

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-329/84-16 (DPRP); 50-330/84-16 (DPRP)

Docket Nos. 50-329; 50-330

License Nos. CPPR-81; CPPR-82

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

Facility Name: Midland Nuclear Plant, Units 1 and 2

Inspection At: Midland Nuclear Plant Site, Midland, MI

Inspection Conducted: April 30-May 4, and May 7-11, 1984

Inspectors: C. H. Scheibelhut

*C. H. Scheibelhut*  
Date 5-22-84

V. J. Elebergas

*V. J. Elebergas*  
Date 5-22-84

Reviewed By: R. N. Gardner  
Project Inspector

*RN Gardner*

5/30/84  
Date

Approved By: J. J. Harrison, Chief  
Midland Section

*J. J. Harrison*

5/30/84  
Date

Inspection Summary

Inspection on April 30-May 4, and May 7-11, 1984 (Report No. 50-329/84-16 (DPRP); 50-330/84-16 (DPRP))

Areas Inspected: Routine safety inspection by regional personnel of licensee action on previous inspection findings and evaluation of licensee action with regard to IE Bulletins and Circulars. This inspection involved a total of 132 inspector-hours onsite by two NRC regional inspectors, including 0 inspector-hours onsite during off-shifts.

Results: In the three areas inspected, no items of noncompliance or deviations were identified.

## Details

### 1. Persons Contacted

#### Consumers Power Company (CPCo)

R. J. Landon, Licensing Manager

J. J. Freneau, Nuclear Activities Plant Organization (NAPO)

R. E. Whitaker, Midland Plant Quality Assurance Division (MPQAD)

G. W. Rowe, Site Management Office (SMO)

J. S. Kreple, SMO

T. A. Buczwinski, Technical Department (Operations)

The inspectors also interviewed other licensee and contractor personnel during the course of the inspection.

All of the above attended the exit meeting.

### 2. Licensee Action on Previous Inspection Findings

- a. (Closed) Unresolved Item (329/82-22-07, 330/82-22-07): During a previous inspection, the inspector requested to see QA audits of material traceability. No such audit could be located during the inspection.

Subsequently, Consumers Power Company audit MOI-333-2 dated September 8, 1982, was found and reviewed by the inspector. This audit verified the implementation of controls by Bechtel Power Company which ensure correct application of and supply document traceability for components and materials used for field modification and repair of safety-related equipment. No adverse findings were discovered. As part of combined Bechtel-Consumers Power QA Management Audits of Midland Site Activities, activities relating to material traceability were examined. One such audit, 25.0 AAMA-41 dated July 22, 1982, was reviewed by the inspector. One finding of the audit showed discrepancies in steel identification in the Poseyville lay-down area and at the Standish fabrication shop. A review of Bechtel Inter-Office Memorandum 25.0 AAMA-41 dated November 23, 1982, and attachments to the Memorandum showed that proper remedial, investigative, and corrective actions were taken to resolve the finding. This item is closed.

- b. (Closed) Open Item (329/83-01-02; 330/83-01-02): The licensee determined that in a certain time period (January 1977 through November 1977), Nonconformance Reports (NCRs) had not been processed in complete compliance with Bechtel procedure SF/PSP G-3.2 Appendix A, "Instructions for Preparing the Nonconformance Report." NCRs that were dispositioned "Use as is" or "Repair" had inadequate rationale and references to support the disposition.

A sampling program was initiated to determine the extent of the problem. As a result of the program, the licensee required that all Bechtel civil NCRs issued before June 30, 1980, be reviewed. NCRs with inadequate dispositions were reopened (redispositioned) and technical rationale provided. A total of 876 NCRs were reviewed.

Of this number, 308 were reopened and a proper technical rationale provided. In this repositioning process, no hardware modifications were required nor were any safety implications found. The inspector selected about ten of the NCRs at random and reviewed the actions taken. The review found that the actions taken in all cases was proper. This item is closed.

- c. (Open) Open Item (329/82-22-03; 330/82-22-03): The licensee was questioned as to the status of the seismic reanalysis being performed to provide assurance that the plant electrical conduit and cable tray supports met the seismic requirements for the Midland Plant. This reanalysis was required when the seismic response spectra were revised in 1982.

The following is the status of the program:

1. Conduit, wiring, junction box and pull box supports. There are approximately 13,000 of these supports. The reanalysis of all supports and necessary drawing changes have been made. Approximately 5% require major modifications (e.g., adding new supports, relocating existing supports, adding bracing, etc.). Approximately 20% require minor modifications (e.g., adding weld, replacing clamps with straps, etc.).
2. Cable tray supports. There are approximately 2775 supports. All have been reviewed as follows:

1687 Reanalyzed - need no modification  
6 Reanalyzed - redesign complete  
192 On hold - in unit 1  
890 reviewed but not reanalyzed  
Of these 890:  
320 estimate - no modification  
265 estimate - require modification  
305 no estimate of status at this time.

At this time, it is estimated that a total of 400 supports will require modification. Of these approximately 5% will require major modification (e.g., new supports, relocating supports, adding bracing, etc.). This item remains open pending completion of the program and a review of the data.

- d. (Closed) Item of Noncompliance (329/81-12-09; 330/81-12-10): Corrective action had not been taken on Bechtel Quality Assurance finding SA-97, and Consumers Power Company Audit finding MOI-02-1-06 which identified a lack of approved procedures for rework of items accepted by Quality Control.

The three procedures affected by this item were superseded by a single procedure which has also been superseded by current procedure FPE 9.009, "Installation and Evaluation of Electrical Raceways and Supports." This procedure referenced another procedure FPE 9.900, "Packaging and Documentation of Electrical Raceways and Supports," that was not approved when the item was reviewed earlier this

year. FPE 9.900 was approved March 15, 1984. The inspector reviewed the procedures and concluded that they provide the required control over rework of items previously accepted by quality control. This item is closed.

- e. (Closed) Unresolved Item (329/80-29-01; 330/80-30-01): The contractor damaged the electrical rotor for the Diesel Generator during transfer from storage to the Diesel Generator Building. There were no specific written procedures and no QC involvement in the transfer. The licensee wrote a Quality Action Request which resulted in an NCR to rectify the situation. As a result Project Quality Control Instruction (PQCI) M7.00 Rev. 2 dated April 24, 1984, "Setting and Installation of Rotating and Nonrotating Mechanical Equipment," was revised to include QC verification of manufacturer's handling instructions. (Activity 2.2 on page 14) The PQCI also references Field Procedure FPM 3.00, "Rigging and Hoisting Equipment and Installation Evaluation." This FPM requires a QC engineering evaluation of the handling and installation instructions. This item is closed.
- f. (Closed) Unresolved Item (329/78-04-01; 330/78-04-01): The electrical raceway system was not included on the "Q" list, and therefore was procured as non-safety-related equipment. In a letter dated August 21, 1979, the Office of Nuclear Reactor Regulation (NRR) of the NRC determined that Class 1E cable raceways and raceway supports were to be considered as safety-related. The licensee developed a plan of action to upgrade those portions of the raceway system that were not procured as safety-related equipment. All portions of the Class 1E raceway system had been and are being installed as safety-related. The licensee also revised the station "Q" list, pertinent technical specifications, and the Midland FSAR to reflect the fact that the Class 1E cable raceway system was to be procured as safety-related equipment ("Q" listed).

The plan to upgrade those portions of the Class 1E cable raceway system that had been procured as non-safety-related was as follows:

1. Procure a letter from the manufacturer of the cable raceway system components (Husky Products, Inc.) that the components were manufactured using an acceptable quality control program. In a letter dated January 7, 1980, Husky Products, Inc. certified that all cable trays furnished for the Midland Plant were manufactured using the same quality control procedures specified for "Q" listed material furnished to five contemporary nuclear projects. (Clinton, South Texas, Comanche Peak, St. Lucie, and River Bend.) Audits of the Husky Products activities had been made by all five of the purchasers.
2. A destructive examination program was designed to verify the adequacy of the supports and cable trays. The program included:
  - Shear strength tests of support spot welds
  - Shear strength tests of tray spot welds

- Yield stress tests of support base metal
- Yield stress tests of tray base metal
- Ultimate capacity tests of support fittings.

The sampling procedure selected representative samples of material for tests. The number of samples was determined on a statistical basis to give a 95% confidence that at the fifth percentile the parameter being tested (i.e., shear strength, tensile strength, etc.) was above design strength times the appropriate design safety factor. A total of 313 spot welds were tested, 141 fittings were tested, and 122 tensile tests were made. The results of the testing program showed that the material easily exceeded the required safety factors in all cases.

The inspector reviewed all of the documents referred to in the narrative above including the test report and concludes that the components in the Class 1E raceway system are adequate. This item is closed.

- g. (Closed) Item of Noncompliance (329/81-11-07; 330/81-11-06): It was found that the licensee failed to translate the markings of instrument sensing lines into specifications, drawings, procedures, and instructions as required by IEEE Standard 279.

The inspector reviewed the following documents:

- Bechtel Specification J-218(Q) Rev. 23, dated February 21, 1984, "Technical Specifications for Installation of Field-Mounted Instrumentation for Nuclear Service"
- Bechtel Field Instruction FII 1.150, Rev. 4, dated April 16, 1984, "Instructions for System Completion of Instrumentation"
- Attachment E to FII 1.150, "Inspection Checklist"
- MPQAD Project Quality Control Instruction (PQCI) PI-1.40, Rev. 10, dated March 17, 1984, used for inspection of new work
- MPQAD PQCI PI 1.90, Rev. 1, dated March 7, 1984, used for reinspection activities.

The review showed that the licensee had translated the tagging requirements of IEEE 279-1971 into the specifications, procedures, and instructions. The licensee stated that all previously installed instrument sensing lines were now tagged. This was verified by the inspector on a sampling basis in the field. This item is closed.

- h. (Closed) Unresolved Item (329/79-12-08; 330/79-12-08): A previous review of Bechtel specification M-151A(Q) for the Seismic Category I Heating, Ventilating, and Air Conditioning Equipment and Ductwork installation showed that the specification did not adequately specify the environmental conditions which the gaskets, sealants, and flexible connections should withstand without deleterious

effects; neither was the contractor required to furnish certifications. In subsequent inspection reports (50-329/79-20; 50-330/79-20 and 50-329/80-30; 50-330/80-31) it was reported that the specification had been revised and acceptable certification had been received from the manufacturers as to the environmental conditions those components could withstand. However, the environmental requirements for the materials were not available.

The licensee addressed a quality action request (QAR) F-052 to Bechtel to obtain the information. The response to the QAR and a subsequent request for information (for clarification of the QAR) has produced the required environmental conditions on which the requirements are based.

First, in the specification for each piece of equipment (i.e., fan, damper, filter housing, etc.), the environmental conditions, including radiation, that the equipment will experience are given.

Second, Consumers Power Company's Equipment Qualification Report (sent to the NRC with CPCo letter Serial 17115, dated April 30, 1982) lists radiation levels to which equipment needs to be qualified on a room by room basis. Also Bechtel specification J-1546, Rev. 1, "Environmental Conditions by Plant Location," gives similar information.

The certified capabilities of the gasket seals, duct sealants, and flexible connections were compared with this data and the following conclusions drawn:

The duct sealants are qualified for a 40 year life plus 100 days accident doses. All other materials are qualified for a 20 year life plus accident dosage. The areas where the other materials are not qualified for the 40 year life plus accident dosage are some of the ESF pump rooms and the areas near the reactor building recirculating air cooling units. The ESF pump rooms are served with unit coolers located within the rooms. Therefore a failure of a gasket, seal, or flexible connection will not jeopardize its safety functions or lead to the spreading of radioactive contamination. Only two of the eight reactor building recirculating air cooling units have ductwork which is provided to obtain better air distribution during normal plant operation. This ductwork is installed without gaskets, and/or duct sealant because the small leakage is inconsequential. It was also pointed out that all flexible connections will be changed periodically during the life of the plant because of normal wear and flexing.

A review of the environmental conditions to which HVAC gaskets, seals, sealants, and flexible connections will be exposed and a comparison with the certified capabilities of these materials leads to the conclusion that the licensee has substantiated the acceptability of the materials in the HVAC systems. This item is closed.

1. (Closed) Item of Nocompliance (329/83-06-01; 330/83-06-01): Babcock and Wilcox (B&W) procedures called for conducting supplier audits at least every twelve months. It was found that the mean elapsed time between an audit and the placement of a purchase order was twenty-seven months and the maximum elapsed time was thirty-four months.

B&W acts as a subcontractor to Bechtel, the contractor, in the construction of the Midland Plant. B&W procures only weld filler material (weld rod) with Bechtel procuring all other construction supplies. Therefore B&W deals only with a limited number of suppliers. Suppliers of weld filler material may elect to obtain an American Society of Mechanical Engineers (ASME) Quality System Certificate (Materials). In this case, ASME periodically audits the supplier to ensure compliance with an approved quality assurance program.

B&W has revised and clarified their procedures to ensure that weld filler metal is purchased only from suppliers holding a valid ASME certificate. This removes the necessity for periodic B&W audits of their suppliers.

B&W Quality Assurance Policy 9-QA-07, Rev. 2, dated April 6, 1983, "Control of Purchased Material and Services," provides for the following:

- Suppliers of weld filler material must be on the "Approved Suppliers List" and hold a valid ASME Quality System Certificate (Materials)
- B&W is not required to audit Certificate Holders
- Suppliers are put on the approved list only after B&W QC review and evaluation of the Certificate
- The review and evaluation is conducted in accordance with Quality Control Procedure 9-QPP-107, Rev. 4, dated March 30, 1983, "Supplier Quality Evaluation."

B&W Quality Control Procedure 9-QPP-118, Rev. 2, dated August 24, 1982, "Nuclear Proposals and Contracts," requires Quality Assurance to approve the certified material test reports (CMTRs) before the material is shipped. This step indirectly assures that the supplier's certificate is still valid.

The inspector determined that weld filler material procured by B&W in the past was supplied by ASME material certificate holders on an approved suppliers list. Therefore, there was no safety impact on the quality of the plant caused by the previous lack of vendor audits. This item is closed.

- j. (Closed) Item of Noncompliance (329/80-20-01; 330/80-21-01): Inspections revealed that a lot of weld filler metal (60,000 lb of E7018 arc welding electrodes) was procured without specifying the applicable ASME code for the material. Further inspection revealed

that an attachment to the purchase order would have specified the applicable code. However, the relation between the purchase order and the attachment could only be based on circumstantial evidence; i.e., amount of rod, rod diameters, contents of the CMTR, etc.

The CMTRs received with the rod indicated that the material met all of the requirements of the applicable code (SFA 5.1) and so stated the fact.

Because of this and the improvements in the QA program made since the purchase, we conclude that appropriate action has been taken to preclude repetition and the item is closed.

- k. (Closed) Unresolved Item (329/82-22-22; 330/82-22-22): Carbon Steel Products Co. was an approved supplier to Bechtel of materials used in construction of safety-related systems. During an inspection, no documents could be found that showed that Carbon Steel Products material suppliers either had valid ASME Quality System Certificates (Materials) or were audited by Bechtel to determine if the suppliers had adequate quality assurance programs.

The licensee produced three Bechtel audits of Carbon Steel Products Co. They were dated June 19-20, 1979, August 30, 1979, and June 3, 1980. The inspector's review of the audits showed that Carbon Steel Products material suppliers either had valid ASME Quality System Certificates (Material) or were on Bechtel's approved supplier list. Suppliers on Bechtel's list are audited yearly by Bechtel. The review also found that deficiencies discovered during the audits were satisfactorily resolved. This item is closed.

- l. (Open) Item of Noncompliance (329/82-22-23; 330/82-22-23): The licensee discovered that approximately 3600 feet of ASTM A-500 Grade B material had been procured from subvendors through a vendor. It was not known if the subvendors had an ASME Quality System Certificate (Material) or were on Bechtel's approved suppliers list. This condition was addressed on Bechtel Nonconformance Report NCR 3266, dated January 23, 1981. However, the NCR (page 8) granted a provisional release for use of the material. Subsequent investigation by Bechtel qualified all of the material for use in Class 2 and Class 3 hangers. However, all of the material could not be qualified for use in Class 1 hangers and the measures taken to prevent Class 2 and Class 3 material from being used in Class 1 hangers were not adequate.

Page 11 of the NCR requires that all material that does not meet ASME NF Criteria for Class 1 be removed from Class 1 hangers and replaced with material that does meet the criteria. This work has not been done. Therefore the item remains open until the work is completed and a review shows that the NCR was properly closed.

- m. (Open) Item of Noncompliance (329/81-11-04; 330/81-11-03): While observing electrical work activities, the inspectors noted 14 instances in which cable trays were not installed in accordance with the separation criteria of the Midland FSAR. A review of pertinent



installation drawings and discussions with the licensee disclosed deficiencies in the identification and control of nonconforming conditions regarding separation between cable trays, and lack of requirements for installation of qualified enclosures or barriers when required separation cannot be attained.

A follow up inspection (Report 50-329/82-11; 50-330/82-11) revealed that the licensee has corrected deficiencies in the drawings and procedures, except that no requirement for inspection of the metal tray covers was included in the Project Quality Control Instruction (PQCI) 7220/E-3.0, "Final Area Completion Activities of Electrical Installation." A review of Rev. 6 of this procedure shows that this requirement now is included (item 3.6). No documentation, however, could be found in the subject file to conclude that the required separation has been actually provided in the 14 instances identified by the inspectors.

The item remains open until it is verified in the Construction Completion Program that the separation between trays conforms to the established criteria.

- n. (Open) Item of Noncompliance (329/82-18-01): The inspector noted that separation between raceways IDH058 and IBFF001 did not conform to the criteria in the Midland FSAR, and the drawings did not include requirements for qualified enclosures or barriers.

In response to the inspection findings, the licensee informed the NRC that drawings have been updated and procedural requirements established, to provide qualified barriers to assure that the separation criteria are met. A Bechtel Nonconformance Report (NCR) S-1595 has been issued to provide appropriate barriers between subject raceways but the work has not been completed. The item remains open until it is verified in the Construction Completion Program that the required separation has been provided.

- o. (Closed) Unresolved Item (329/81-20-01; 330/81-20-01): The inspectors observed that the licensee was installing cable tray dividers in trays already containing cables. The inspectors were concerned how the licensee is going to assure that the installed cables are retained on the proper side after installation of dividers. Also of concern was how the licensee is going to assure that the thermal loading has not been exceeded because of reduction in the effective cable tray area.

In response to the NRC's concerns, the licensee issued a Quality Action Request (QAR) F-165. A response by Bechtel to QAR F-165, documented in the subject file, states that Drawing Change Notices (DCNs) were issued to add the dividers on the drawings and that the existing cables were moved to the side of the tray which retained the original tray designation. Also, the cross-sectional area of the tray on each side of the divider is entered into the circuit and raceway schedule, drawing E-36, and the normal process of determining tray fill via the EE553 computer program applies to each side of the tray. Based on the above facts, the item is closed.

No items of noncompliance or deviations were noted.

3. Evaluation of Licensee Action with Regard to IE Bulletins

(Closed) IE Bulletin No. 83-08 (329/83-08-BB; 330/83-08-BB): "Electrical Circuit Breakers With an Undervoltage Trip Feature in Use in Safety-Related Applications Other Than the Reactor Trip System."

As documented in the subject file, the licensee has determined, based on discussion with Bechtel, that circuit breakers used at the Midland Plant do not utilize a mechanical undervoltage trip attachment as identified in the subject bulletin. Instead, the breakers are tripped electrically by independent undervoltage relays. This item is closed.

No items of noncompliance or deviations were noted.

4. Evaluation of Licensee Action with Regard to IE Circulars

a. (Closed) IE Circular 78-15 (329/78-15-CC; 330/78-15-CC): "Tilting Disk Check Valves Fail to Close in a Vertical Position."

The Anchor Darling Valve Company identified a condition where a tilting disk check valve failed to close with gravity because it was installed in a vertical rather than horizontal pipeline. It was noted in the circular that similar problems could be expected from tilting disk check valves manufactured by others and consideration should be given to the importance of verifying proper orientation.

In November of 1978, Bechtel stated that they checked the systems containing Anchor Darling check valves and found no misapplication.

On September 2, 1983, the licensee notified the NRC of a 10 CFR 50.55(e) condition. Ten of sixteen check valves in the Class 2 Component Cooling Water System were installed in vertical pipe runs. The check valves were lift-type check valves that would not function in the vertical position. Management Corrective Action Request (MCAR) 72 was generated as a result. As part of the corrective action, all "Q" listed check valves that may not function when installed in a vertical run of piping were identified. These were reviewed against the applicable piping isometric drawings. No further incorrect installations were identified. This item is closed.

(Closed) IE Circular 81-06 (329/81-06-CC; 330-81-06-CC): "Potential Deficiency Affecting Certain Foxboro 10 to 50 ma Transmitters."

As discussed in Report 50-329/84-06; 50-330/84-06, the inspectors review of the documentation in the subject file did not allow a positive conclusion that no subject transmitters are used in the Midland Plant. A confirming note, dated May 10, 1984, from the licensee's cognizant personnel is now in the file, and it positively states that no safety-related transmitters were purchased from Foxboro. Only the non-safety-related control systems use Foxboro transmitters, and these are 4 to 20 ma units. This item is closed.

- c. (Closed) IE Circular 76-02 (329/76-02-CC; 330/76-02-CC): "Relay Failures-Westinghouse BF (ac) and BFD (dc) Relays."

The inspectors review (Report 50-329/80-31) of the subject file revealed telephone confirmation notes from Bechtel and B&W, stating that the subject relays are not used in the Midland Plant. The item, however, was kept open pending a review of a followup letter from Bechtel as requested by the licensee in a letter, Serial 2725, dated September 3, 1976. Bechtel's response, BLC-3312, dated November 16, 1976, is now in the subject file, and it confirms the information given on the telephone that no Westinghouse BF or BFD relays were installed or are planned to be installed in safety-related systems of the Midland Plant. In addition, as stated in an internal memo, Serial 27783, dated December 28, 1983, the licensee has reviewed the "Q"-listed purchase orders and the field purchased electrical equipment list and has confirmed that no subject relays have been purchased for use at Midland. This item is closed.

No items of noncompliance or deviations were noted.

5. Exit Interview

The inspectors and Midland Site Senior Resident Inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on May 11, 1984. The Senior Resident Inspector summarized the scope and findings of the inspection. The licensee acknowledged the inspectors' findings.