



**Consumers
Power
Company**

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82-02 #2

April 8, 1982

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



MIDLAND PROJECT -
DOCKET NOS 50-329 AND 50-330
RODENT DAMAGE TO ELECTRICAL PENETRATION
WIRING AND CABLES
FILE: 0.4.9.58 SERIAL: 16160

Reference: J W Cook letter to J G Keppler, Same Subject, Serial 16107,
dated February 19, 1982

This letter, as was the referenced letter, is an interim 50.55(e) report
concerning rodent damage to electrical penetration wiring and cables.
The attachment to this letter provides a description of the deficiencies
uncovered in relation to this item and the status of corrective actions
being taken with regard to these deficiencies.

Another report, either interim or final, will be sent on or before
June 4, 1982.

James W. Cook

WRB/lr

Attachment: Bechtel MCAR-56, Interim Report 2, "Damage to Electrical
Penetration Assemblies," dated March 17, 1982

CC: Document Control Desk, NRC
Washington, DC

RJCook, NRC Resident Inspector
Midland Nuclear Plant

CC: CBechhoefer, ASLB Panel
RSDecker, ASLB Panel
FPCowan, ASLB Panel
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AS&L Appeal Panel
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WHMarshall
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Bechtel Associates Professional Corporation

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SUBJECT: MCAR 56 (Revised)
 Damage to Electrical Penetration Assemblies

INTERIM REPORT 2

DATE: March 17, 1982

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

REFERENCES: A) CCo letter Serial CSC-5830, 12/3/81
 B) CCo NCR M01-9-1-165, 12/28/81
 C) SCRE 39, 1/15/82

Introduction

This report provides the interim status and course of corrective action required pursuant to MCAR 56, revised March 1, 1982. In addition to the deficiency covered by the original issue of this MCAR, several other deficiencies have been noted during the ongoing inspection of the Class 1E assemblies.

Description of Deficiencies

1. During post-construction surveillance inspection of the Class 1E electrical penetration assemblies (EPAs), assembly 2Z135 revealed rodent damage to the outboard side module wiring. The damage consisted of chewed insulation resulting in exposed and/or severed conductors. Subsequent inspection of additional Class 1E assemblies revealed similar damage.
2. Conductor insulation cracking at the conductor-module interface resulted in some exposure of the module conductors.
3. Inadequately crimped in-line butt splices occurred, which could result in discontinuity or potential localized overheating in circuits terminated in the EPAs.
4. A crack in the sealing surface of a module occurred, resulting in a pressure leak which degraded the EPAs ability to provide a constant pressure boundary. (Note: Leaking modules/header plates are noted during routine inspection and are repaired as required.)

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063201
MCAR 56
Interim Report 2
Page 2

063351

Corrective Action

- A. Construction has initiated a reemphasis on rodent control including:
1. Removal of all nesting and debris from the EPA sleeves and surrounding areas
 2. Additional rodent baiting with revised location of the bait
 3. An increase in the frequency of surveillance by the rodent control subcontractor
 4. A program of rodent control has been initiated consisting of disseminating rodent control information to all craft onsite through tool box safety meetings, education of personnel on the identification and significance of the types of bait and traps being used, the importance of not moving or altering them, and the need to report evidence, sightings, or dead animals to the appropriate individuals.
 5. Construction has been instructed to seal all EPAs to prevent the reentry of rodents.
- B. Construction has completed its inspection of all EPAs used for Class 1E circuits to determine the extent of rodent damage. Engineering is initiating an inspection specification to be used as criteria for the inspection of modules for all other deficiencies.
- C. Engineering has identified a generic deficiency (Deficiency 2) in #2 AWG through #16 AWG penetration modules. Where these modules are used for Class 1E circuits, they will be replaced.
1. Engineering has obtained and accepted repair/replacement procedures from the EPA manufacturer.
 2. Construction is repairing rodent damaged module wires in accordance with the accepted procedures.
 3. Where extensive damage precludes field repair, the damaged module will be replaced.
 4. The cracked module will be replaced.

063351

MCAR 56
Interim Report 2
Page 3

D. Root Causes

1. The deficiency is a result of rodents entering/nesting in the EPAs and chewing on module wiring. Access into the EPAs was via the cable feedthrough nipples.
2. The root cause of the insulating cracking is indeterminate at this time; however, the probable cause is one or more of the following:
 - a) A chemical/mechanical reaction between the module materials
 - b) Mechanical stresses resulting from the module design
 - c) Lack of explicit handling/packing instructions reflecting the frailty of the EPAs/modules
3. The root cause of the inadequately crimped butt splice has been determined to be a breakdown in the fabrication/design of the module assemblies.
4. The crack is considered an isolated case; therefore, no evaluation for a root cause was performed.

Safety Implications

1. The rodent damage consisted of chewed insulation resulting in exposed and/or severed conductors. Exposed conductors could result in circuit shorts and severed conductors could result in circuit discontinuities; therefore, Class 1E equipment necessary to safely operate the plant may have failed.
2. The cracked insulation resulted in some exposure of the module conductors. Exposed conductors could result in circuit shorts; therefore, Class 1E equipment necessary to safely operate the plant may have failed.
3. The inadequately crimped butt splice could result in circuit discontinuities or potential localized overheating. Therefore, Class 1E equipment necessary to safely operate the plant may have failed.
4. There is no generic safety implication associated with the single cracked module.

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06320 MCAR 56
Interim Report 2
Page 4

063351

Forecast Date for Corrective Action

The forecast dates for all corrective action will be addressed in the next interim report.

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