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May 4, 1984

83-10 #3

Mr J G Keppler, Regional Administrator  
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Region III  
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MIDLAND ENERGY CENTER PROJECT  
DOCKET NOS 50-329 AND 50-330  
ENGINEERING/CONSTRUCTION HOLD PROCESS  
FILE: 0.4.9.82 SERIAL: 30271

References: J W Cook letters to J G Keppler, Same Subject,

- 1) Serial 26621, dated December 9, 1983
- 2) Serial 28033, dated March 2, 1984

This letter, as were the referenced letters, is an interim 10CFR50.55(e) report concerning the coordination of engineering holds and restrictions. The attachment to this letter describes the concern and summarizes the investigation and corrective action taking place.

Another report, either interim or final, will be sent on or before August 10, 1984.

JWC/AHB/cd

Attachment: (1) MCAR-74, Interim Report 3, dated April 25, 1984

CC: Document Control Desk, NRC  
Washington, DC

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Midland Nuclear Plant

DHood, USNRC Office of NRR

INPO Records Center

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SUBJECT: Management Corrective Action Report (MCAR) 74

INTERIM REPORT 3

DATE: April 25, 1984

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

### Introduction

This report addresses concerns in the method of controlling holds and restrictions placed on hardware items, which resulted in the installation of unqualified Essex cables in Midland Units 1 and 2 containment buildings.

### Description of Concern

Project engineering restricted installation of Essex cable with factory reworked insulation in the Midland containment buildings. [Ref: TWX, BEBC-4607, 12/18/80 (Com 018473)]. Contrary to the above, the following nonconformances have been identified [Ref: Nonconformance Report (NCR) A-00003]:

1. Two Essex cables from reels with factory reworked insulation were installed in Class 1E circuits inside the Unit 2 reactor containment building.
2. Six Essex cables from reels with factory reworked insulation were installed in Class 1E circuits inside the Unit 1 reactor containment building.
3. The possibility exists that other Essex cables with factory reworked insulation are installed or were scheduled to be installed in Class 1E circuits inside the Unit 1 and/or 2 reactor containment buildings (indeterminate condition). A total of 68 Essex cables are involved.

Further investigation of the problem indicated that the method of initiating, documenting, and executing engineering holds and restrictions on hardware items and subsequent control of these items at the jobsite should be upgraded.

### Historical Background

As a standard practice, the cable manufacturer (Essex) performed factory insulation rework (repairs to insulation) on cables during fabrication. The insulation rework can be traced to a cable production run and not to any particular cable or section of cable. The cable from each production run is traceable to specific cable reels. The factory rework was subjected to all required production testing, but was not subjected to

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Class 1E loss-of-coolant accident (LOCA) qualification testing. As a result, project engineering restricted installation of Essex cable from reels traceable to production runs containing factory-reworked insulation for Class 1E circuits from use inside the Midland containment buildings. Contrary to this restriction, cables suspected of containing factory insulation rework were discovered during MPQAD review of cables installed in Units 1 and 2 containment buildings, resulting in issuance of NCR A-00003. Based on the NCR, Safety Concern and Reportability Evaluation (SCRE) 100 was issued to evaluate the cable deficiency for reportability. The condition was subsequently reported to the NRC.

#### Analysis of Safety Implications

A safety analysis on the eight cables originally identified on NCR A-00003 has been completed. It was determined that the eight cables included Class 1E circuits for the decay heat return letdown valves and the reactor building recirculating air cooling unit fans required to function in the event of a LOCA and/or main steam line break. It was concluded that even if the subject cables did contain factory insulation rework, they could remain functional throughout the plant's design life for all design basis events. However, because an environmental qualification was not performed on subject cable containing factory reworked insulation for inside containment, the reliability of this cable relative to all design bases was rendered indeterminate and, therefore, if left uncorrected, could have adversely affected the safety of operations of the Midland plant.

#### Root Cause

Investigation indicates:

1. Controls and procedures for issuing and enforcing project engineering's holds (including restrictions) should be upgraded.
2. The condition necessitating the specific cable hold was not recognized as requiring a nonconformance report and associated hold tags.

#### Corrective Action

1. A review was performed to determine whether additional corrective action was required to prevent further installation of Essex cable suspected of containing factory-reworked insulation in the containments. Based on the following, it was determined that no additional action was required:



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- a. Factory-reworked insulation was prohibited on all Class 1E Essex cable purchased after August 18, 1980.
  - b. All cable from reels supplied to the Midland project that contained Essex cable suspected of having factory-reworked insulation has been expended.
2. Sixty-eight Essex cables have been identified for use in Class 1E circuits in Midland Units 1 and 2 containment buildings. The cables installed or pending installation have been examined to determine the manufacturing date code, quarter code, and footage marker. This information has been sent to Essex to determine whether any of the cables originated from production runs containing factory reworked insulation. This evaluation by Essex is continuing and the results will be included in the next report.
  3. Any cables suspected of containing factory reworked insulation from Item 1 above will be replaced. This action will be tracked on NCR A-00003 and completed in accordance with the Construction Completion Program.
  4. A review to determine the status of all engineering holds has been completed. The results are being evaluated to determine whether any nonconforming conditions exist. Issuance of NCRs will follow if required. This activity is scheduled to be completed by May 14, 1984.
  5. Holds still in effect via memoranda, TWXs, or hold forms have been incorporated into the related design documents. All future holds will be implemented by design change only.
  6. Engineering and construction procedures related to the hold process are being reviewed and revised as necessary. Procedures related to the review are Project Engineering Procedures 4.49.0, 4.49.1, 4.47.1, 5.16.1, 4.61.1, and 4.46.1; associated Engineering Department Procedure Instructions/Manager of Engineering Directives; and Field Procedures FPD-5.000, 1.000, and 9.910. Completion of this activity is scheduled for July 5, 1984.
  7. An engineering training bulletin will be issued to instruct appropriate personnel on revised and new procedures concerning initiation, documentation, and control of engineering holds.

Bechtel Associates Professional Corporation

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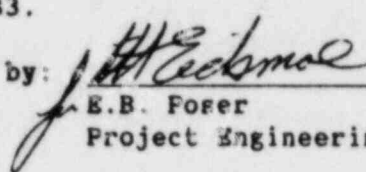
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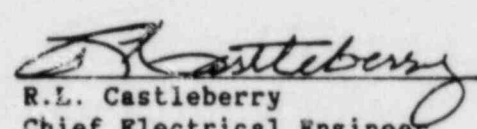
Reportability

This concern was reported to the NRC by Consumers Power Company as potentially reportable on November 10, 1983.

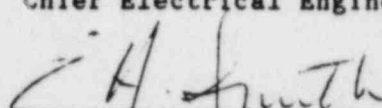
Submitted by:

  
E.B. Foser  
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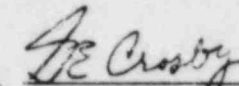
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