



Consumers  
Power  
Company

James W Cook

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April 12, 1983

82-01 #5

50-329  
50-330

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

MIDLAND ENERGY CENTER PROJECT  
DOCKET NOS 50-329 AND 50-330  
DEFICIENCIES IN ELECTRICAL ACCESSORIES ASSOCIATED  
WITH SAFETY-RELATED MATERIAL REQUISITIONS  
FILE: 0.4.9.57 SERIAL: 22171

References: J W Cook letter to J G Keppler, Main Steam Isolation Valves,  
Final Report, Serial 17558, Dated July 30, 1982

The referenced letter was the final 50.55(e) report concerning deficiencies associated with main steam isolation valve actuators, logic cabinets and control panel inserts. On March 11, 1983, W R Bird notified R Gardner that CPCo was revising MCAR 55 to include additional equipment identified, as a result of corrective action follow up, to have a similar deficiency. This letter provides the revised MCAR and an interim report as to the status of additional corrective action to resolve this issue.

Another report, either interim or final, will be sent on or before July 15, 1983.

*Amooney for J.W. Cook*

JWC/WRB/lr

Attachments: (1) MCAR-55, Revision 1, dated March 11, 1983  
(2) MCAR-55, Revision 1, Interim Report 5, dated April 5, 1983

CC: Document Control Desk, USNRC  
Washington, DC

RJCook, NRC Resident Inspector  
Midland Nuclear Plant

OC0483-0005A-MP01

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PDR ADOCK 05000329  
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APR 15 1983

CC CBechhoefer, ASLB Panel  
FPCowan, ASLB Panel  
JHarbour, ASLB Panel  
AS&L Appeal Panel  
MMCherry, Esq  
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FJKelley, Esq, Attorney General  
SHFreeman, Esq, Asst Attorney General  
WHMarshall  
GJMerritt, ESQ, TNK&J  
INPO Records Center

QUALITY ASSURANCE PROGRAM  
MANAGEMENT CORRECTIVE ACTION REPORT  
MCAR-1

Attachment 1  
Serial 22171  
82-01 #5  
Page 1 of 2

108181

JOB NO.: 7220

Q NO.: \_\_\_\_\_

REPORT NO.: 55-Revision 1

DATE: 3/11/83

**I DESCRIPTION\*** (Including References):

Main Steam Isolation Valves (MSIVs) were supplied by Fluid Systems Division (FSD) of Gulf & Western Manufacturing Company under Purchase Order 7220-M-118A(Q) issued 8/22/74. The design for the electrical components associated with these valves does not appear to conform to the channel separation criteria in Reg. Guide 1.75 to the extent required by the FSAR; also, satisfactory seismic qualification reports have not been submitted for these electrical components. The electrical components of concern associated with the MSIV were identified as follows: (con't. on page 2)

**RECOMMENDED ACTION\*** (Optional):

- 1) Take the appropriate corrective action to make the design and the hardware conform to the requirements of Regulatory guide 1.75 and IEEE standard as committed in FSAR.
- 2) Obtain the required equipment seismic qualification.
- 3) Add the above mentioned Class 1E electrical components associated with the MSIVs to the Qualification Test Status Report (QTSR) as outstanding items to be qualified.

(con't. on page 2)

REFERRED TO: ☒ Engineering ☐ Construction ☐ QA Management ☐ \_\_\_\_\_  
☐ Procurement

Revision 1 was communicated to the NRC  
by WRBird on 3/11/83.

ISSUED BY: B. R. Reia 3/14/83  
for Project QA Engineer Date

**II REPORTABLE DEFICIENCY:**

☐ NO

Potentially  
reportable  
☒ YES

NOTIFIED CLIENT: 1/6/82 (original issue)

Alvin Brown 3/14/83  
Project Manager Date

**III CAUSE:**

CORRECTIVE ACTION TAKEN:

AUTHORIZED BY: \_\_\_\_\_  
Date

AAPD DISTRIBUTION  
MGR OF CONSTRUCTION  
MGR OF ENGINEERING  
MGR OF PROCUREMENT  
MGR OF PROJ OPERATIONS  
MGR OF QUALITY ASSURANCE  
CONSTRUCTION MGR  
ENGINEERING MGR  
SUPPLIER QUALITY MGR  
QE SUPERVISOR

PROJ DISTRIBUTION  
CHIEF CONSTR QC ENGR  
CLIENT  
PFOCE  
PROJECT CONSTR MGR  
PROJECT ENGINEER  
PROJECT MGR  
PROJ PROCUREMENT MGR  
SITE MGR

OTHER DISTRIBUTION  
MGR OF QA - TPO  
GPD - QA MGR  
LAPD - QA MGR  
SFPD - QA MGR

FORMAL REPORT TO CLIENT  
(If Section II Applies)

\_\_\_\_\_ Date

CORRECTIVE ACTION IMPLEMENTED

VERIFIED BY \_\_\_\_\_

Project QA Engineer Date

\*Describe in space provided and attach reference document.

I. DESCRIPTION (continued)

- 1) Actuator, limit switches and wiring
- 2) Actuator terminal box and conduits
- 3) Safety-related actuator solenoid valve
- 4) All components and wiring of the logic cabinets and control panel inserts, except for the pressure transducer digital readout.

Appendix A1 to Specification 7220-M118A(Q), ¶1.19.20, states:

The equipment included in this specification shall be designed, built, tested, and shall conform in accordance with the latest applicable AGMA, ANSI, ASTM, IEEE, and NEMA Standards.

Subsequent review by Project Engineering of purchases other than valve orders revealed that electrical accessories/devices were procured without having specified the proper requirements. In some instances the vendors claim they were not aware that these devices perform a safety function, and therefore, they did not supply these devices as Q-equipment. However, these devices have been designated and wired by Bechtel as Class 1E equipment.

I. RECOMMENDED ACTION (continued)

- 4) Determine why qualification for the electrical components was not detected by MCAR 25 re-review. Add to the QTSR any other deficiencies pertinent to equipment qualification identified on NCRs.
- 5) Engineering shall determine what other purchases this specification or similar valve specifications for electrically operated Q-listed valves were used in which associated electrical components were purchased with the valves. Engineering shall review the identified purchases to ensure that the seismic qualification documentation and electrical separation requirements satisfy the FSAR commitments, and take appropriate corrective action as required.
- 6) In order to preclude recurrence, Engineering shall determine, identify and define the root cause of this problem.
- 7) Define and establish the required guidelines for specifying Class 1E equipment. These guidelines should be used to develop a list to include all Q-equipment/instruments/devices.
- 8) Each discipline (Mechanical, Control Systems, Electrical, Civil, Nuclear, and Architectural) is requested to review its MRs and specifications (per guideline of Item 7 above) to ensure that equipment and accessories are specified in accordance with project requirements.
- 9) Based on the results of the review of Item 8 above, develop a plan to ensure that safety related design uses only Class 1E devices/equipment or provides equipment isolation as required.
- 10) All of the above review shall be properly documented and auditable.



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Attachment 2  
Serial 22171  
82-01 #5

## Management Corrective Action Report (MCAR)

Subject: MCAR 55, Revision 1

Deficiencies in electrical accessories associated with safety-related material requisitions.

Interim Report 5

Date: April 5, 1983

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

### Description of Deficiency

The initial scope of the MCAR 55 included main steam isolation valves (MSIVs) and actuators supplied by Energy Products Group (EPG), a division of Gulf and Western Manufacturing Company under Purchase Order 7220-M-118A(Q). Major safety-related electrical components of the MSIV system (the actuators, logic cabinets, and the control panel inserts) were found to be nonconforming to the separation criteria of Regulatory Guide 1.75, Quality Assurance Program, as required by 10 CFR 50 Appendix B, or ANSI 45.2 and the project seismic requirements.

The scope of MCAR 55 has been expanded as a result of project's commitment to review safety-related material requisitions for the similar nonconformances. A review of four additional equipment packages [M-125C(Q) nuclear stainless steel valves 150 through 400 pound ratings 2-1/2-inch and larger, M-149(Q) air handling units, M-150(Q) air filtering units, and M-154(Q) HVAC isolation valves] that include electrical accessories has revealed that some non-Class 1E devices have been wired into Class 1E circuits.

### Summary of Investigation and Historical Background

As a result of MCAR 55, further review was conducted for selected safety-related material requisitions. Contacts with four equipment package vendors and review of available documentation confirmed that some non-Class 1E devices have been wired into Class 1E circuits.

### Analysis of Safety Implication

A detailed analysis of safety implication was performed for the MSIVs in previous MCAR 55 reports. Detailed analysis for each purchased item of the four additional equipment packages has not been performed and will be addressed in future reports. Potential safety concerns exist for some of these systems to perform their safety function as described in applicable FSAR sections because the integrity of the Class 1E power and control

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MCAR 55, Revision 1  
Interim Report 5  
Page 2

circuits may be degraded by the inclusion of non-Class 1E devices if not properly isolated.

#### Probable Cause

Preliminary investigation of the problem indicates:

- a. Some material requisitions for safety-related equipment do not directly reference the requirements of Regulatory Guide 1.75 and IEEE-384 regarding identification and separation of the Class 1E and non-Class 1E functions and devices.
- b. Some vendors provided non-Class 1E devices for functions which they understand to be nonsafety-related.
- c. Vendor documents frequently do not distinguish between Class 1E and non-Class 1E functions and devices.
- d. Electrical schemes and control logics for this equipment are usually developed on the assumption that the electrical accessories provided as part of safety-related material are Class 1E.

#### Corrective Action

All recommended corrective actions associated with the original issue of MCAR 55 related to the MSIVs have been completed except for recommended Action 5. It is now included under the new recommended Action 8 to review all safety-related material requisitions that include procurement of electrical components and accessories for similar potential nonconformances and deficiencies.

The following action plan is being developed to resolve the expanded scope of MCAR 55.

- a. Develop a checklist for review of safety-related material requisition requirements and vendor design adequacy.
- b. Review all safety-related material requisitions to the checklist.
- c. Review vendor electrical design (those designs where both Class 1E and non-Class 1E components are present) for adequacy and clarity based on system functional requirements.

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Page 3

- d. Review Bechtel electrical design (those designs where both Class 1E and non-Class 1E components are used in vendor design) interface with vendor electrical design.
- e. Identify any inconsistencies. Qualify vendor components, modify vendor design and/or Bechtel interface design.
- f. Development of a list identifying all safety-related components will be addressed in future interim reports.

Reportability

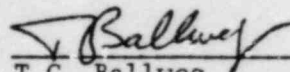
The final report on MCAR 55, issued July 28, 1982, committed to the further reviews of equipment not covered in either MCAR 55 or MCAR 46. On March 11, 1983, Mr. W.R. Bird of Consumers Power Company notified Mr. R. Gardner of the NRC that deficiencies in electrical accessories/devices associated with other equipment had been identified.

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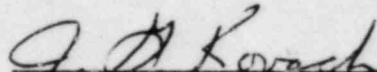
MCAR 55, Revision 1  
Interim Report 5  
Page 4

Submitted by:

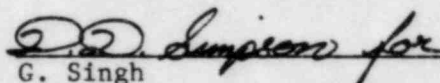


T.G. Ballweg  
Mechanical Group Supervisor

by

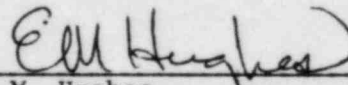


J.G. Kovach  
Electrical Group Supervisor



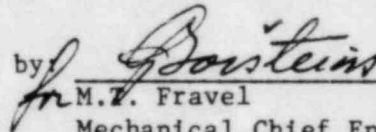
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Control Systems Group Supervisor

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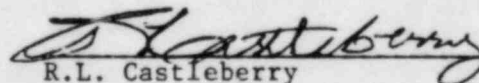


E.M. Hughes  
Project Engineer

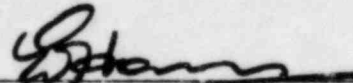
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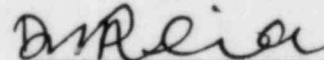


E.A. O'Hare  
Control Systems Chief Engineer



E.H. Smith  
Engineering Manager

for



M.A. Dietrich  
Project Quality Assurance Engineer

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