

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Construction Inspection

IE Inspection Report No. 050-329/77-01
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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: January 26-28, 1977

Principal Inspector: I. T. Yin

I. Yin

2/15/77
(Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

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

2/16/77
(Date)

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SUMMARY OF FINDINGS

Inspection Summary

Inspection on January 26-28, 1977, (Unit 1, 77-01) and (Unit 2, 77-01):
Followup on previously identified noncompliance and unresolved items.
General observation of site concrete preplacement reinforcing steel
installation activities, and the safety related piping installation and
welding activities.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

Items of Noncompliance

A. Violations

None.

B. Infractions

1. IE Inspection Reports No. 050-329/76-04 and No. 050-330/76-04:

a. Lack of Procedures for Drilling and Placement of Rebar Dowels
(Units 1 and 2)

Procedures has been provided for the subject activity.
This item is closed. (Paragraph 1, Report Details)

b. Insufficient Reportability Evaluation of Bechtel NCR No. 260
(Units 1 and 2)

The corrective action was reviewed by the inspector. This
item is closed. (Paragraph 2, Report Details)

c. Lack of Interim QC Inspection Results Documentation
(Units 1 and 2)

The results of review, interim inspections, and monitoring
of rebar installations had been documented. This item is
closed. (Paragraph 3, Report Details)

2. IE Inspection Reports No. 050-329/76-07 and No. 050-330/76-07:
Bechtel QC and Field Engineer Failed to Follow Work Procedures
(Units 1 and 2)

The inspector reviewed the corrective actions including training, and the item is closed. (Paragraph 4, Report Details)

3. IE Inspection Reports No. 050-329/76-08 and No. 050-330/76-08:
a. Deficiency in Issuing Bechtel Field Engineering Procedures
(Units 1 and 2)

Procedures for controlling the subject matters were reviewed by the inspector and were considered adequate. This item is closed. (Paragraph 5, Report Details)

- b. Failure of Implementing QC Instructions (Unit 2 only)

Training was conducted for the QCEs to ensure future implementation of instructions. The corrective measure appeared to be adequate. This item is closed. (Paragraph 6, Report Details)

- c. Inadequate Site Storage Provision for Post Tensioning
Embedments (Units 1 and 2)

The procedural requirements for the subject storage has been revised. This item is closed. (Paragraph 7, Report Details)

4. IE Inspection Reports No. 050-329/76-09 and No. 050-330/76-09:

- a. Failure to Identify Nonconforming Rebar (Units 1 and 2)

New procedures were provided for identifying the nonconforming rebars. This item is closed. (Paragraph 8, Report Details)

- b. Lack of Protection for Reactor Vessel Hold Down Studs
(Unit 2 only)

Proper protection for the studs had been provided. A new maintenance procedure has been written to prevent future recurrence. This item is closed. (Paragraph 9, Report Details)

Other Significant Items

A. Systems and Components

None.

B. Facility Items (Plans and Procedures)

None.

C. Managerial Items

The Consumers Power Company has appointed Mr. B. W. Marguglio as their new Director of Project Quality Assurance Services Department effective January 1, 1977.

D. Deviations

None.

E. Status of Previously Identified Unresolved Items

1. IE Inspection Reports No. 050-329/76-06, No. 050-330/76-06, No. 050-329/76-09 and No. 050-329/76-09:

The Lifting and Placing of Heavy Components

Quality assurance and control measures had been provided for the subject activities. This matter is considered resolved. (Paragraph 10, Report Details)

2. IE Inspection Reports No. 050-329/76-08 and No. 050-330/76-08:

Field Engineers Authority and Duties

Bechtel Field Engineering personnel authority and duties had been properly described in a new procedure. This matter is resolved. (Paragraph 11, Report Details)

3. IE Inspection Reports No. 050-329/76-09 and No. 050-330/76-09:

Wood Piles Found In the Reactor Pedestal Areas

Quantities of wood were found in the reactor pedestal area during a previous site inspection. These wood materials had been removed. This item is resolved.

Management Interview

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

Consumers Power Company (CP)

B. W. Margulio, Director of Project Quality Assurance Services
Department
H. W. Slager, Project Quality Assurance Administrator
J. L. Corley, Quality Assurance Superintendent
B. H. Peck, Construction Control Supervisor

Bechtel Power Corporation

J. Milandin, Quality Assurance Manager
J. F. Newgen, Project Superintendent
A. J. Boos, Project Field Engineer
J. P. Connolly, Project Field Quality Control Engineer
J. Klacking, Project Quality Assurance Engineer
G. L. Richardson, Lead Quality Assurance Engineer
J. Ollsen, Staff Assistant

Babcock and Wilcox Construction Company (B&W)

V. N. Asgaonkar, Site Representative

- B. Matters discussed were as follows:

1. The inspector discussed the status and the resolution of some of the previously identified noncompliance items.
2. The inspector discussed the status and the resolution of some of the previously identified unresolved matters.
3. In IE:III Report No. 76-06, Management Interview, the inspector indicated concerns relative to Auxiliary Building S-3 area rebar placement deficiencies. The inspector stated that he reviewed the quality records including CP NCR No. 109 and considered that these deficiencies had been properly resolved.
4. In IE:III Report No. 76-07, Management Interview, the inspector discussed Bechtel QA audit effort for rebar placement. Subsequently, Bechtel scheduled more QA audits for 1976 and 1977. The inspector stated that he reviewed the Bechtel Master Audit Plan and considered it adequate.
5. As a result of the in-depth QA inspection, performed from April through June, 1976 and recorded in IE Report No. 76-04, the CP has committed 21 items of improvements for the Midland QA/QC systems. The status of commitment implementation was discussed. (Paragraph 12, Report Details)

6. The inspector stated that in regard to the commitments contained in the January 18, 1976 letter from the licensee to IE:III, Nos. 5, 14 and 18, had not been met.

The licensee indicated that they will provided the new commitment completion dates.

As for Commitment No. 5 and No. 18, since June, 1976 Bechtel had reviewed all quality procedures relative to development of a training program. 11 procedures have been revised and implemented, and the remaining two procedures would be completed by April 15, 1977.

As for Commitment 14, starting February 15, 1977, Bechtel will initiate and establish programs for reviewing nonconforming items relative to 10 CFR 50.55(e) reportability requirements. By March 15, 1977, the program should be implemented fully.

7. The inspector stated that CP had not responded to the noncompliance items, identified in IE:III Report 76-09, in a timely manner. The licensee stated that in the future, if response to noncompliance items could not meet the required date, the licensee will inform IE:III, provide reasons, and request a new submission date.
8. The rail car carrying the Unit 1 steam generator went off the track on January 26, 1977. The inspector indicated that he would review the damage evaluation during a subsequent inspection. (Paragraph 13, Report Details)

REPORT DETAILS

Persons Contacted

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

Consumers Power Company (CP)

R. E. Whitaker, Field Quality Assurance Engineer
D. E. Horn, Field Quality Assurance Engineer
P. R. Keating, Field Quality Assurance Engineer
R. Wollney, Field Quality Assurance Engineer

Bechtel Power Corporation (Bechtel)

B. T. Stojkov, Quality Assurance Engineer
B. T. Cheek, Lead Civil Quality Control Engineer
T. Lied, Field Quality Control Engineer

Results of Inspection

1. Lack of Procedures for Drilling and Placement of Rebar Dowels (Units 1 and 2)

This matter was identified as an infraction in IE:III Report No. 76-04. During this inspection, the inspector reviewed: (1) Bechtel Field Instruction FIC-13, "Grouting of Reinforcing Bar In Concrete," Revision 0, dated October 6, 1976, and (2) Bechtel Field Instruction FIG-20, "Concrete Drilling Permit Procedure," Revision 2, dated June 29, 1976, and considered these instructions acceptable. The inspector also reviewed the list of procedures applicable to Midland safety related work activities, provided by Bechtel to Consumers Power Company (CP) (BCCC-1969, dated August 23, 1976). This item is closed.

2. Insufficient Reportability Evaluation for Bechtel NCR No. 260 (Units 1 and 2)

This matter was identified as an infraction in IE:III Report No. 76-04. The Bechtel NCR No. 260 was reviewed in detail by Mr. R. E. Shewmaker of the IE:HQ. The review finding was recorded in IE:III Report No. 76-05, Report Details, Section II. Subsequently, Bechtel revised NCR No. 260 for better identification of the problems. The inspector reviewed the involved documentation, and considered the item closed.

3. Lack of Interim QC Inspection Results Documentation (Units 1 and 2)

This matter was identified as an infraction in IE:III Report No. 76-04. The inspector reviewed the revised Bechtel Procedure PSP G-3.2, Revision 1, dated June 28, 1976, entitled "Control of Nonconforming Items," and considered it adequate. No recurrence was identified since the QC training sessions were held soon after the problem was identified. This matter is considered closed.

4. Bechtel QC and Field Engineer Failed to Follow Work Procedures (Units 1 and 2)

This matter was identified in IE:III Report No. 76-07 as an infraction. The description of the problem and the corrective action were recorded in CP NCR No. QF-110. The QF-110 was issued on July 27, 1976 and closed on August 31, 1976. The inspector reviewed the resolution and verification of corrective actions taken, and considered the matter closed.

5. Issuance Control of Bechtel Field Engineering Procedures (Units 1 and 2)

This matter was identified in IE:III Report No. 76-08 as an infraction. The inspector reviewed: (1) Bechtel Nuclear QA Manual Section IV, No. 1, Revision 2-B, dated November 30, 1976, entitled "Field Procedures," (2) Bechtel Field Procedure FPG-1, Revision 5, dated November 18, 1976, entitled "Initiating and Processing Field Procedures and Instructions," and considered these procedures acceptable. Furthermore, Bechtel Field Quality Control Engineers (QCEs) and Quality Assurance Engineers (QAEs) reviewed and approved all existing work plans and procedures for safety related work activities. This matter is considered closed.

6. Failure of Implementing QC Instructions (Unit 2 only)

This matter was identified in IE:III Report No. 76-08 as an infraction. The inspector reviewed the Bechtel Discrepancy Report QCIR No. C-1.20-10, issued on August 20, 1976, and discussed the training sessions held by Bechtel QC to prevent future recurrence, and considered the corrective measures taken sufficient. No similar problems have been identified since, and the item is considered closed.

7. Inadequate Site Storage Provision for Post Tensioning Embedments (Units 1 and 2)

This matter was identified in IE:III Report No. 76-08 as an infraction. The inspector reviewed the revised storage inspection procedures: (1) F-1-199, Revision 4, dated November 15, 1976, for post tensioning embedment trumplate assembly, and (2) F-1-348,

Revision 0, dated November 15, 1976, for sheathing, couplers and tunnels, and considered these procedures acceptable. This item is closed.

8. Failure to Identify Nonconforming Rebars (Units 1 and 2)

This matter was identified in IE:III Report No. 76-09 as an infraction. Since then, Bechtel has inspected all the rebar dowels to identify the broken or damaged dowels, and issued NCRs Nos. 669, 672, 673, and 675, on January 17, 1977. In addition, Bechtel issued a new Field Procedure FPC-2,000, Revision 0, dated January 27, 1977, entitled "Rebar Installation and Evaluation Guidelines." The inspector reviewed the NCRs and the Field Procedure, and considered them acceptable. This item is closed.

9. Lack of Protection for Reactor Vessel Hold Down Studs (Unit 2 only)

This matter was identified as an infraction in IE:III Report No. 76-09. Since then Bechtel issued a new procedure, F-10, Revision 0, dated January 28, 1977, for inspecting reactor vessel and steam generator anchor bolts. The inspector reviewed the procedure and considered it acceptable. The inspector also observed protection provided for the Unit 1 steam generator anchor bolts, and Unit 1 reactor vessel and steam generator anchor bolting and considered that adequate protection has been established for these components. This item is closed.

10. Lifting and Placing of Heavy Components

This matter was discussed in IE:III Reports No. 76-06 and No. 76-09, and was documented as unresolved matters. During this inspection, the inspector observed that the Unit 2 liner dome was placed properly, and reviewed: (1) CP QA Program Report No. F-76-67, dated December 21, 1976, "Audit on Heavy Lift Rigging for Units 1 and 2," (2) CP polar crane test lift and polar crane lift audit checklist, dated December 6, 1976, and (3) CP dome test lift and dome lift audit checklist, dated December 14, 1976. The Unit 2 liner dome was lifted and placed on December 9 - 19, 1976. Prior to the lifting activity, the Reliance Truck Company document, "Heavy Lift Rigging of NSSS Plant Equipment, Polar Crane, and Containment Domes," Revision 3, dated December 2, 1976, was reviewed by the CP QA. The licensee further stated that CP will perform QA audits prior to any future lifting of safety related heavy components. This matter is considered resolved.

11. Field Engineers Authority and Duties

These concerns were identified as an unresolved matter in IE:III Report No. 76-08. The inspector reviewed the Bechtel Field Procedure, FPG23, Revision 0, dated September 29, 1976, entitled "Job

Responsibilities, Field Engineer, Superintendents, Survey Personnel, and Field Subcontract Engineers," and considered it acceptable. This matter is resolved.

12. Status of CP Commitments

The status of the 21 commitments, as stated in a CP letter to IE:III dated June 18, 1976, are as follows:

- Item No. 1: Time Between Design Completion and Construction - Closed, see IE:III Report No. 76-08.
- Item No. 2: Drawing Clarity and Completeness - Closed, see IE:III Report No. 76-08.
- Item No. 3: Design Engineering Review and Approval of Fabrication Drawings and Changes thereto - Closed, see IE:III Report No. 76-08.
- Item No. 4: Design Change Notice Logs - Closed.
- Item No. 5: QC Inspection Adequacy - Open. The completion schedule has not been met.
- Item No. 6: QC Surveillance and Inspection Documentation - Closed during this inspection, see Details, Paragraph 3.
- Item No. 7: Trend Analysis - Closed, see IE:III Report No. 76-09.
- Item No. 8: Lack of Detection of QC Problems by QA - Closed during this inspection. The inspector reviewed: (1) CP Midland Project QA Procedure, M-9, Revision 1, dated August 17, 1976, entitled "Revision of Bechtel NCRs for Corrective Actions Taken," and (2) CP letter to Bechtel, dated September 28, 1976, for approving Bechtel Project Special Provisions Procedure. The corrective measures appeared sufficient.
- Item No. 9: CP Company - Bechtel Site Work Planning Meetings - Closed.
- Item No. 10: QC Assignments - Closed, see IE:III Report No. 76-08.
- Item No. 11: Use of NCR to Control Design Changes Made After Construction - Closed, see IE:III Report No. 76-08.
- Item No. 12: Field Engineers - Design Decisions - Closed during this inspection, see Details, Paragraph 11.
- Item No. 13: NCR Write-Ups - Closed during this inspection. Corrective measures were provided in Bechtel Trend Analysis and CP's system for reviewing Bechtel NCRs.

- Item No. 14: Evaluation of NCRs for 50.55(e) Reportability:
- Open. The completion schedule has not been met.
- Item No. 15: Repair Procedures- Closed during this inspection, see Details, Paragraph 1, Lack of Procedures for Drilling and Placement of Rebar Dowels.
- Item No. 16: Lack of Corrective Action to Preclude Repetition - Closed during this inspection. The inspector reviewed: (1) Bechtel Procedure PSP G-3.2, Section 5, "Corrective Action to Prevent Recurrence," and (2) CP Midland Project QA Procedure M-9, Revision 1, dated August 17, 1976, "Review of Bechtel Nonconformances". These procedures were considered adequate.
- Item No. 17: Rebar Verification - Open. This item has been completed by the licensee. IE:III to review the corrective actions during subsequent inspection.
- Item No. 18: Attention to Details - Open. The completion schedule was not met.
- Item No. 19: Storage Procedures and Implementation - Open. This item has been completed by the licensee. IE:III will inspect during subsequent inspection.
- Item No. 20: CP Field Audits - Closed, see IE:III Report No. 76-08.
- Item No. 21: Engineering Training - Open. This item has been completed by the licensee. IE:III will review during subsequent inspection.

13. Derailment of Railroad Cars Carrying Unit 1 Steam Generator

On the evening of January 26, 1977, the railroad cars carrying the Unit 1 steam generator were derailed at a speed not exceeding three MPH. Among the 48 wheels in the car system, 22 wheels went off the track at the spur junction. The wheels were pulled back onto the track on January 27, 1977. The inspector observed no apparent dislocation of cargo supports, nor any visible signs of physical damage. B&W is to determine: (1) if there was any damage to the steam generator due to derailment, and (2) if any internal/external inspection is necessary. The IE:III inspector will review the resolutions during a future inspection.