

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Construction Inspection

IE Inspection Report No. 050-329/76-06

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Licensee: Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Midland Nuclear Power Plant
Units 1 and 2
Midland, Michigan

License No. CPPR-81
License No. CPPR-82
Category: A

Type of Licensee: PWR (B&W) Unit 1-650 MWe
Unit 2-818 MWe

Type of Inspection: Routine, Unannounced

Dates of Inspection: July 14-16, 1976

Principal Inspector: *D. W. Hayes*
I. T. Yin

8/27/76
(Date)

Accompanying Inspector: *C. M. Erb*
C. M. Erb

8/27/76
(Date)

Other Accompanying Personnel: None

Reviewed By: *D. W. Hayes*
D. W. Hayes, Chief
Projects Section

8/27/76
(Date)

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SUMMARY OF FINDINGS

Inspection Summary

Inspection on July 14-16, (Unit 1, 76-06) and (Unit 2, 76-06): Review of concrete preplacement operations, observation of concrete materials storage, and laboratory equipment, observation of storage of Class 1 equipment and safety related piping, welding records, work activities relative to installation of Containment Spray Piping, and followup on previously reported unresolved matters. No noncompliance items were identified during this inspection.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

None reviewed during this inspection.

Other Significant Items

A. Systems and Components

Unresolved Items

1. Presently stainless steel and carbon steel spools are being laid down in a fenced area with no effort made to keep them separate. "Q"-listed carbon steel spools and non "Q"-listed carbon steel spools are also being stored together without segregation. (Paragraph 6, Section I, Report Details)
2. The reactor building crane platform stored at the site was not considered to be well supported. The improvement of the support condition will be inspected during a future IE:III site inspection. (Paragraph 8, Section I, Report Details)
3. The lifting of and placing of the Units 1 and 2 liner plate domes and the NSSS equipment are not being considered by the licensee as safety related construction activities. (Paragraph 5, Section I, Report Details)

B. Facility Items (Plans and Procedures)

None.

C. Managerial Items

None.

D. Noncompliance Identified and Corrected by Licensee

None.

E. Deviations

None.

F. Status of Previously Unresolved Items

(Units 1 and 2, identified in IE:III Inspection Reports No. 050-329/76-02 and No. 050-330/76-02)

1. Deteriorated Rebar Identification Tabs

The rebar identification tabs are now meeting the intent of the specification. This matter is considered closed. (Paragraph 1, Section I, Report Details)

2. Unit 1 Pressurizer Tarp Cover Spacers Installation

Storage conditions for the Unit 1 pressurizer were found in order. This matter is considered closed. (Paragraph 3, Section I, Report Details)

3. Insufficient Corrective Measures Identified in CP NCR QF-56

The licensee made effective correction on CP NCR QF-56, and also reviewed other NCR's that contain similar deficiencies. This matter is considered closed. (Paragraph 2, Section I, Report Details)

Management Interview

- A. The following personnel attended the management interview at the conclusion of the inspection:

Consumers Power Company (CP)

H. W. Slager, Midland Project QA Administrator
J. L. Corley, Midland QA Superintendent

- D. R. Keating, Quality Assurance Engineer
- B. H. Peck, Field Supervisor

Bechtel Power Corporation (Bechtel)

- P. A. Martinez, Project Manager
- R. L. Castleberry, Project Engineer
- J. F. Newgen, Project Superintendent
- A. J. Boos, Assistant Project Field Engineer
- G. L. Richardson, Lead Quality Assurance Engineer
- J. P. Connolly, Project Field QC Engineer
- H. D. Foster, Assistant Project Field QC Engineer

B. Matters discussed and comments on the part of management personnel were as follows:

1. The inspector discussed the status of the five unresolved matters recorded in IE:III Inspection Reports No. 050-329/76-02 and No. 050-330/76-02. Three of the items have been resolved and are in this report. The other two items remain open pending future inspection resolutions.
2. The inspector stated that he reviewed the NCR's and the engineering dispositions relative to the safety related concrete cylinder test results that did not meet the specified compressive strength requirement, and that he was satisfied with the resolution. (Paragraph 4, Section I, Report Details)
3. The inspector stated that IE considered the lifting and placing of the Units 1 and 2 liner plate domes and the NSSS equipment to be safety related construction activities. Licensee representatives stated that they would review their position. This matter is considered unresolved. (Paragraph 5, Section I, Report Details)
4. The inspector discussed deviations from rebar requirements identified by the licensee in the S-3 area of Auxiliary Building. (Paragraph 7, Section I, Report Details)

The licensee representative said that the new procedure for referral to design of all concrete preplacement deviations was just starting and that their overlay inspection program had not proceeded sufficiently to judge its effectiveness.

5. The inspector stated that the batch plant and laboratory operations appeared to be conducted in accordance applicable

specifications. Rebar, Cadwelds and Concrete materials were tested and certified as acceptable. (Paragraph 1, Section II, Report Details)

6. The inspector stated that he had examined welding activities in containment spray piping and some of the NDT results of these welds. Welding qualifications and Quality Control of welds were being performed to specification and code requirements. (Paragraph 3, Section II, Report Details)
7. In regard to the reactor building crane platform the inspector stated that the platform was not well supported in storage and support should be improved. (Paragraph 8, Section I, Report Details)

The licensee representatives acknowledge the comment.

8. The inspector discussed potential discrepancies in the storage of "Q"-listed piping. (Paragraph 6, Section I, Report Details)

The licensee representatives said they felt their identification marking on the spools would preclude mix-up. The representatives stated that they are planning added storage area for piping spools. The inspector stated that "Q"-listed piping storage provisions were considered to be an unresolved item.

REPORT DETAILS

Section I

Prepared by I. T. Yin

Persons Contacted

In addition to the individuals listed under the Management Interview section of this report, the following persons were contacted:

Bechtel Power Corporation

W. B. Grubich, Senior Material Supervisor
R. Moray, Quality Control Engineer

Consumers Power Company

Z. A. Johnston, Schedule Analyst
D. E. Horn, Field Quality Assurance Engineer
R. E. Whitaker, Field Quality Assurance Engineer
T. C. Cooke, Midland Project Superintendent

Champion, Incorporated

D. G. Johnson, Assistant Manager, Ready Mix

Results of Inspection

1. Deteriorated Rebar Identification Tabs

The deteriorated rebar identification tabs were identified by the inspector in a March, 1976 inspection (Report 76-02). Since then, Bechtel reworded the Purchase Specification 7220-C-39 to add "The intent is to maintain legibility of tags through receipt inspection at the jobsite so that the reinforcing steel may be tracked to its appropriate heat numbers." The rebar bundles had been inspected upon arrival at the site, and their identification tabs met the intent of the specification. This matter is considered resolved.

2. Insufficient Corrective Measures Identified in CP NCR QF-56

During the IE:III inspection in March, 1976 (Report 76-02), the inspector reviewed CP NCR QF-56, and found the corrective action did not include material evaluation, cleaning, and preventive

measures. The inspector reviewed the new CP procedure to prevent repetition, the material evaluation records, the corrective action taken by Bechtel, and considered the corrective measures adequate.

Documents Reviewed

- a. CP Midland Project QA Procedure No. M-9, Rev. 0, dated July 13, 1976, Subject: "Review of Bechtel Nonconformances."
 - b. CP QA Superintendent letter to Bechtel Project Superintendent, dated March 22, 1976, Subject: "CP NCR QF-56."
 - c. Bechtel Project Superintendent letter to CP QA Superintendent, dated March 26, 1976, addressed additional corrective action taken relative to NCR QF-56.
 - d. CP letter to File 16.3.4, dated April 14, 1976, Subject: "CP NCR QF-56."
 - e. QA Superintendent letter to CP Engineering Services, dated May 13, 1976, Subject: "Field Storage of Material." (Structural Steel)
 - f. CP Engineering Services Metallurgist letter to QA Superintendent, dated June 4, 1976, Subject: "Field Storage of Material." (Structural Steel)
 - g. CP QA Superintendent letter to CP Engineering Services, dated July 12, 1976, Subject: "Evaluation of Storage Discrepancies." (piping)
 - h. CP Engineering Services Metallurgist letter to QA Superintendent, dated August 10, 1976, Subject: "Evaluation of Storage Discrepancies." (This document was reviewed by the inspector during a subsequent inspection)
3. Unit 1 Pressurizer Tarp Cover Spacers Installation

The inspector examined the installation of the spacers and the condition of storage protective device for the Unit 1 pressurizer regarding conditions identified in Inspection Report 76-02. The storage conditions were found in order and the matter is considered resolved.

4. Concrete Cylinder Test Failures

In March, 1976, the licensee reported two instances where concrete cylinder compression strength tests did not meet the minimum

specified 5000 psi for ninety days. These are the cylinder set 683 representing placement A(599)m' molded on December 2, 1975, which yielded an average compressive strength of 4610 psi after ninety days; and cylinder set 690 representing placement A(612.5)d' molded on December 8, 1975, which yielded an average compressive strength of 4620 psi after ninety days. Bechtel Project Engineering evaluated the non-conformances, and based on ACI 318-71, Section 4.3.3 provision, it was determined that the three consecutive average strength tests of the two low strength cylinders were above 4500 psi set by this special provision. Further, the test cylinders made at the batch plant were observed to have high air content, however, when the concrete was discharged into the forms, the test data showed a drop in air content. The results of the evaluation indicated that, the amount of strength increase due to the air content decrease brought the concrete cylinder test result values above the 5000 psi required compressive strength. The inspector concurred with the reasoning, and considered the matter closed.

5. Lifting and Placing of Essential Safety Related Equipment

During this inspection, the inspector was informed that the lifting and placing of the liner plate domes and the NSSS equipment were not determined to be "Q"-listed (safety related) activities by the Bechtel Project Engineer Department and were classified, at the present, as non "Q"-listed items. The lifting of these essential structure and equipment was subcontracted by Bechtel to the Reliance Truck Company (Reliance). The Bechtel Subcontract Engineers will review Reliance equipment qualification procedures and will provide technical surveillance on contract fulfillments. The Bechtel Field Engineers will provide technical assistance to the operation. The Bechtel home-office (San Francisco, California) will send rigging experts to the site to oversee the entire lifting and placement operations.

Bechtel Technical Specifications, 7220-C-61, Rev. 2, dated July 10, 1974, "Subcontract For Heavy Lift Rigging of NSSS Plant Equipment" was reviewed by the inspector. The inspector stated that the lifting and placing of liner plate domes and the NSSS equipment was considered to be a safety related activity, and should be classified as "Q"-listed. The inspector stated that implementation of the Quality Control Program and the ANSI N.45.2-15 standard included in Specifications 7220-C-61 may best be inspected by the Bechtel and CP QA/QC Departments. This is an unresolved matter pending future resolutions.

6. Storage of "Q"-listed Piping

The inspector examined the storage of "Q"-listed piping and determined that: (1) stainless steel spools and carbon steel spools are not kept separate in the fenced enclosure, and (2) "Q"-listed and non "Q"-listed spools are not segregated from each other.

The inspector stated that the chances of mixup could be minimized by having "Q"-listed and non "Q"-listed piping segregated in different lay down areas. The inspector also discussed the possibility of accidental damage to "Q"-listed piping during retrieval of non "Q"-listed piping spools from a common lay down area.

7. Rebar Placement

The inspector examined the S-3 area Auxiliary Building 632' level (Control room slab) which was being readied for a Class 1 concrete pour. There were two deviation from rebar requirements identified by the licensee which had not been resolved at the time of the inspection. The licensee inspector on the job stated that the pour would not be made until these matters were resolved.

8. Storage of Major Components

The inspector examined storage for the reactor vessel, head, steam generators and reactor building crane and found it to be acceptable. The inspector found that the reactor building crane platform was not well supported. The inspector inquired into the condition of crane drums which are stored outside covered with Visquene material. The licensee representatives stated that the drums had been inspected recently and were in good condition.

REPORT DETAILS

Section II

Prepared by C. M. Erb

Persons Contacted

In addition to the individuals listed under the Management Interview section of this report, the following persons were contacted:

Bechtel Power Corporation

W. B. Grubich, Senior Materials Supervisor
D. Martin, Materials Supervisor
V. Gast, Materials Inspector
B. Stojkov, Quality Assurance Mechanical
H. Bolden, Quality Control Engineer
T. McLean, Supervisor Weld Test Shop

U. S. Testing Company

B. Waters, Supervisor, Laboratory

Champion, Incorporated

R. Krueger, Superintendent, Batch Plant.

Results of Inspection

1. Concrete Laboratory

The inspector examined operations at the concrete laboratory. This laboratory is operated by U. S. Testing and the various concrete tests are made here, except the cement tests which are performed by U. S. Testing in Hoboken, New Jersey. Concrete sample strength tests are made using a Forney Compression Tester. Rebar and Cadweld tension tests are made using a Forney tension machine. Both Forney testers were calibrated June 17, 1976.

No deficiencies were noted in this area.

2. Batch Plant Calibration

The inspector examined batch plant equipment calibration and verified that weighing equipment had been calibrated April 22, 1976. Calibration is performed every six months or 25,000 yards

of concrete. All materials used in a mix are weighed, except water and admixture, which are measured by volume. The volume calibrations are certified at regular intervals by the Agriculture Department and the weighing devices are certified by the Michigan Weight and Scales division.

No deficiencies were found in this area.

3. Welding Containment Spray Piping

The inspector checked the procedures and qualifications used to install the spray piping in the containment domes which have not been lifted to their positions. Performance qualifications are made in the 2G and 5G positions. QA documentation was acceptable and met the requirements of Section IX.

Weld data sheets and radiography of the following welds were examined and found to be acceptable. Acceptance standards are found in NB 5320 of Section III, "71 edition," Summer "73" addenda.

| <u>Weld No.</u> | <u>Procedure</u> | <u>Size</u> | <u>Weld Process</u> |
|-----------------|------------------|--------------|---------------------|
| 1C | P8-T-Ag Rev. 0 | 2 1/2 x .203 | T. I. G. |
| 54 | P8-AT-Ag Rev. 0 | 4 x .237 | T. I. G. and SMAW |

These welds were in stainless steel materials and the process sheets called for hold points where required by the authorized inspector, J. Ayotte, Hartford Steam Boiler representative.

X-ray Engineering personnel were performing the radiography. The inspector verified that their inspector is a Level II to SNT-TC-1A.