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U. S. NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

REGION I

IE Inspection Report No: 50-320/75-03

Docket No: 50-320

Licensee: Metropolitan Edison Company
Box 542
Reading, Pennsylvania 19603

License No: CPPR-44

Priority: -

Category: A

Safeguards Group:

Location: Middletown, Dauphin County, Pa. (Three Mile Island 2)

Type of Licensee: PWR, 871 MWe (B&W)

Type of Inspection: Routine, Unannounced

Dates of Inspection: March 24-26, 1975

Dates of Previous Inspection: February 20-21, 1975

Reporting Inspector: Seth A. Folsom, Reactor Inspector — DATE 4/16/75

Accompanying Inspectors: for E. P. Gernigan, Reactor Inspector — DATE 4/16/75

for G. Napuda, Reactor Inspector — DATE 4/16/75

for W. F. Sanders, Reactor Inspector — DATE 4/16/75

Other Accompanying Personnel: None — DATE

Reviewed By: R. F. Heishman, Senior Reactor Inspector — DATE 4/16/75

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SUMMARY OF FINDINGS

Enforcement Action

A. Items of Noncompliance

1. Deficiency

a. Welding Material Control

Contrary to 10 CFR Part 50, Appendix B, Criterion V, welding electrode issue times were not being entered on electrode issue forms WD-3 as required by United Engineers and Constructor's Procedure MCP-2-2, paragraph 3.3.1 for the control of moisture in low-hydrogen electrodes. (Details, Paragraph 2)

B. Deviations

None

Licensee Action on Previously Identified Enforcement Matters

Not inspected

Design Changes

None identified

Unusual Occurrences

None identified

Other Significant Findings

A. Current Findings

1. Unresolved Items

a. The licensee had reported finding a number of defective stainless steel valves in the radwaste system. Investigation is continuing. This item is unresolved. (Details, Paragraph 3)

b. The vendor's containment tendon prestressing procedure specifies a 7-day maximum shipment-grouting interval which appears to be unrealistic. This item is unresolved. (Details, Paragraph 4)

c. The vendor's containment tendon prestressing procedure is not specific on the corrosion protection of tendon wires during shipment. This item is unresolved. (Details, Paragraph 5)

2. Acceptable Areas

a. Air Cooling Unit Supports

The site fabrication activities associated with the air cooling unit supports were inspected and found acceptable. (Details, Paragraph 6)

b. Structural Steel Storage

The structural steel storage and issuing practices were inspected and found acceptable. (Details, Paragraph 7)

c. Containment Polar Crane

The site testing, inspection, and maintenance activities associated with the crane were inspected and found acceptable. (Details, Paragraph 8)

d. Piping Field Welds

The following areas related to piping field welds were inspected and found to be acceptable:

(1) NDE personnel qualifications. (Details, Paragraph 9)
(2) Piping field weld documentation. (Details, Paragraph 10)
(3) Piping field weld radiography. (Details, Paragraph 11)
(4) Post field weld heat treatment. (Details, Paragraph 12)

B. Status of Previous Unresolved Items

The following unresolved items are considered closed:

1. Revisions in Containment Tendon and Wedge Design (Reference Inspection Report 50-320/74-07) (Details, Paragraph 13)

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2. Composition of Containment Tendon Grout (Reference Inspection Report 50-320/74-07) (Details, Paragraph 14)

Management Interview

A management interview was held at the site on March 26, 1975.

Persons Present

General Public Utilities Service Corporation

Mr. R. F. Fenti, Quality Assurance Auditor
Mr. W. T. Gunn, Site Manager
Mr. S. Levin, Project Engineer
Mr. G. L. Roshy, Quality Assurance Engineer
Mr. M. J. Stromberg, Site Quality Assurance Auditor
Mr. R. L. Wayne, Quality Assurance Manager (Parsippany)
Mr. R. .. Wilson, Manager of Quality Assurance (Parsippany)
Mr. J. E. Wright, Quality Assurance Manager
Mr. J. H. Wright, Resident Civil Engineer

Babcock and Wilcox

Mr. R. J. Kunz, Quality Control Supervisor
Mr. B. E. Treadway, Project Manager

United Engineers and Constructors

Mr. V. E. Cichoki, Coordinating Superintendent, Quality Assurance/ Quality Control
Mr. D. C. Lambert, Field Supervisor, Quality Control

Burns and Roe

Mr. T. R. Block, Lead Quality Assurance Engineer
Mr. R. S. Chapin, Civil Engineer

Items Discussed

In each of the items discussed below, the licensee acknowledged the information presented by the inspector.

A. The inspector stated that one item of noncompliance, categorized as a deficiency, had been identified at this inspection:

1. The item discussed is identified under Enforcement Action in the Summary of Findings in this report. (Details, Paragraph 2)

B. The inspector stated that the following items were considered unresolved:

1. Defects in Cast Stainless Steel Valves

   (Details, Paragraph 3)

2. Containment Tendons - Interval Between Shipping and Grouting

   (Details, Paragraph 4)

3. Corrosion Protection of Tendons in Shipment

   (Details, Paragraph 5)

C. Review of Previous Unresolved Items

(Details, Paragraphs 13 and 14)

D. The inspector requested notification prior to the start of the containment tendon friction tests.

E. In response to the inspector's question, the licensee stated that the documentation of the primary systems valve dimensional data would be completed before June 17, 1975.

F. The inspector stated that the following activities had been inspected and were found to be acceptable:

1. Air cooling unit supports. (Details, Paragraph 6)
2. Structural steel storage. (Details, Paragraph 7)
3. Containment polar crane. (Details, Paragraph 8)
4. Piping field welds:
   a. NDE personnel qualifications. (Details, Paragraph 9)
   b. Piping field weld documentation. (Details, Paragraph 10)
   c. Piping field weld radiography. (Details, Paragraph 11)
   d. Post field weld heat treatment. (Details, Paragraph 12)

DETAILS

1. Persons Contacted

General Public Utilities Service Corporation

Mr. R. F. Fenti, Quality Assurance Auditor
Mr. W. T. Gunn, Site Manager
Mr. S. Levin, Project Engineer
Mr. P. A. Levine, Quality Assurance Auditor
Mr. G. L. Roshy, Quality Assurance Engineer
Mr. M. J. Stromberg, Site Quality Assurance Auditor
Mr. R. L. Wayne, Quality Assurance Manager (Parsippany)
Mr. R. F. Wilson, Manager of Quality Assurance (Parsippany)
Mr. J. E. Wright, Quality Assurance Manager
Mr. J. H. Wright, Resident Civil Engineer

Babcock and Wilcox

Mr. J. Jeffers, Inspector
Mr. R. Kunz, Quality Control Supervisor
Mr. R. E. Treadway, Project Manager

Industrial Inspection, Inc.

Mr. G. Brotton, Radiographer

United Engineers and Constructors

Mr. M. Byers, Quality Control Engineer
Mr. V. E. Cichocki, Coordinator Superintendent, Quality Assurance/ Quality Control
Mr. R. Crofton, Quality Control Engineer
Mr. G. C. Frey, Craftsman - Ironworker
Mr. E. Gunnet, Ironworker, Foreman
Mr. G. Heimbaugh, Craftsman - Ironworker
Mr. D. C. Lambert, Field Supervisor, Quality Control
Mr. F. F. Long, Assistant Field Supervisor, Quality Control
Mr. C. Moore, Craftsman - Ironworker
Mr. J. O'Connor, Quality Control Documentation Engineer
Mr. N. Reitzi, Lead Inspector

Stressteel Corporation

Mr. M. G. Suarez, Vice President

Burns and Roe

Mr. T. R. Block, Lead Quality Assurance Engineer
Mr. R. S. Chapin, Civil Engineer

2. Welding Material Control

The inspector reviewed Specification MCP-2-2.

The inspector examined two welding material issue locations for conformance with requirements of applicable codes and procedures, including the following:

a. Storage of materials - identification, segregation, cleanliness.

b. Temperature control.

c. Issue records - approval, amount withdrawn, identity of withdrawer, dates, identification with weld location.

d. Handling of returned material.

Criterion V of 10 CFR 50, Appendix B, requires, in part, "Activities affecting quality shall be prescribed by...procedures...and shall be accomplished in accordance with these...procedures...."

United Engineers and Constructors procedure MCP-2-2, Paragraph 3.3.1, requires that the time of weld rod issue be entered onto requisition form TMI-WD-3 to effect a mechanism for control of moisture absorption of low-hydrogen electrodes which could adversely affect the welding process. The inspector found that the time of electrode issuance was not being recorded on the WD-3 forms at either of the two welding material issuing locations.

This item is considered to be a deficiency with respect to the above requirements of Criterion V of 10 CFR 50, Appendix B.

3. Defects in Cast Stainless Steel Valves

The licensee has reported finding a number of defective cast stainless steel socket weld valves, most of which were check valves, 2-inch or smaller. A total of 34 valves had been rejected, most of which were in the radwaste systems. The vendor's (Crane Company) representative had examined the defective valves at the site, but had not yet reported his findings to the licensee. The defects found were casting voids, linear indications, and gouges. The

valves had been purchased in accordance with the ASME Draft Code, November 1968, Section C, for Class III Equipment. This item is unresolved.

4. Containment Tendons - Interval Between Shipping and Grouting

The containment tendon prestressing procedure, "Stressteel Corporation Installation and Field Quality Assurance Procedure," March 11, 1975, Section 4.2, specifies a maximum of 7 calendar days between removal of the tendons from storage at Wilkes-Barre (or Olmstead) and the grouting of the tendons. The inspector questioned this 7-day interval maximum in view of the difficulties experienced at other locations in staying within specified intervals of 90 days. The Stressteel representative stated that he was certain that the 7-day maximum interval would be maintained consistently and, if exceeded, test wires would be withdrawn and examined for corrosion. This item is unresolved.

5. Corrosion Protection of Tendons in Shipment

The Stressteel Tendon Installation Manual, Paragraph 3.4.3.1, Tendons Material, states, in part, "Prior to shipping, the material shall be treated with an approved vapor phase inhibitor in a procedure demonstrated by experience or test to be effective, or with other approved corrosion inhibitor compatible with the use of grout as final protection, placed on reels or in packs." The inspector asked for specifics on the corrosion inhibiting system to be used, and already used in wire shipments from Florida Wire and Cable to Wilkes-Barre. The licensee agreed to secure this information, and to insure its incorporation into the procedure. This item is unresolved.

6. Air Cooling Unit Supports

The inspector reviewed: Specifications 2225-63, Divisions 1C, 15A, 15E and 15K, and 2555-56, Division 5; Welding Procedures No. 1 including field changes NW-30, 52, 57, 59, 63, 73 and 81, and No. 22 including field change NW-41; Purchase Order MEC-2025-9459-02-18-1; Purchase Orders 9459-02-7433, 8008 and 8303; and Drawings 4204, Revision 1, 1640-369, 370 and 371, 369-REL-192 and 370-REL-192.

a. Welding Performance

The inspector observed the welding of cross beam B-2, piece mark R-B-2-370-192, to column beam R1A and verified the following.

(1) Weld number.
(2) Weld location.
(3) Use of applicable welding procedure.
(4) Welders qualification records.
(5) Use of specified welding materials.

The above activities were found to be acceptable.

b. Welding Record Review

The inspector reviewed the records for cross beam B-2 to column beam R-1 welding to verify conformance with applicable construction and QC requirements including:

(1) QA/QC inspectors' records covering visual and dimensional inspections.
(2) Weld history records.
(3) Preheat and interpass temperature controls.
(4) Welding material control records.

The above records were found to be acceptable except for welding material control records as discussed in Details, Paragraph 2.

c. Material Traceability

The inspector reviewed the following records that applied to Beam R-B-2-370-192 for conformance to applicable construction and QC requirements.

(1) Material test reports and certification records.
(2) Receiving inspection reports.
(3) Reports of integrity tests.
(4) Installation Records.

The above records were found to be acceptable.

7. Structural Steel Storage

The inspector reviewed Specification 2555-56 (Paragraph 2).

The inspector inspected the structural steel laydown area and observed that beams were stored on wooden supports, and plate was stored in vertical racks as required by site procedures.

The inspector found that personnel issuing structural steel from the laydown area were knowledgeable of the material issue requirements.

These storage activities were found to be acceptable.

8. Containment Polar Crane

The inspector reviewed Specification 2555-22, and Procedures MPC-4-2 and CCP-4.

The inspector verified that measures had been provided and were being implemented as specified for the initial inspection, testing and surveillance, service inspection, and maintenance of the subject crane.

These activities were found to be acceptable.

9. NDE Personnel Qualifications

The inspector reviewed certificates of qualifications of personnel performing required nondestructive examinations of the Babcock and Wilcox Construction Company field welds.

The inspector found that the certificates were in accordance with SNT-TC-1A requirements. The personnel qualifications included current eye examination reports. Eye examinations were performed in accordance with SNT-TC-1A, and Industrial Inspection Incorporated procedure CP-5.

10. Piping Field Weld Documentation

The following welds in the primary loop were selected for review of records.

WJ-6-1
WJ-6-2
WJ-6-3
WJ-6-4
WJ-6-7

The following Quality Control records were audited by the inspector for compliance to the applicable codes and procedure requirements. The records were found to be acceptable.

a. B&W Company, "Main Field Construction Procedure."

b. B&W Company, "Weld Instruction Sheets."

c. B&W Company, Field Fabrication procedures with integrated Quality Control hold points and inspection verifications.

d. Weld procedure qualification records were reviewed for compliance to ASME Section IX.

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e. Welder performance qualification records were reviewed for 15 welders. These records showed that they were all qualified to weld in the 6G position.

f. Procedure deviation records were reviewed.

g. Weld control records.

h. Weld metal material control was audited for issue authorization, storage, preheat and issue control.

11. Piping Field Weld Radiography

The inspector audited the radiographic examination documentation, including radiographs, of selected piping field welds in the following system lines.

a. Main Steam (MS-11 and 80).
b. Core Flood (2CF-1 and 7Q).
c. Feedwater (2FW-107 and 107A).
d. Decay Heat (2DH-124 and 127).
e. Make Up (2MN-174 and 203).
f. Secondary Vent (25V-9 and 12).
g. Reactor Coolant Piping Field Welds (WJ-2-1, WJ-2-2, WJ-6-1, WJ-6-2, WJ-6-3, WJ-6-4 and WJ-6-7).

The inspector reviewed radiographic procedure, 9T-RT-203-C6, and referenced radiographic technique sheet. Both were determined to be in compliance with the Nuclear Power Piping Code, B31.7.

Radiographs of the above identified welds were reviewed for compliance with the approved procedure. The radiographs were also inspected for proper identification, interpretation and disposition.

The radiographs and supporting documentation were found to be acceptable and in compliance with Code B31.7 requirements.

12. Post Weld Heat Treatment of Field Welds

During this inspection, a weld joining the primary coolant pipe to the reactor vessel nozzle was in process of post weld stress-relief operation. Observations could be made of the following.

a. B&W Company, "Procedure for Post Weld Heat Treat of Primary Coolant Piping Welds."

b. Thermocouple placement.

c. Method of thermocouple attachments.

d. Control of heat gradients.

The stress-relief operation was found to be acceptable.

13. Resolution: Revisions in Containment Tendons and Wedge Design

The inspector had questioned the changes in the design of containment prestressing tendons and wedges. The proposed changes were reviewed by the Division of Reactor Licensing, whose response to the licensee, in a letter dated February 25, 1975, stated in part, "Your...analysis is that the modified system...can perform its function without impairing the public safety. The staff concurs with this conclusion." This resolves the item in Details, Paragraph 3, of IE Inspection Report No. 50-320/74-07.

14. Resolution: Composition of Containment Tendon Grout

During a previous inspection the inspector had questioned the corrosiveness of the proprietary grout used in the containment prestressing program. The licensee made available to the inspector a letter from the architect-engineer's consultant, dated April 13, 1972, which stated in part, "I can see no need for concern, for your application, in the use of the chemicals in the grout."

This resolves the item in Current Findings, Paragraph 2, of IE Inspection Report No. 50-320/74-07.