prepared and approved by the vendor to prescribe a system to assure that tools, gages, instruments, and other measuring devices used to verify the acceptability of nuclear items are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within the specified limits, and the system is consistent with NRC rules and regulations, and the vendor's commitments in the ASME accepted Quality Assurance Program.

(2) The equipment calibration procedures are properly and effectively implemented and the results are adequately documented.

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

c. Comments

Paragraph 6.1 of ASTM Specification E23-72 states in part ". . . Charpy machines shall be checked against standard specimens which are available from the Army Materials and Mechanics Research Center for a nominal fee. A set consists of fifteen 0.394 by 0.394 in. (10 by 10-mm) V-notch specimens of known energy values, five at each of three levels . . . ."

The Army Materials and Mechanics Research Center (AMMRC) supplied RI-FCD with only ten V-notch specimens of known energy values, five at each of the low and high energy levels to test their Tenius Olsen Testing Machine Co. (Machine Serial No. 106800-5). The AMMRC "Comparison Tests on Charpy Inpact Machine," dated January 7, 1981, gives the results of the tests on High Energy and Low Energy specimens. Their letter dated January 16, 1981, states, "This machine is acceptable for inspection testing," and did not give a reason or justify why the mid range V-notch specimens were not supplier and tested as specified by ASTM E23-72.

Prior to termination of the inspection the inspector was given a copy of the RI-FCD letter to the AMMRC requesting an explanation of their failure to supply the mid range V-notch specimens.

I. Inspection and Test-Liquid Penetrant Examination

1. Objectives

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

a. The liquid penetrant examination procedures used by the vendor are consistent with the NRC rules and regulations, and the vendor's commitments in the ASME accepted Quality Assurance Manual.

b. The liquid penetrant examinations are being conducted by properly qualified personnel in accordance with approved and qualified procedures.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the ASME accepted Quality Assurance Manual, Revision 8

(1) Section 5.0, "Instructions, Procedures, and Drawings,"

(2) Section 10.0, "Examinations, Tests, and Inspections

to verify that the vendor had established procedures for performing liquid penetrant examinations.

b. Review of Method Specification MS-1151-N, Revision 7, "Liquid Penetrant Examination of Materials Used in "N" Stamp Valve Applications" to verify that the procedure had been approved, and accepted by the Authorized Nuclear Inspector; and issued in accordance with the vendor's ASME accepted Quality Assurance Program Commitments.

c. Review of Method Specification MS-1151-N Revision 7, to verify that it is currently being used, and that it defines the significant examination variables, and that these variables are controlled within the limits specified by the ASME code.

d. Review of the documents referenced in paragraph a. and b. to verify they provide for the requalification when changes are made to surface preparations or change in penetrant materials.

e. Observed the performance of a liquid penetrant (LP) examination using Method Specification MS-1151-N, and verified that the personnel performing and evaluating the LP examination were qualified, and that the examination was being performed in accordance with all of the procedures parameters.

f. Verified that any indication revealed by the examination are evaluated in accordance with the procedure requirements and the results reported in the prescribed manner.

g. Interviews with personnel performing liquid penetrant examination to verify that they are knowledgeable in the applicable procedures.

3. Findings

a. The inspector verified that:

(1) The liquid penetrant examination procedures used by the vendor is consistent with NRC rules and regulations, and meets the ASME Code requirements and the vendor's commitments in the ASME accepted Quality Assurance Manual.

(2) The liquid penetrant examination witnessed was conducted by properly qualified personnel, in accordance with approved and qualified procedures.

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

c. Comment

Method Specification MS-1151-N, Revision 7, did not establish a maximum time for the Dy-Chek Penetrant to remain on the parts before the liquid penetrant test would be invalidated.

Prior to the termination of the inspection the method specification was revised and the maximum time the Dy-Check Penetrant could remain on the part prior to cleaning and applying the Dy-Check Developer was specified; also, the revised procedure provided for cleaning the part and reapplying the penetrant when the maximum time was exceeded.

J. Manufacturing Process Control - Forming and Bending of Pressure Retaining Materials

The inspector verified that RI-FCD does not perform forming and bending of pressure retaining materials in the Raleigh plant. The only active material that requires forming or bending is the by-pass valve piping that is procured from an outside vendor that has been surveyed, qualified, and placed on the Approved Vendors List in accordance with the requirements of the ASME accepted Quality Assurance Program.

K. Exit Interview

At the conclusion of the inspection on February 5, 1981, the inspector met with the company's management, identified in paragraph A, for the purpose of informing them as to the results of the inspection. During this meeting management was informed no nonconformances or unresolved items were identified.

The company's management acknowledged the inspector's statement and had no additional comments.