

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-329/80-08; 50-330/80-08

Docket No. 50-329; 50-330

License No. CPPR-81; CPPR-82

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

Facility Name: Midland Nuclear Power Plant, Units 1 and 2

Inspection At: Midland Site, Midland, Michigan

Inspection Conducted: January 1-31, 1980

Inspector: R. J. Cook

*RC Knopfor*3-17-80Approved By: R. C. Knop, Chief,
Projects Section 1*RC Knop*3-17-80Inspection SummaryInspection on January 1-31, 1980 Report No. 50-329/80-08; 50-330/80-08)

Areas Inspected: Pull testing of grouted anchor bolts, failure of Unit 1 reactor vessel anchor bolts and associated hardness testing, examination of site conditions, assembly of Unit 1 reactor vessel internals, presence of fluid found in 350 MCM-3/C-B-11 power cables, and corporate management meeting. This inspection effort involved a total of 50 inspector-hours by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

Persons Contacted

Consumers Power Company Personnel

D. Miller, Site Manager
*J. Corley, QA Section Head, IE & TV
B. Peck, Construction Supervisor
M. Shaeffer, Group Supervisor
D. Keating, QA Group Supervisor
P. Kyner, QA Electrical Supervisor
B. Horn, Group Supervisor QAE
*E. Evans, Field Electrical Engineer

Bechtel Power Corporation Personnel

*E. Smith, Head QA Engineer

B&W Personnel

R. Shope, QC Supervisor
*W. Willman, QC Engineer

Numerous other principal staff and other personnel were contacted during the recording period.

*Denotes those present during the exit interview conducted during the reporting period.

Licensee Action on Previous Inspection Findings

(Open) Unresolved Items No. (329/78-19-05; 330/78-19-05): During the reporting period the Resident Inspector witnessed pull tests on four grouted anchor bolts which had exhibited a voided area around the exposed bolt ends. The pull tests were conducted as per a procedure documented on Bechtel Corporation Field Engineer's Report Form dated December 20, 1979 signed by Mr. J. Betts. The bolts tested were nominally 5/8" diameter. Specification No. 7220-C-306 Revision 3 states that, "5/8" diameter anchor bolts in 4,000 psi concrete should withstand a 2.2 kips longitudinal load and withstand a similar 2.7 kips load when used in 5,000 psi concrete. Bolts for hangers designated 3-1HPC-145-H3 (2 bolts) and 2 1/2 - 1CCB-2-H4, sketch nos. 616-4-11 and 603-7-14 respectively were pulled at 2.2 kips using hydraulic piston no. JSH-123-0A6 and held for one minute. One bolt for hanger designated 12-2GCB-25-H8 (one bolt), sketch no. 611-3-29 was pulled at 2.7 kips and held for one minute using the same hydraulic cylinder. The area at the hydraulic piston used was certified to be $2.761 \pm .003$ square inches. The pressures maintained for load tests of anchors in 4,000 psi concrete were 800 psi and 1,000 psi for the anchors used on 5,000 psi concrete. Calibrated gauge no. N-4 was used for determining the hydraulic pressure. The gauge pressure calibrated on September 21,

1979 by Inland Ryerson Construction Products Company. After the pull test, each of the bolts was examined for any bolt pull-out and/or concrete spaulding. None was detected.

Reportable Deficiencies - 50.55(e) Item

Failure of Reactor Vessel Anchor Bolts

As a result of spontaneous failure of reactor vessel anchor studs no. 3 (inside) and no. 36 (outside) for Unit 1 which were discovered on September 14, 1979 and December 19, 1979, Teledyne Engineering Services was contracted to evaluate the cause of these failures. As a part of this evaluation, Teledyne Engineering Services, performed hardness tests of all the installed intact anchor studs for both Unit 1 and Unit 2 reactor vessels. There were originally 96 studs for each reactor vessel. Teledyne Engineering Services used an Equo-Tip Portable Hardness Tester for these measurements.

A cursory review of the data revealed that six bolts of Unit 1 were within the specification tolerance of 32-38 R Dc Q and 18 bolts in Unit 2 show hardness values greater than 38 R Dc Q.

In addition to the reactor vessels anchor studs, Teledyne Engineering Services performed hardness tests on five steam generator anchor bolts of each steam generator for both units. Each unit has two steam generators. The steam generator studs tested showed localized hardness values between nominally 28.5 and 42.5 R Dc Q.

Stress corrosion cracking is attributed as being the most probably cause for spontaneous failure with a small critical flaw size.

Regional based inspectors are following this matter.

Functional or Program Areas Inspected

1. Site Tours

At periodic intervals during the report period, tours of randomly selected areas of the site were performed. These tours were intended to assess the cleanliness of the site; storage conditions of equipment and piping being used in site construction; the potential for fire or other hazards which might have a deleterious effect on personnel and equipment and to witness construction activities in progress. It was noted that the licensee was improving control of extraneous welding materials such as welding stubs and placement of five blankets.

2. Unit 1 Reactor Vessel Internal Assembly

During the reporting period the Resident Inspector examined and witnessed selected portions of fitting the core support assembly guide blocks. B&W was having some difficulty in maintaining the 0.03 inch levelness requirements specified in B&W Procedure No. FCP-132, Initial Fit-Up of Internals Core Support Assembly, when the core support assembly was engaged with the reactor vessel

alignment keys. This is partially attributed to the reactor vessel being set within drawing levelness requirements but not within the 0.003 inch levelness requirement between parallel mating surfaces of the core support assembly and the reactor vessel. Consumers Power Company generated Nonconformance Report (NCR) No. M-03-4-0-004 addressing the out of alignment condition. B&W generated a Site Problem Report (SPR) No. 13-12-144-00 which also addressed the out of alignment condition. The response to the B&W SPR indicated that 0.005 to 0.006 inch measured misalignment with the core support assembly engaged with the reactor vessel alignment keys was acceptable and were continued on further fit-up of the guide blocks.

During the guide block fitting evolution, communications were established between Consumers Power Company and the B&W factions. However, it could not be determined whether actual or implied procedural requirements (as written and used) were actually violated. Therefore, this is considered an unresolved item pending further review. Unresolved Item (329/80-08-01).

The assembly of the internals lifting device was noted during these evolutions and compared to B&W Drawings 203275E and 203254E with particular emphasis on placement of safety wires. The pendants used in Unit 1 were those used for Unit 2 with the settings adjusted for Unit 1. The pendants for Unit 1 were not available at this time. Final pendant adjustment will be required for both Units 1 and 2 at a later time. After use, the internals lifting device was wrapped with polyethylene and stored in a protected area of the containment building. No discrepancies were noted.

3. Presence of Fluid in 350 MCM - 3/C B-11 Power Cable

As discussed in NRC Inspection Report No. 50-329/79-13, 79-15, 79-27; 50-330/79-13, 79-15, 79-27, the licensee has received 350 MCM Power Cable from Essex which has a fluid substance in one phase. Discussions with the licensee during the report period revealed that additional testing and evaluation of the suspect cable is still being performed. No conclusions as to the usefulness of the cable have been reached at this time.

4. Management Meeting

On January 11, 1980, the Resident Inspector attended a meeting along with other regional personnel, with Consumers Power Company management at their corporate offices located in Jackson, Michigan. Construction matters requiring resolution before issuance of an operating license; NRC inspection program as it relates to the Pre-operational and Power Assention Programs and understanding of the licensee's program for staffing, start-up, and operations of the Midland facility were discussed during the meeting. NRC Inspection Report No. 50-329/80-02; 50-330/80-02 references this meeting in more explicit detail.

Unresolved Matters

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of non-compliance or deviations. One unresolved item, disclosed during this inspection, is discussed in paragraph 2.

Exit Interview

The Resident Inspector met with licensee representatives (denoted under Persons Contacted) on January 17, 1980. The inspector summarized the scope and findings of the inspection effort to date. The licensee acknowledged the findings reported herein.

Attachment: Preliminary Inspection Findings

During fitting of the core support assembly guide blocks for Unit 1, it could not be determined whether procedural requirements (as written and used) were actually violated for B&W Procedure No. FCP-132, initial fit-up of internals core support assembly, steps 260 through 360.

This item is considered unresolved pending further review.

PRELIMINARY INSPECTION FINDINGS

1. LICENSEE Consumers Power Company 1945 West Parnall Road Jackson, MI 49201 Midland Unit 1 (Midland, MI) Midland Unit 2 (Midland, MI)		2. REGIONAL OFFICE U.S. Nuclear Regulatory Commission Office of Inspection & Enforcement, RIII 799 Roosevelt Road Glen Ellyn, IL 60137	
3. DOCKET NUMBERS 50-329 50-330	4. LICENSE NUMBERS CPPR-81 CPPR-82	5. DATE OF INSPECTION THROUGH JANUARY 17, 1980	

6. Within the scope of the inspection, no items of noncompliance or deviations were found.

7. The following matters are preliminary inspection findings:

DURING FITTING OF THE CORE SUPPORT ASSEMBLY GUIDE BLOCKS FOR UNIT 1, IT COULD NOT BE DETERMINED WHETHER PROCEDURAL REQUIREMENTS (AS WRITTEN AND USED) WERE ACTUALLY VIOLATED FOR B&W PROCEDURE NO. FCP-132, INITIAL FIT-UP OF INTERNALS CORE SUPPORT ASSEMBLY, STEPS 260 THROUGH 360.

THIS ITEM IS CONSIDERED UNRESOLVED PENDING FURTHER REVIEW

POOR ORIGINAL

8. These preliminary inspection findings will be reviewed by NRC Supervision/Management at the Region III Office and they will correspond with you concerning any enforcement action.

R. J. Cook
 Nuclear Regulatory Commission Inspector