

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Construction Inspection

IE Inspection Report No. 050-329/76-07
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Licensee: Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Midland Plants, Units 1 and 2
Midland, Michigan

Licenses No. CPPR-81
and No. CPPR-82
Category: A

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

Type of Inspection: Announced, Special

Dates of Inspection: July 28-30, and August 4, 1976

Principal Inspector: *I. T. Yin*
I. T. Yin

10/18/76
(Date)

Accompanying Inspector: *I. T. Yin / for*
C. M. Erb

10/18/76
(Date)

Other Accompanying Personnel: D. W. Hayes
E. L. Jordan
J. G. Keppler

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

10/19/76
(Date)

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SUMMARY OF FINDINGS

Inspection Summary

Inspections on July 28-30, and August 4, 1976, (Unit 1, 76-07) and (Unit 2, 76-07): Followup on reinforcing steel placement problems, inspection of new storage area construction, and nuclear steam supply component storage. No items of noncompliance were identified.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

Licensee action and/or resolution of previously identified enforcement items were not reviewed during this inspection.

Other Significant Items

A. Systems and Components

As a result of the repeated occurrences of rebar placement deficiencies, the IE:III initiated a five week intensified inspection program to start August 9, 1976. The program will be conducted at the site to review the underlying causes of the problems and to verify that effective corrective measures are being implemented.

B. Facility Items (Plans and Procedures)

None.

C. Managerial Items

None.

D. Noncompliance Identified and Corrected by Licensee

1. Contrary to 10 CFR Part 50, Appendix B, Criterion V, the Bechtel Quality Control Engineer, and the Field Engineer failed to follow approved work procedures. (Paragraph 2, Section I, Report Details)
2. Contrary to 10 CFR Part 50, Appendix B, Criterion X, inadequate Bechtel inspection was performed for the reinforcing steel installations. (Paragraph 2, Section I, Report Details)

E. Deviations

None.

F. Status of Previously Unresolved Items

The resolution of previously unresolved items was not reviewed during this inspection.

Management Interview

- A. An informal information exchange type meeting was held at the site with Bechtel and CP management personnel on July 30, 1976, at the conclusion of the inspection. Those present were informed that this meeting was not the formal management exit meeting but that the formal meeting would be held with CP and Bechtel personnel on August 4, 1976.

1. Attendees:

Consumers Power Company (CP)

S. H. Howell, Vice President
G. Keeley, Project Manager
F. M. Southworth, Director, Project QA Services
H. W. Slager, Midland QA Administrator
J. L. Corley, Midland QA Superintendent
T. C. Cooke, Midland Project Superintendent
K. D. Butke, QA Engineer
G. L. Slagel, Senior Engineer

Bechtel Power Corporation (Bechtel)

P. A. Martinez, Project Manager
J. F. Newgen, Project Superintendent
O. H. Holman, Field Superintendent
G. L. Richardson, Lead QA Engineer
J. P. Connolly, Project Field QC Engineer
H. D. Foster, Assistant Project QC Engineer

Bechtel Associates Professional Corporation (BAPC)

H. Hermeston, Construction Manager
J. Milandin, QA Manager
J. M. Klacking, Project QA Engineer
J. Ollsei, Staff Assistant

2. Matters discussed during this meeting:

- a. The inspector discussed the reinforcing steel placement and QC inspection problems and apparent underlying causes of recent identified rebar deficiencies.

The inspector stated that a formal management exit meeting to be held on August 4, 1976, to further discuss those matters and future IE:III inspection plans relative to them.

- b. The inspector discussed inspection findings in the areas of safety related equipment storage, welding, and material solution treatments. No deficiencies were identified. (Section II, Report Details)
- B. A formal management exit interview was held on August 4, 1976, at the Midland site.

1. Attendees:

Consumers Power Company (CP)

G. Keeley, Project Manager
F. M. Southworth, Director, Project QA Services
T. C. Cooke, Project Superintendent
H. W. Slager, Project QA Administrator
J. L. Conley, Project QA Superintendent
B. H. Peck, Construction Control Supervisor

Bechtel Power Corporation

P. A. Martinez, Project Manager
O. H. Holman, Field Superintendent
J. M. Klacking, Project QA Engineer
J. P. Connolly, Project Field QC Engineer

USNRC

J. G. Keppler, Regional Director
E. L. Jordan, Acting Chief, Reactor Construction and Engineering Support Branch
D. W. Hayes, Chief, Projects Section
I. T. Yin, Reactor Inspector, Projects

2. Matters discussed and comments on the part of management personnel were as follows:
 - a. The inspector stated that he reviewed the site work procedures and the qualification of the QCEs and found them acceptable and qualified.

From the above findings and the actual causes identified (Paragraph 2.b, Section I, Report Details), the basic underlying causes of the problem can be summarized as follows:

- (1) Quality Control and Field Engineers did not follow work procedures.
 - (2) Supervision of QC and field engineers was inadequate.
 - (3) Craft supervisor failed to supervise proper rebar installation.
 - (4) Bechtel site training program appears to be inadequate or ineffective.
 - (5) Insufficient provisions exist to ensure continuity of QC inspection plans, and assignments.
- b. The inspector considered the proposed corrective actions (Paragraph 2.c, Section I, Report Details) adequate, and suggested written examinations in lieu of oral evaluation at the completion of training sessions.
 - c. The inspector also discussed Bechtel QA audit efforts for rebar placement, particularly for the larger pours and Bechtel QC procedures to assure better continuity in inspection plan preparation and work assignments.
 - d. The inspector acknowledged that schedules for some of the licensee commitments made as a result of a IE:III in-depth QA inspection (Report No. 76-04), will be postponed because of operational difficulties. IE:III considered the schedule change acceptable, and asked CP to address them in a letter to the IE:III office.
 - e. The licensee representative noted the inspector's comments.
 - f. The licensee was informed that because of the continuous rebar deficiencies and weaknesses of QA program implementation, an intensive inspection effort on behalf of IE:III is to be conducted in the near future.

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:

Consumers Power Company (CP)

R. Wollney, Field QA Engineer
D. Horn, Field QA Engineer

Bechtel Power Corporation (Bechtel)

T. C. Valenzano, Project Field Engineer
P. Goguen, Field Engineer
D. T. Davis, QC Engineer
L. LaPutka, Rebar Superintendent
G. Parsons, General Foreman-Rebar

Results of Inspection

1. Rebar Problems in the Past

Detailed descriptions of rebar problems that occurred at Midland since 1973, are documented in IE:III Inspection Report No. 76-04. As a result of the in-depth QA inspection performed relative to these problems, by IE:III during April and May, 1976 (76-04) the licensee committed to add and to revise a number of work procedures, and to provide overlay inspections for field rebar installations. Safety related concrete placement work was allowed, by the licensee QA to resume on July 1, 1976 (IE:III Inspection Report No. 76-05). Since, six concrete pours have been inspected by CP QA Engineers and Field Engineers and no deficiencies were identified relative to the rebar placements. These pours were identified as follows:

<u>Area</u>	<u>Date Performed</u>	<u>Cu. Yards</u>	<u>Pour No.</u>
*Pipe Pit Walls	7/2/76	128	A(63? 25)f'
*S ₁ Slab	7/16/76	200	A(632.5)a
S ₃ Slab	7/16/76	60	A(632.5)c
Duct Bank	7/19/76	15	Y(622.0)a
Transfer Tube Slab	7/7/76	30	A(621.75)a
Equip. Hatch Pourback #2	7/21/76	68	CC(652.72)b'
		<u>501 total</u>	

*Bechtel QA Audited on rebar.

2. Recent Rebar Deficiencies

a. General

Four nonconforming items were identified during an overlay inspection of the 345 yard Auxiliary building S₂ slab pour No. A(632.5)b. The overlay inspection was performed by CP field QA personnel on July 26, 1976, subsequent to a review and final acceptance of the installation by Bechtel QC personnel. The nonconforming items were as follows:

- (1) one rebar was improperly cut
- (2) two "L" bars misplaced at depression in slab
- (3) where drawing calls for 8 rebars on two sides and 7 rebars on the other two sides of an opening, installation was 9 on two sides and 6 on the other two sides
- (4) two bars were omitted over beam pocket

Nonconformance Report Nos. QF-110 and QF-111 were issued on July 26, and August 4, 1976 to document these deficiencies.

b. Causes

Since the deficiencies were identified in S₂ Slab rebar placement, CP and Bechtel had conducted extensive investigation on the causes of this repetitive occurrence. The IE:III inspector also discussed the problem with various site management and working level personnel to determine: (1) what were the underlying causes for this latest rebar deficiency, and (2) what corrective action is planned.

The actual causes were identified as follows:

- (1) The Field engineer (FE) and his supervisor applied incorrect detail to situation. Furthermore they did not contact Project Engineering for design interpretation as required.
- (2) The quality control engineer (QCE) went to FE for clarification but did not bring problem up to his supervisor as he had been instructed.
- (3) The Lead QCE did not provide sufficient supervision to responsible QCE who was only at the site for two months.
- (4) The QCE did not mark up drawings, as instructed, during rebar checkings.

c. Corrective Action

The corrective action taken subsequent to the IE:III site inspection were as follows:

- (1) The cognizant Field Engineer in the Auxiliary Building and the Auxiliary Building Lead Civil Engineer were removed from the Project.
- (2) The Lead Civil Quality Control Engineer was removed from the Project.
- (3) The cognizant Quality Control Engineer responsible for the rebar check out has been formally reprimanded.
- (4) Additional training was conducted for (a) reinforcing steel foreman, (b) Civil Field Engineers and Superintendents, and (c) Civil QC Engineers.
- (5) Additional FEs and QCEs were assigned to rebar placement inspections.

REPORT DETAILS

Section II

Prepared by C. M. Erb

Persons Contacted

Individuals contacted during this inspection are listed under the Management Interview section of this report.

Results of Inspection

1. Laydown Areas

The inspector inspected the new storage area for outside laydown. The licensee stated that they were improving about 60 acres with gravel roads and laydown areas which would be enclosed by a chain link fence. The segregation of Q-Listed (safety related) and non-Q-Listed piping spools could then be maintained. The licensee also stated that the laydown area would have piping systems stored in different groups.

2. NSSS Storage Conditions

During this inspection, the reactor recirculation piping was examined and the moisture indicator showed a dry condition internally. These pipe spools are serviced by a B&W (NSSS Supplier) representative monthly. The Core Flooding Tanks were observed covered and resting on suitable dunnage.

3. Solution Treatment of Stainless Steel Cold Bents

The inspector noted that many of the Containment spray spools contained bent areas. An example of this was MK No. 013-S613-7 which was a 6" schedule 40, length of stainless pipe. Solution treatment of cold bent areas of stainless steel piping is required. Review established that the specification for Kellogg supplied stainless steel pipe requires a solution treatment at 1900^o - 2000^oF and that this treatment was performed for the pipe reviewed.