



Consumers
Power
Company

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February 25, 1983

82-16 #2

Mr J G Keppler, Regional Administrator
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND NUCLEAR COGENERATION PLANT -
DOCKET NOS 50-329 AND 50-330
POTENTIAL 50.55(e) REPORT CONCERNING
PROCURED ELECTRICAL EQUIPMENT
FILE: G.4.9.72 SERIAL: 20716

Reference: J W Cook letter to J G Keppler, Serial 19130, dated December 30,
1982

This letter, as was the referenced letter, is an interim report on a potential
50.55(e) condition concerning delivered, safety-related electrical equipment
not meeting project requirements. Attachment A provides a description of the
problem and the overall corrective actions to resolve this issue.

Another letter, either interim or final, will be sent on or before May 13, 1983.

James W. Cook

WRB/MJS/lr

Attachment A: MCAR-66, Interim Report 2, dated February 17, 1983

CC: Document Control Desk, NRC
Washington, DC

RJCook, NRC Resident Inspector
Midland Nuclear Plant

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PDR ADOCK 05000329
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Bechtel Associates Professional Corporation

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SUBJECT: MCAR 66 (Issued December 30, 1982)
Deficiencies Associated with Workmanship Conditions on
Electrical Control Panels and Cabinets Supplied by
Various Vendors

INTERIM REPORT 2

DATE: February 17, 1983

PROJECT: Consumers Power Company
Midland Plant Units 1 and 2
Bechtel Job 7220

Introduction

This report provides interim status and the course of corrective action required pursuant to MCAR 66.

Description of Deficiency

Unacceptable workmanship conditions, such as insufficient solder, broken wire strands, damaged wire insulation, leads pulling from lugs, loose identification tags and markers, use of improper wire lugs, and improper crimping have been identified on electrical control panels and cabinets supplied by various suppliers.

Summary of Investigation and Historical Background

Approximately 30 discrepancy reports [nonconformance reports (NCRs) and quality action requests (QARs)] have been written in the last 2 years on electrical equipment as a result of MPQAD overinspections using Consumers Power Company Project Inspection Plan 01-E-7B. See Attachment 1 for a list and description of the NCRs/QARs associated with this MCAR.

Analysis of Safety Implications

A case-by-case analysis of safety implications is under evaluation and will be provided in the next interim report. As of this report, there is no basis to conclude an impact on safety of operations of the Midland plant. (Reference MCAR Recommended Action Item A.2.)

Probable Cause

The cause for the deficiencies is to be investigated and included in a future report. (Reference MCAR Recommended Action Items B and C.)

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MCAR 66 (Issued December 30, 1982)

Interim Report 2

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Corrective Action

A task force has been established to investigate and resolve MCAR 66. The task force charter is as follows:

- 1) Review the findings from MPQAD's (Plan 01-E-7B) overinspections of electrical control panels and cabinets, and develop recommended plans of action for the Midland project and other divisional departments to avoid recurrence on future Midland plant purchase orders. (Reference MCAR Recommended Action Items B.2, B.3, C.1, and C.2.)
- 2) Review and provide concurrence with project engineering dispositions so that there is a consistent approach used to correct problems on existing hardware and to prevent problems on future work. Based on that review, the task force will produce a checklist that can be used to summarize the deficiencies for each purchase order. Project engineering, in support of the task force, will review each of the NCRs and QARs and summarize the deficiencies noted on individual checklists for each purchase order. (Reference MCAR Recommended Action Items A.1 and A.2.)
- 3) Develop a list of considerations to be used in evaluating the individual purchase orders. The task force will then review each purchase order affected by this MCAR against the evaluation checklist (Step 2) and summarize the strengths and weaknesses of each purchase order. (Reference MCAR Recommended Action Items B.1 and B.2.)
- 4) Identify the root causes of the workmanship deficiencies and develop plans for corrective action. (Reference MCAR Recommended Action Items B.2, B.3, C.1, and C.2.)
- 5) Prepare a summary of corrective actions for individual purchase orders under Plan 01-E-7B where there will be future releases or where there is time in the fabrication process on existing items to implement changes. The Midland project will review, concur with or resolve, and implement the corrective actions. (Reference MCAR Recommended Action Items B.2, B.3, and C.2.)
- 6) Develop a list of generic actions for purchase orders based on attributes other than those covered by Plan 01-E-7B. This list will be developed principally from the purchase order checklist and problem summary. The Midland project will implement the generic actions. (Reference MCAR Recommended Action Item C.2.)

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As of the date of this interim report, several corrective actions have been initiated or completed.

- a) On near-term equipment deliveries where fabrication is complete or nearly complete, a comprehensive plan of shop inspection coupled with a parallel MPQAD in-shop overinspection to detect and correct workmanship problems before shipment is being implemented.
- b) An investigation to summarize the deficiencies noted on each of the NCRs/QARs has been completed and is included in this report as Attachment 2. Further investigation is being conducted to identify the deficiencies that are workmanship related. The results of this investigation will be provided in the next interim report.

Reportability

This condition was reported to the NRC by Consumers Power Company as potentially reportable on December 3, 1982.

Submitted by:

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for

J.G. Kovach
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Approved by:

Tom Anderson

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Concurrence by:

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for

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Concurrence by:

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E.H. Smith
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Concurrence by:

M.A. Dietrich

for

M.A. Dietrich
Project Quality Assurance
Engineer

- Attachments: 1. List of NCRs/QARs Under the Scope of MCAR 66
2. Summary of Deficiencies for MCAR 66

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LIST OF NCRs/QARs UNDER THE SCOPE OF MCAR 66

NCR/QAR	Purchase Order Number and Vendor
1) M01-9-1-097	J-201(Q), Magnetics
2) M01-9-1-114	E-51(Q), Solidstate Controls Inc.
3) M01-9-1-095	Babcock & Wilcox
4) M01-9-0-075	J-201(Q), Magnetics
5) M01-9-1-075	M-18(Q), Delaval
6) M01-9-0-064	M-118A(Q), EBV Systems, Inc.
7) M01-9-0-066	M-118A(Q), EBV Systems, Inc.
8) M01-9-0-068	M-169(Q), Westinghouse
9) M01-9-1-008	E-51(Q), Solidstate Controls, Inc.
10) M01-9-0-063	E-11(Q), Solidstate Controls, Inc. E-19(Q), Solidstate Controls, Inc. E-51B(Q), Solidstate Controls, Inc.
11A) M01-9-0-071	E-205(Q), ITE
11B) QAR F-010	E-6(Q), General Electric
12) M01-9-1-024	M-150(Q), Mine Safety
13) QAR SD-332	J-207(Q), Vitro J-275(Q), Vitro J-281(Q), Bendix J-284(Q), Comsip E-6(Q), General Electric E-7(Q), ITE M-18(Q), Delaval M-150(Q), Mine Safety M-169(Q), Westinghouse
14) M01-9-1-128	J-201(Q), Magnetics
15) M01-9-1-136	M-18(Q), Delaval
16) M01-9-1-129	J-201(Q), Magnetics
17) M01-9-1-140	E-7(Q), ITE
18) M01-9-1-142	E-7(Q), ITE
19) QAR SD-382	Voided
20) QAR F-007	E-7(Q), ITE
21) M01-9-0-067	M-150(Q), Mine Safety
22) QAR F-070	E-51(Q), Solidstate Controls, Inc.
23) M01-6-1-043	E-7(Q), ITE
24) QAR F-114	E-19(Q), Solidstate Controls, Inc.
25) M01-9-1-120	Voided
26) M01-9-1-139	E-7(Q), ITE
27) M01-9-1-150	Babcock & Wilcox
28) QAR F-133	Babcock & Wilcox
29) M01-9-1-137	Voided
30) M01-9-1-151	M-169(Q), Westinghouse
31) M01-9-2-082	Babcock & Wilcox
32) M01-9-2-150	J-275(Q), Vitro
33) M01-9-2-139	M-18(Q), Delaval

SUMMARY OF DEFICIENCIES FOR MCAR 66

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Deficiency	NCR/QAR Affected
a. Cut, nicked, broken strands	3, 9, 10, 11A, 11B, 14, 27, 28
b. Strands outside lug barrel	11A, 11B, 14
c. Undersize/incorrect type wiring	5, 8, 30
d. Unidentified wiring	8, 30
e. Minimum bend radius violation	9, 24
f. Conductor not terminated	2
g. Conductor pulled out of termination	2, 4, 7, 14, 18
h. Conductor outside wireway/support problem	5, 7, 22, 30
i. Conductor insulation inside lug barrel	14
j. Conductor insulation damaged	16, 23*, 32*
k. Conductor not visible past lug barrel	18
l. Loose terminations	11A, 11B, 12, 14, 16, 17, 18, 24, 26
m. More than two lugs on a terminal	5, 10, 21
n. Class 1E and non-Class 1E apparently on same terminal	5
o. Color code violations	5, 7, 8, 15, 30, 32
p. 6-inch separation violations	1, 5, 14
q. Lugs applied without proper tools	9, 12
r. Incorrect size lugs/incorrect type lugs or terminations	5, 8, 10, 11A, 12, 13, 20, 22, 27, 28, 30
s. Excessive/inadequate solder in lugs	14
t. Terminal block ID missing/incorrect	5, 7, 8, 30
u. Terminal block barrier missing/broken	27, 28, 31*
v. Missing/inadequate inspection criteria	6, 7
w. Appearance/workmanship	5, 7, 9, 15, 16, 24, 32

*Because of field work