

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

Report No. 99900224/81-01

Company: Bailey Controls Company
Subsidiary of The Babcock and Wilcox Company
29801 Euclid Avenue
Wickliffe, Ohio 44092

Inspection Conducted: May 4-8, 1981

Inspectors: W. E. Foster 6/12/81
W. E. Foster, Contractor Inspector Date
Reactive Inspection Section
Vendor Inspection Branch

L. B. Parker 6/12/81
L. B. Parker, Contractor Inspector Date
Reactive Inspection Section
Vendor Inspection Branch

Approved by: I. Barnes 6/15/81
for I. Barnes, Chief Date
Reactive Inspection Section
Vendor Inspection Branch

Summary:

Inspection conducted on May 4-8, 1981 (Report No. 99900224/81-01)

Areas Inspected: Implementation of 10 CFR Part 50, Appendix B criteria, and applicable codes and standards, including follow up on regional requests; implementation of 10 CFR Part 21; manufacturing process control; and audits. The inspection involved 60 inspector-hours on site by two NRC inspectors.

Results: In the four areas inspected, the following violation, four nonconformances, and one unresolved item were identified:

Violation: Implementation of 10 CFR Part 21 - Practice was not consistent with paragraph 21.6 of 10 CFR Part 21 (See Notice of Violation).

Nonconformances: Implementation of 10 CFR Part 21 - Practices were not consistent with Criterion V of Appendix B to 10 CFR Part 50 and Babcock and Wilcox Administrative Policies and Procedure No. 1208-A5, dated March 28, 1978 (See Notice of Nonconformances, Item A.).

Manufacturing Process Control - Practices were not consistent with Criterion V of Appendix B to 10 CFR Part 50, paragraphs 1.2 and 1.3 of Bailey Meter Company Administrative Procedure No. 1759, Revision A, dated February 15, 1978 (See Notice of Nonconformance, Item B.); Criterion V of Appendix B to 10 CFR Part 50, and paragraph 3.4.1 of Quality Instruction No. 1764-01-01, dated July 1, 1975 (See Notice of Nonconformance, Item C.).

Audits - Practices were not consistent with Criterion V of Appendix B to 10 CFR Part 50, and paragraph 2.5 of Bailey Meter Company Administrative Procedure No. 1768-01, Revision 0, dated April 21, 1981 (See Notice of Nonconformance, Item D.).

Unresolved Item: Audits - It was not apparent that Quality Assurance assures that audit results are reviewed by management responsible for audited activities (See Details Section II, paragraph B.3.b.).

DETAILS SECTION I

(Prepared by W. E. Foster)

A. Persons Contacted

- *L. A. Blyth, Manager - Quality Assurance Laboratory
- *V. C. Catalano, Manager - Quality Control
- J. W. Ferencic, Engineer - Quality
- W. Gifford, Test Technician
- *G. N. Gray, Manager - Senior Project
- W. L. Hinkel, Engineer - Senior Quality
- *H. Howe, Audit Coordinator
- *G. M. Kohl, Director - Quality Assurance
- T. Kukwa, Engineer - Quality
- *R. D. McMahon, Manager - Contract Quality Engineering
- *R. K. Sines, Engineer - Senior Quality
- M. Wainio, Foreman - Systems Assembly and Wiring

*Attended Exit Interview.

B. Followup on Regional Requests1. Background

- a. The Tennessee Valley Authority and Virginia Electric Power and Gas Company submitted Construction Deficiency Reports to the Office of Inspection and Enforcement (OIE), Region II, which related to improper insertion of buffer cards in the Essential Control Instrumentation System while the module is still in the cabinet.

This condition was previously reviewed during a vendor inspection, by the OIE, Region IV, personnel, at the Babcock & Wilcox Company (B&W Co.) Nuclear Power Generation Division. However, during the vendor inspection at B&W Co., the inspector could not determine: (1) if nuclear power generating stations, with Nuclear Steam System Supply (NSSS) systems not supplied by B&W Co., utilize these buffer cards; or (2) action had been taken by Bailey Controls Company to identify and apprise purchasers of the buffer cards. As a result, he requested that these be assessed during a vendor inspection at Bailey Controls Company.

- b. On December 18, 1980, Tennessee Valley Authority personnel notified the Office of Inspection and Enforcement, Region II, of a deficiency related to Lambda power supply failures. The power supplies (Type LXS-E-24-R) are used in the Essential Control Instrumentation System manufactured by Bailey Controls Company.

- c. An item in the Daily Report - Region I, dated March 17, 1981, indicates that "instruments furnished by Bailey Meter do not meet required seismic qualifications," for the Susquehanna Station.

Note: Bailey Meter Company is now Bailey Controls Company.

2. Objectives

The objectives of this area of the inspection were to verify that: (1) users (except those with B&W Co. supplied NSSS) of the subject buffer cards had been identified and notified; (2) adequate corrective actions and preventive measures had been taken; and (3) generic implications had been assessed.

3. Methods of Accomplishment

The preceding objectives were accomplished by:

- a. Reviewing the following documents to verify that a search had been conducted to identify users, other than those with the B&W Co. supplied NSSS:
- (1) Inter-Office Memo, dated April 3, 1980; To: R. D. McMahon; From: G. R. Smeallie; Subject: Buffer Module Orders; with accompanying documents identified as: (a) List of System Jobs containing P/N 6624610A1H; and (b) List of Six Digit SO's containing P/N 6624610A1H; and
 - (2) A computer print-out identified as: Transaction Retrieval by P/N, Program No. MA4063, March 8, 1980, containing data dated from March 9, 1973, to February 18, 1980.
- b. Reviewing the following documents to verify that objectives (2) and (3) had been satisfied as regards the Lambda Power Supply, Model LXS-E series:
- (1) Engineering Notice No. 684-820-228, dated June 19, 1980,
 - (2) An electrically transmitted message, No. TA-BKEW-80-135, dated September 4, 1980, To: The Babcock and Wilcox Co., Attn: G. P. Bennett; From: Bailey Meter Company, G. A. Major; Reference: TVA, P. O. No. 023032/33 LJ NSS 15/16
 - (3) The Babcock and Wilcox Co. - Power Generation Group Memo, dated September 10, 1980; To: G. A. Major; From: G. P. Bennett; F/C For Capacitor Replacement for TVA, P. O. No. 023032/33,
 - (4) Field Change Package, dated October 6, 1980; Title: Power Supply Capacitor Replacement for Bellefonte Nuclear Generating Station, Units 1 and 2,

- (5) Bailey Controls Company Letter No. TA-BCBW-80-147, dated October 14, 1980; To: Babcock and Wilcox Co., Attn: Mr. G. Bennett; From: G. A. Major and G. N. Gray; Subject: Field Change No. 122,
 - (6) Tennessee Valley Authority letter, dated February 10, 1981; To: Babcock and Wilcox, Attn: Mr. James McFarland; From: John A. Raulston (signed by B.E. (sic) Fraser); and attached Nonconformance Report No. BLN EEB 8006 which addresses suspect capacitors in Lambda Type LXS-E-24-R power supplies at the site,
 - (7) The Babcock and Wilcox Co. - Nuclear Power Group Memo, dated March 13, 1981; To: G. N. Gray and R. V. Brewster; From: G. P. Bennett; Subject: Lambda Power Supply Failures, WPPSS, VEPCO, TVA,
 - (8) Lambda Electronics letter, dated April 2, 1981, To: Bailey Meter Company; Attn: Mr. James Gustavsen; From: Vincent L. Pomara, and
 - (9) Bailey Controls Company Letter No. TA-BCBW-81-190, dated April 27, 1981; To: The Babcock and Wilcox Company, Attn: Mr. G. P. Bennett; From: Gerald N. Gray; Subject: Lambda Power Supply Failures.
- c. Reviewing the Data Package for Bellefonte Unit 1, Job No. 5198P2010 to determine whether or not power supply failures had occurred, and corrective actions had been taken.
 - d. Interviewing knowledgeable personnel regarding the non-seismically qualified instruments located at Susquehanna.

4. Findings

a. Comments

- (1) No nonconformances or unresolved items were identified during this area of the inspection.
- (2) Neither the Buffer Module, P/N 6624610 nor the Voltage Buffer Card, P/N 6624609-1 had been purchased by Nuclear Steam System Suppliers other than The Babcock and Wilcox Company.
- (3) The Lambda Power Supply failures were observed during essential control instrumentation system testing in 1978 at Bailey Controls. The systems were for Bellefonte and North Anna Nuclear Power Plants. Corrective action

involved replacing a defective capacitor in the power supplies and verbally notifying Lambda. A field change had been initiated to correct the hardware at Bellefonte; the date for performance had not been determined. Other systems had been corrected prior to delivery. Customers for these systems are: (1) Tennessee Valley Authority, (2) Virginia Electric Power and Gas Company, and (3) Washington Public Power Supply System.

- (4) Non-seismically qualified instruments at Susquehanna was revealed when Bechtel Company requested documentation to support the seismically qualified status of the instruments. This involved a line of instruments that Bailey Controls Company had purchased from General Electric Company, and Bailey was unable to verify the validity of documentation on those instruments qualified by General Electric Company. Bailey has submitted a proposal to conduct seismic qualification tests where feasible and to supply new instruments where additional testing is not feasible.

C. Implementation of 10 CFR Part 21

1. Objectives

The objectives of this area of the inspection were to verify that suppliers of safety-related equipment had established and implemented procedures in accordance with 10 CFR Part 21.

2. Methods of Accomplishment

The preceding objectives were accomplished by:

- a. Reviewing the following customer orders to verify that the equipment was safety-related and 10 CFR Part 21 had been invoked:
- (1) Public Service Electric and Gas Company Purchase Order No. 10855-J-200 (Q)-AC, Revision 5, dated January 24, 1979, and
 - (2) The Babcock and Wilcox Company - Nuclear Power Generation Division Purchase Order No. 025796LT, Change Order Nos. 162 and 164, dated January 18, and February 13, 1978, respectively.
- b. Reviewing the following documents and/or activities to verify that 10 CFR Part 21 had been implemented:

- (1) The Babcock and Wilcox Company Administrative Policies and Procedures, Nos. -
 - (a) 1208-A5, dated March 28, 1978, entitled - Implementation of the Requirements of 10 CFR Part 21,
 - (b) 1716-A1, dated December 6, 1977, entitled - Reporting of Defects and Noncompliance Concerning Safety (10 CFR Part 21).
- (2) Bailey Meter Company Administrative Procedure No. 1766-03, dated January 10, 1978, entitled - Reporting Safety Concerns (The document is stamped: "Preliminary Trial Use Standard").
- (3) Bailey Meter Company Instruction No. 1271-50-01, Revision C, dated March 27, 1979, entitled - Purchase Orders.
- (4) Posting in the Administration and Fabrication Areas.
- (5) Bailey Meter Company outgoing Purchase Orders, Nos. -
 - (a) M1179, dated February 11, 1980, and
 - (b) V92349, dated April 16, 1980.

3. Findings

a. Comment

The purchase orders (2.a.(1) and (2)) were for safety-related equipment and invoked 10 CFR Part 21.

b. Violation

See Notice of Violation.

c. Nonconformance

See Notice of Nonconformance, Item A.

D. Manufacturing Process Control

1. Objectives

The objectives of this area of the inspection were to verify that measures had been established and documented to control manufacturing, inspection and test activities. Also, to verify these activities had been accomplished in accordance with the established and documented measures. Additionally, verification of indication of mandatory hold points in appropriate documents.

2. Methods of Accomplishment

The preceding objectives were accomplished by:

- a. Reviewing the following documents to verify measures had been established and documented to control manufacturing, inspection and test activities:
 - (1) Bailey Meter Company Administrative Procedures, Nos. -
 - (a) 1755, Revision A, dated February 23, 1978, entitled - Instructions, Procedures, and Drawings,
 - (b) 1755-01, Revision B, dated August 22, 1978, entitled - Generation and Control of Engineering Documentation,
 - (c) 1755-02, Revision B, dated September 6, 1978, entitled - Generation and Control of Manufacturing Documentation,
 - (d) 1758, dated July 15, 1975, entitled - Identification and Control of Materials, Parts, and Components,
 - (e) 1758-01, Revision A, dated April 24, 1978, entitled - Verification and Control of Traceable Material,
 - (f) 1759, Revision A, dated February 15, 1978, entitled - Control of Special Processes,
 - (g) 1759-01, Revision A, dated August 8, 1978, entitled - Control of Special Processes,
 - (h) 1760, Revision A, dated February 9, 1978, entitled - Inspection Program,
 - (i) 1760-02, Revision A, dated March 23, 1978, entitled - inspection Procedure,
 - (j) 1761, Revision A, dated September 8, 1978, entitled - Test Control, and
 - (k) 1764, dated July 1, 1975, entitled - Inspection, Test and Operating Status of Parts During Fabrication.
 - (2) Bailey Meter Company Instructions, Nos. -
 - (a) 1759-01-01, Revision A, dated October 18, 1978, entitled - Control of Nondestructive Examination,

- (b) 1759-01-05, Revision B, dated September 18, 1978, entitled - Welding Qualification Program,
- (c) 1760-01-03, Revision A, dated May 4, 1978, entitled - Establishment of Manufacturing Inspection Points,
- (d) 1760-01-05, dated August 4, 1978, entitled - Generation, Control, and Use of Workmanship Standards,
- (e) 1761-01-07, Revision B, dated July 26, 1977, entitled - . . . Nuclear Systems Test Program, and
- (f) 1764-01-01, Revision B, dated October 3, 1980, entitled - Inspection, Test, and Calibration Stamps; as well as the July 1, 1975, and March 1978 versions.

b. Observing activities in the Systems Test, and System Assembly and Wiring Areas.

3. Findings

a. Nonconformances

- (1) See Notice of Nonconformance, Item B.
- (2) See Notice of Nonconformance, Item C.

b. Unresolved Items

None

E. Exit Interview

The inspectors met with management representatives denoted in paragraph A. at the conclusion of the inspection on May 8, 1981. The following subjects were discussed:

- a. Areas inspected.
- b. Violation identified.
- c. Nonconformances identified.
- d. Unresolved Item identified.
- e. Contractor response to the report.

The contractor was requested to structure his response under headings of corrective action, preventive measures, and dates for each nonconformance, and the violation.

Additionally, management representatives were requested to notify the Commission in writing if dates require adjustment, or commitments require modification.

Management representatives requested clarification regarding some of the findings. Also, a Bailey Meter Company Inter-Office Memo (IOM) was presented to the NRC inspector. The IOM, To: G. M. Kohl; From: R. K. Sines; Subject: 10 CFR Part 21 Postings; Date: May 7, 1981; attests to auditing and replacement of 10 CFR Part 21 posting on the Employment/Safety Bulletin Board in the factory lobby.

DETAILS SECTION II

(Prepared by L. B. Parker)

A. Persons Contacted

- *G. M. Kohl, Director - Quality Assurance
- *R. D. McMahon, Manager - Contract Quality Engineering
- *H. Howe, Contract Quality Engineering
- *R. K. Sines, Contract Quality Engineering

*Denotes attendance at the exit meeting.

B. Audits1. Objectives

The objectives of this area of the inspection were to verify that procedures had been prepared, approved and implemented for audit activities.

2. Method of Accomplishment

The preceding objectives were accomplished by:

- a. Reviewing the following document to verify that audit procedures provided for: (1) identification and responsibilities of the auditing organization; (2) audit personnel training, qualification, and proficiency; (3) establishment of essential elements of the audit system; (4) planning, scheduling, preparing, performing and reporting; (5) follow up by both the audited and auditing organization regarding corrective action; and (6) record retention:

(1) Bailey Meter Company Administrative Procedure, Nos. -

- (a) 1752 Revision F, dated January 28, 1981, entitled - Quality Assurance Organization,
- (b) 1752-01 Revision C, dated January 29, 1981, entitled - Company Organization for the Implementation of the Quality Assurance Program,
- (c) 1752-02 Revision B, dated January 17, 1978, entitled - Training Personnel in Performing Quality Tasks,
- (d) 1767 Revision B, dated September 6, 1978, entitled - Quality Assurance Records,
- (e) 1768 Revision D, dated April 27, 1978, entitled Audits, and

- (f) 1768-01 Revision D, dated April 21, 1981, entitled - Internal Audits.
- (2) Bailey Meter Company Instructions, Nos. -
 - (a) 1752-02-05 Revision A, dated December 7, 1977, entitled - Training Personnel Performing Quality Audits,
 - (b) 1768-01-01, Revision F, dated November 14, 1977, entitled - Internal Audit of Quality Program Elements, Procedures, and Instructions,
 - (c) 1768-01-02 NEW, dated August 10, 1977, entitled - Audit Checklist Preparation,
 - (d) 1768-01-03 Revision A, dated July 6, 1977, entitled - Audit Deficiency Report Preparation (ADR).
- b. Reviewing the following Bailey Control Company audit records to verify that the procedures and instructions had been implemented:
 - (1) Inter-office Memos from H. Howe, Audit Coordinator Contract Quality Engineering to G. M. Kohl, Director Quality Assurance reporting on the following audits:
 - (a) 1979 Internal Audit, dated March 23, 1979 - Contract Engineering Department,
 - (b) 1979 Internal Audit, dated May 24, 1979 - Product Engineering and Electronic Engineering Departments, and
 - (c) 1980 Internal Audit, dated October 15, 1980 - Marketing.
 - (2) Matrix of department commitment to criteria as specified in instruction paragraphs, dated April 4, 1979.
 - (3) Quality Audit Checklists for:
 - (a) Contract Engineering audits 79-3-1 thru 79-3-53,
 - (b) Product Engineering audits 79-4-1 thru 79-4-47,
 - (c) Electronic Engineering audits 79-4-48 thru 79-4-80, and
 - (d) Marketing audits 80-5-1 thru 80-5-49.

- (4) Record of Auditor Qualifications by Audits Coordinator and Record of Lead Auditor Qualifications: Bailey Controls Company (ANSI N45.2.23 Appendix A) for E. Dzurra, J. W. Ferencie, R. J. Avenmarg and A. Kukwa.
- (5) Audit Deficiency Reports, Nos. -
 - (a) 80-5-2 Document Control Product Instructions,
 - (b) 80-5-7 Control of Released Original Tracings and Associated Documents,
 - (c) 80-5-8 Document Control - Certification Drawings,
 - (d) 80-5-9 Document Control - Instruction Manuals and Envelopes,
 - (e) 80-5-11 Document Control - Product Instructions,
 - (f) 80-5-16 Renewal Parts Order Handling,
 - (g) 80-5-19 Outside Purchased Equipment Evaluation and Inclusion in Product Catalog, and
 - (h) 80-5-36 Instruction for Scrapping Material.

3. Findings

a. Nonconformance

See Notice of Nonconformance, Item D.

b. Unresolved Item

Paragraph 2.5, of Bailey Meter Company Administrative Procedure 1768 Revision D, Audits, dated April 21, 1978, states that QA "Assures the audit results are properly documented and reviewed by management responsible for audited activities."

In the review of Bailey Meter Company Inter-Office Memo from H. Howe, Contract Quality Engineering to G. M. Kohl, Manager Contract Quality Engineering, Subject - 1979 Internal Audit - Contract Engineering Department, dated March 23, 1979, the NRC Inspector was unable to determine that these audit results had been reviewed by management responsible for audited activities.