

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION III

Report of Construction Inspection

RO Inspection Report No. 050-346/74-10

Licensee: Toledo Edison Company
Edison Plaza
300 Madison Avenue
Toledo, Ohio 43652

Davis-Besse, Unit 1
Oak Harbor, Ohio

License No. CPPR-80
Category: B

Type of Licensee: PWR (B&W) - 872 Mwe

Type of Inspection: Routine, Unannounced

Dates of Inspection: November 20-22, 1974

Dates of Previous Inspection: November 5-6, 1974 (REP)

Principal Inspector: *J. W. Sutton*
J. W. Sutton

1/6/75
(Date)

Accompanying Inspectors: *F. J. Jablonski*
F. J. Jablonski

1/6/75
(Date)

K. R. Naidu
K. R. Naidu

1/6/75
(Date)

Other Accompanying Personnel: None

Reviewed By: *D. W. Hayes*
D. W. Hayes, Senior Reactor Inspector
Construction Projects

1-6-75
(Date)

8001290731

SUMMARY OF FINDINGS

Enforcement Action

A. Violations

No violations of AEC requirements were identified during this inspection.

B. Safety Matters

No safety matters were identified.

Licensee Action on Previously Identified Enforcement Matters

1. Cable Tray Grounding Final Inspection Procedure (RO Inspection Report No. 050-346/74-07)
2. Emergency Diesel Generator Storage - Storage of Q-listed Item in Auxiliary Feedwater Pump Room Area (RO Inspection Report No. 050-346/74-07)

Although it was apparent that the licensee had taken corrective action relative to these matters, an answer to the notice of violation had not been generated at the time of the current inspection. These matters remain open pending receipt of an acceptable response from the licensee.

Design Changes

No new design changes were identified during the inspection.

Unusual Occurrences

No unusual occurrences were identified.

A. Current Findings

The licensee indicated that, as of October 31, 1974: (1) construction was 74.5% complete, and (2) engineering was 98.2% complete.

B. Unresolved Matters

Instructions for Handling Piping, Components, Etc., Purchased by Grinnell Corporation (Grinnell)

During review of Grinnell's handling of piping, purchased by Grinnell, it was noted that a field planner is used to control the movement of

the equipment. This planner should be further clarified as to when and how it would be used. This item will be reviewed during the next scheduled inspection. (Report Details, Part III, Paragraph 1)

C. Status of Previously Reported Unresolved Matters

1. Cooling Water Piping to Emergency Diesel Enginer No. 2 (RO Inspection Report No. 050-346/74-07)

The inspector was informed that, as a result of the previous inspection, the licensee verified and found that the present routing of the cooling water piping to emergency diesel engine No. 2 may impair the redundancy requirements. Corrective action was initiated to reroute the cooling water piping. Implementation will be verified during a subsequent inspection.

2. Hydraulic Snubbers (RO Inspection Report No. 050-346/74-07)

This item remains open. Followup on this matter will be accomplished during a subsequent inspection.

3. Design Drawing Change Verification (RO Inspection Report No. 050-346/74-07)

The inspector was informed that, as a result of deficiencies identified during the previous inspection, a QA audit was conducted by the licensee of the design verification system. Several additional deficiencies were found. The licensee stated that corrective action is being initiated. This item remains open pending review of the corrective action taken by the licensee.

4. Cable Tray Installation Procedure (RO Inspection Report No. 050-346/74-07)

This matter remains open pending the inspector's review of the licensee's procedure that would verify that these items are included as part of the inspection program.

5. Cable Tray Storage (RO Inspection Report No. 050-346/74-07)

This item remains open pending the inspector's review of procedures and observation of the storage area.

6. Calibration Records - Stress Relieving Instrumentation and Equipment (RO Inspection Report No. 050-346/74-07)

The inspector was informed that Babcock & Wilcox Company (B&W) was in the process of revising their calibration procedure, No. 9T-101, Revision 2. All measurement equipment onsite had been calibrated. This matter remains open pending review of the revised procedure.

7. Diesel Generator - Relays (RO Inspection Report No. 050-346/74-07)

The inspector could not readily relate corrective action documentation to the original transmitted form. Further review will continue during the next scheduled inspection.

8. Class 1E Electrical Weld Acceptability (RO Inspection Reports No. 050-346/74-04 and No. 050-346/74-07)

The inspector reviewed a Bechtel Corporation (Bechtel) letter issued to Toledo Edison Company (TECO) indicating the technical reasoning and justification for acceptance of NCR's No. BC-048 and No. BC-052. The letter indicated the following criteria was used to determine that the welds were structurally sound:

- a. The rejectable indications did not extend volumetrically into the weld area after grinding and examination.
- b. The original indications were considered acceptable to the applicable criteria governing the work.
- c. The indications were not considered relevant or detrimental to the soundness of the welds.

This matter is considered closed.

9. Reactor Coolant Pumps Suction Weldment Linear Indications (RO Inspection Reports No. 050-346/74-04 and No. 050-346/74-07)

The inspector was informed that repair work is in progress on reactor coolant pump weld No. WJ-2-1. A final report pursuant to 10 CFR Part 50.55(e) is to be submitted by the licensee upon receipt from B&W, of required information. B&W would relay the required information to the licensee by December 15, 1974. This item remains open. (Report Details, Paragraph 1)

10. Incomplete Welding Records, Reactor Coolant Pump - Primary Piping (RO Inspection Reports No. 050-346/74-04 and No. 050-346/74-07)

The inspector reviewed B&W's QA documentation that indicated the data packages and weld records for the 28" and 36" reactor coolant piping had been audited, and discrepancies previously found had been corrected. The B&W QA audit and report of findings were dated August 5, 1974. The records now reflect the correct information pertaining to both welding and data information. This matter is considered as closed.

11. Class 1E Electrical Cable Trays (RO Inspection Reports No. 050-346/74-02, No. 050-346/74-04, and No. 050-346/74-07)

The inspector was informed by TECO's management that an instruction was in the process of being issued that would reclassify the installation of Class 1E cable trays as a Q-listed item. This matter remains open pending implementation of the instruction and will be reviewed during subsequent inspections.

12. Westinghouse Electric Corporation (W) High Pressure Injection Pump Motors (RO Inspection Reports No. 050-346/74-01, No. 050-346/74-02, No. 050-346/74-04, and No. 050-346/74-07)

The inspector reviewed documents submitted to B&W from W indicating that the high pressure injection pump motors, as presently configured, have been modified and tested. Certified test documentation, signed by the cognizant engineer and project manager, was signed on September 24 and 25, 1974. The motors were received onsite on October 18, 1974. This item remains open pending the receipt of a final report pursuant to 10 CFR Part 50.55(e) requirements.

13. Review of Bagwell Coatings, Incorporated (Bagwell) Quality Assurance Manual (RO Inspection Report No. 050-346/74-07)

This item remains open pending final review and acceptance of the Bagwell's QA manual.

14. Review of Bagwell's Closeout of Outstanding Items as Listed in the TECO Audit of May 21, 1974 (RO Inspection Report No. 050-346/74-07)

This matter remains open pending the inspector's review of Bagwell's corrective action pertaining to these items.

Management Interview

- A. The following persons attended the management interviews at the conclusion of the inspection.

Toledo Edison Company (TECO)

L. E. Roe, Vice President - Power
E. C. Novak, Project Engineer
J. D. Lenardson, Quality Assurance Engineer
G. W. Eichenauer, Quality Assurance Field Representative
E. A. Wilcox, Field Quality Assurance Specialist
C. T. Daft, Quality Assurance Engineer

Bechtel Corporation (Bechtel)

H. A. Ablondi, Project Quality Assurance Engineer
C. L. Huston, Field Construction Manager
R. Lewis, Project Field Quality Control Engineer

- B. Matters discussed and comments, on the part of management personnel, were as follows:
1. The inspector stated that, since the current inspection was conducted prior to the licensee's receipt of RO:III letter and report containing violations resulting from the October 23-25, 1974 inspection, these items would remain open.
 2. The inspector stated that, during review of Grinnell's procedures and instructions pertaining to the handling of materials, it appeared that clarification was needed for Grinnell's Procedure No. SS-201C pertaining to Bechtel's signoff and the instructions for handling Grinnell purchased equipment. The licensee stated that the Grinnell procedures for handling materials would be reviewed.
 3. The inspector stated that he would review TECO's action pertaining to reclassifying of Class 1E electric cable trays as a Q item. The licensee stated that a management instruction is being prepared for distribution and implementation.
 4. The inspector stated that there appeared to be a time lag in Bechtel's project personnel notification to Bechtel QA/QC personnel of work in progress in critical areas and, also, projects's failure to act within a reasonable time limit on deficiencies reported by QA/QC personnel. The licensee stated that this matter would be discussed with Bechtel's management. (Report Details, Part III, Paragraph 2)
 5. The inspector stated that the TECO QA audit conducted on Bechtel's activity was found to be comprehensive. The inspector also indicated that the corrective action taken to correct the deficiencies found and reported during the audit would be reviewed during subsequent inspections. (Report Details, Paragraph 2)
 6. The inspector stated that the Johnson Service Company's QA manual, excluding sections relating to nondestructive examination and welding, was reviewed. No discrepancies were identified. (Report Details, Section II, Paragraph B)

7. The inspector stated that certain Fischbach & Moore, Incorporated (F&M) inspection forms did not include provisions for verification of QA review or inclusion of the working drawing and revision number. The licensee stated that this matter would be reviewed. (Report Details, Section II, Paragraph D-7)

8. The inspector stated that a review of documentation relating to seismic qualification of certain emergency diesel generator components (RO Inspection No. 050-346/74-07) could not be easily related to the original transmittal form. This item remains open.

REPORT DETAILS

Part I

Persons Contacted

The following persons, in addition to individuals listed under the Management Interview Section of this report, were contacted during the inspection.

Bagwell Coatings, Incorporated (Bagwell)

C. H. Ridgdell, Project Manager

Bechtel Corporation (Bechtel)

W. B. Daly, Field Welding Engineer

Babcock and Wilcox Company (B&W)

J. W. Marshall, Quality Control Supervisor

Results of Inspection

1. The inspector reviewed B&W's repair procedures in use to repair the reactor coolant pumps suction weldments. (RO Inspection Report No. 050-346/74-04). The procedure for repair of the 28-inch cold leg primary piping, Section A-67-2, deviation to Procedure No. 19, Revision 5, dated October 7, 1974, for weld No. WJ-2-1, complies with ASME Section III, Class 1 components and had been approved by Bechtel and the Hartford Insurance Company (Hartford) on October 9-15, 1974. The procedure indicated that the weld would be divided into six segments. The weld would be removed and rewelded in pairs of opposing segments 1-2, 3-4 and 5-6. Metal would be removed by air arc. The pump casing weldment would be macro etched to assure complete removal of inconel from the casing and assure that the carbon steel was not exposed. Unacceptable areas would be ground out and repaired in accordance with applicable procedures. Buildup would be with stainless steel weld material, segments would be rewelded with inconel. Further requirements would be that each weld layer be penetrant tested.

Segment 1-2 had been cut out and rewelded to 50% of thickness. Radiographic examination has been made and found to be acceptable. The welding is being performed in an enclosed area with filtered

air. The inspector reviewed available records, inspection tickets, NDE results, weld material issue tickets, welding procedures, and the welder's qualifications. The records reviewed were found to be in order. Continuing surveillance of the pump repairs will be performed during subsequent inspection by an RO:III inspector.

2. Quality Assurance Audit (TECO)

The inspector reviewed a TECO audit of Bechtel's site QA/QC activities. The audit was performed during the week of November 11-15, 1974. The audit was conducted using TECO's Audit Checklist Form 2181-D. The deficiencies found were discussed at an exit interview with Bechtel's management conducted on November 15, 1974. The inspector found the audit to be well planned and executed. The findings, as reported, were found to be valid. The inspector will review the corrective action to correct the reported deficiencies.

3. Insulation Cabling Fire

The inspector reviewed the records pertaining to a fire which was reported to RO:III by the licensee on November 1, 1974. The licensee had reported that the fire was discovered in the insulation cabling being used to stress relieve inside the reactor coolant piping of the cold leg piping of one loop. The fire was discovered at 0005 hours on October 31, 1974. B&W personnel evaluated the results of the fire. The following information was obtained. The fire occurred during stress relieving of reactor coolant inlet weld WJ-4-3. The power cables to the Neo-weld heating pads ignited and burned for approximately five minutes, until extinguished. The fire was discovered by observing a rise in temperature, as indicated on the stress relieving temperature chart records. The temperature was recorded as 900^oF. An examination of the piping, coolant pump P1B1, and the reactor clad surface was performed to determine the extent of contamination by chlorides and lead. Minor surface contamination was found, that can be removed by hand wiping. The cause of the fire was determined as the result of a "Cam-loc" on the connector becoming loose or a partial discontinuity of a supply cable near the "Cam-loc" connector end.

The corrective action taken by B&W was as follows:

- a. Use of aluminum power supply cables discontinued for post weld heat treatment.
- b. Copper cables to be utilized.
- c. Examination of the conductor.

The actions taken by the licensee and B&W was found to be in order.

REPORT DETAILS

Part II

Prepared By F. J. Jablonski

Persons Contacted

The following persons, in addition to individuals listed under the Management Interview Section of this report, were contacted during the inspection.

Bechtel Corporation (Bechtel)

R. M. Bush, Instrument Engineer
J. O. Gray, Lead Instrument Quality Control Engineer
G. K. Grover, Senior Electrical Quality Control Engineer
L. D. Jensen, Instrument Engineer
W. C. Lowery, Electrical Quality Assurance Engineer
T. J. Rooney, Assistant Quality Control Instrument Engineer

Fischbach & Moore, Incorporated (F&M)

H. J. Harris, Quality Control Coordinator
D. M. Moeller, Quality Control Manager

Johnson Services Company (Johnson)

H. W. Fosholdt, Quality Assurance Representative
F. T. Murphy, Project Superintendent

Results of Inspection

1. Electrical and Instrumentation Components

General

Johnson has been contracted to install instrumentation and associated equipment, including wire terminations, fabrication, and welding of instrument piping and tubing.

2. Implementation of QA Program

- a. The inspector reviewed a transmittal form (7749-CC23-1-2) which provided TECO's acceptance and approval of Johnson's QA manual. The manual documents a program for compliance with 10 CFR Part 50, Appendix B, and the ASME Boiler and Pressure Vessel Code, Section III. The inspector reviewed the ASME Interim Letter of Authorization of September 12, 1972, extended to June 16, 1975.

- b. The inspector reviewed Johnson's organizational structure with respect to both line and quality control organizations. It was determined that requirements for independence between those responsible for cost and scheduling activities were met.
- c. Personnel duties and responsibilities were defined. Initially, there will be a Quality Assurance Representative (QAR) and an in-process inspector for each area of responsibility, including welding, mechanical, and electrical. A receiving inspector will make joint inspections with the licensee's agent.
- d. Audit procedures and documents were reviewed and found to be in order. The QA program would be audited by the general manager, offsite, at least annually. The director of quality assurance, also offsite, would audit the program every six months and report to the general manager. The project QAR would continually audit the program using checklists. The QAR would file a written report to the director of QA, including corrective action and reaudit results. In addition, Bechtel site QC engineers would perform routine inspection of receipt, storage, installation and testing of components and equipment. Audit and inspection results would be documented.

As a result of these reviews, the Johnson QA manual was found to meet requirements, except as noted:

- a. Welding section not reviewed.
- b. Nondestructive examination (NDE) section not reviewed.

These sections will be reviewed during a subsequent inspection.

3. QC System Review

- a. The inspector reviewed written procedures and inspection checklists which establish that provisions have been made to insure that proper storage, special handling, and nonconformance quarantine requirements will be met. Included in the review were Sections 4 and 5 of the QA manual and inspection Forms 1859, 1860 and 1861.
- b. Installation expertise would be made available by the use of one electrical and four mechanical resident engineers on Johnson's staff. Nondestructive examinations would be performed by an outside contractor who will provide qualified examiners. Johnson has entered into a field assembly inspection contract with the Hartford Steam Boiler Inspection and Insurance

Company who are to provide an Authorized Inspector (AI). To date, a resident inspector has not been appointed. A Johnson test director would perform final hydrostatic or pneumatic tests in the presence of the AI. Instrument calibration would be performed by TECO.

- c. The inspector reviewed both electrical and mechanical inspections and test procedures. Electrical procedures reviewed included:
- (1) SP-246, Motor Operated Valves
 - (2) SP-248, Megger and Continuity Tests
 - (3) SP-253, Cable Termination and Pull Cards
 - (4) QAS-613, Tool Handling and Control
 - (5) QAS-617, Instrumentation and Control Cable Inspection

These documents were appropriately approved, and no discrepancies were found.

- d. The Installation/Fabrication (I/F) planner and the I/F drawing are the primary control documents for mechanical installations. The planner is prepared for each system, listing all operations and inspections, including hold points and tests to be performed. The planner system had not been approved as of the current inspection.
- e. The inspector reviewed Drawing Control Procedure No. QAS-616 and Forms 1856 and 1857. These documents provide direction for changes and removal of obsolete drawings from the field. The QAR has assigned the receiving inspector as a drawing coordinator.

4. Review of QC Records

- a. Q-listed, nuclear safety related, instrument work has not started. There were no completed installation inspection or NDE of cable reports available for review.

Receipt of nuclear instrumentation, including reactor protection cabinets, is not a Johnson function. B&W will receive these components and maintain all material certificates. This area was not inspected during the current inspection.

- b. The Johnson material quarantine area was inspected. Only two instruments were found in the hold area. The instruments were traced to NCR 15, via the attached equipment tags. The records were documented and appeared to meet requirements of traceability.

- c. The DQA for Johnson performed an audit of the site QA program on February 20, 1974. This audit identified fourteen (14) discrepancies. The inspector reviewed a report dated April 5, 1974, from the QAR to the DQA, which indicated that corrective measures were taken which resolved all discrepancies.

A second program audit was completed by the DQA on September 18, 1974. No discrepancies were noted.

- d. Bechtel performed QA Audit No. 168, dated November 6, 1974. The audit covered Johnson's measurement and test equipment control. Several discrepancies were found. The QAR has taken immediate action to resolve these items. This audit remains open and is scheduled to be closed out by November 30, 1974.
- e. Several Field Inspection Reports (FIR's) were reviewed regarding Johnson's drawing controls. It appears that only those particular drawing problems mentioned in the FIR's were corrected by Johnson. This continuing practice was cause for the generation of a letter, No. FL23-727, dated November 20, 1974, from the lead instrumentation QC engineer to the QAR. Corrective action was meant to be immediate. The action taken was not reviewed during the current inspection.
- f. F&M has the responsibility for placing most of the larger panels. The inspector reviewed Material Receiving Installation and Inspection Form ED 6141 for the essential power supply system, Channel 1, Inverter YV1. The form, dated July 3, 1974, indicated that hold tag No. 258 was prepared because all documentation was not received. This hold tag was traced to Bechtel's Redoc File No. 476, where it was indicated that NCR 554 was written. The NCR was closed out November 12, 1974. All documentation was found to be in order.
- g. Completed Inspection Checklist/Data Sheet IIP-7749-E14-7g.001, for Inverter YV1, was reviewed. The inspector questioned the lack of a QA review verification of the construction drawing numbers which were used by the installer and construction inspector. The contractor's QA manager pointed out that there was no requirement to do so. Except for this observation, these documents were found to be in conformance with approved procedures.

5. Observation of Work

- a. To date, no "Q-listed" work has been performed. Instrument installation is scheduled to commence during the middle of December 1974.

- b. Cable and tray installations are the responsibility of F&M, the electrical contractor. Johnson will only terminate cables to instruments in the field or to terminals in analog, logic, or control room panels. Cable and tray installations, that pertain to instrumentation, will be inspected when the installing contractor's work is completed.

- c. The nonconformance quarantine area was inspected. Nonquarantined items were found in the area. These items were removed and, upon reinspection, the area was found to be in conformance with requirements. The area was properly marked, physical barriers in the form of locked doors were in place, and items in the hold area were tagged and traceable to QC records.

REPORT DETAILS

Part III

Prepared By K. R. Naidu

Persons Contacted

The following persons, in addition to individuals listed under the Management Interview Section of this report, were contacted during this inspection.

ITT Grinnell Corporation (Grinnell)

D. Giguere, Quality Control Manager
L. A. McGuire, Project Manager

Babcock & Wilcox (B&W)

W. R. Klingler, Project Manager
J. W. Marshall, Quality Control Supervisor
C. R. Hilling, Quality Control

Bechtel Corporation (Bechtel)

W. Reynolds, Quality Assurance Engineer

1. Handling of "Q-listed" Grinnel Material

During the inspection of safety related piping, it was observed that a section of the main steam header (estimated over ten tons) was being set in place. This activity was being controlled by the use of QCFF-105A field planner. In this connection, the inspector reviewed Grinnell Procedure SS 1201-C, titled "Receiving, Setting, and Storage of Equipment Purchased by Toledo Edison Company" and requested the licensee to obtain clarifications on certain instructions. Instructions to use the QCFF-105A Field Planner were not readily available. Further details on this matter will be reviewed during a subsequent inspection. While reviewing the handling activities of B&W related to NSS system material, the inspector found individual detailed procedures for each activity with advance approval of Bechtel's construction manager.

In this connection, the inspector selectively reviewed and found certifications on handling equipment to be current.

2. Protection and Storage of Piping (Whenever Work is Not Actually in Progress)

During a plant inspection, the inspector noted that some of the tape, used to cover open-ended pipes located in the safety injection pump area, had fallen off. The inspector was informed that the deficiency had been documented in prior Audit Findings Reports (AFR's). The inspector examined the project quality assurance log relative to the deficiency and established that, to date, several deficiencies were identified, and AFR's addressed to the Bechtel construction manager for corrective action were issued. The inspector noted that only some of these deficiencies were corrected and verified with Field Inspection Reports (FIR's). The remaining were being carried over uncorrected. The licensee stated that steps would be taken to reduce the delay. The inspector will review this matter during subsequent inspections.

3. Piping Record Review

Selective examination of the records on three random selected piping components, manufactured by Grinnell, where all the inspection activities were completed, established that the requirements of applicable construction and QC requirements, including related procedures, were satisfactorily met.

The records reviewed for each components selected included the following:

- a. Material test reports covering: (1) chemical composition, (2) physical characteristics, and (3) nondestructive examination.
- b. Vendor shop welding records and certifications.
- c. Surveillance inspector's quality release signoffs.
- d. Vendor inspection/receiving reports covering physical condition, damage, cleanliness, and surface protection.
- e. No nonconformances appeared to have occurred on the components selected.

4. Welding Record Review (RO Inspection Report No. 050-346/74-07, Part II, Page 15)

A followup on deviation reports No. 71-08, No. 71-06, No. 71-07, and No. 71-02 for field welds No. 3A, No. 4A, No. 6A and No. 9B, respectively, on the main steam piping initiated by B&W dated September 11, 1974, due to high localized heat treat temperature, established that Bechtel, Gaithersburg, cleared all four reports in their teleprint letter dated November 22, 1974. This item is considered closed.