



**Consumers
Power
Company**

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79-12 #7

February 23, 1981

Mr J G Keppler, Regional Director
Office of Inspection & Enforcement
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137



MIDLAND PROJECT
DOCKET NOS 50-329, 50-330
CONTAINMENT INTERNAL STRUCTURES COATING DEFICIENCY
FILE: 0.4.9.37 UFI: 73*10*01, 00210(S) SERIAL: 11199

References: CPCo letters to J G Keppler; Same Subject:

- 1) Serial Howe-309-79; dated December 13, 1979
- 2) Serial Howe-26-80; dated February 7, 1980
- 3) Serial Howe-75-80; dated April 15, 1980
- 4) Serial 9125; dated June 11, 1980
- 5) Serial 8823; dated September 9, 1980
- 6) Serial 10051; dated October 31, 1980

This letter, as were the referenced letters, is an interim report on the containment internal structures coating deficiency. The attachment to this letter provides the status of the investigation and corrective actions being taken.

Another report, either interim or final, will be provided by May 29, 1981.

James W. Cook

WRB/lr

Attachment: MCAR-35, Containment Internal Structures Coating, Interim Report 6, dated February 15, 1981

CC: Director of Office of Inspection & Enforcement
Att Mr Victor Stello, USNRC (15)

Director, Office of Management
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SUBJECT: MCAR 35 (issued 11/13/79)
Containment Internal Structures Coating

INTERIM REPORT 6

DATE: February 15, 1981

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

I. INTRODUCTION

This interim report updates progress being made on investigations and corrective actions identified in Interim Report 5, concerning failure of decontaminable Coating System 9 as applied to concrete in containment, Units 1 and 2.

II. UPDATE OF INVESTIGATIONS

A. ADHESION TESTING IN UNIT 1 CONTAINMENT

Unit 1 containment has been evaluated to determine the extent of Coating System 9 delamination. Adhesion testing was performed in the same manner as reported in Interim Report 5 for Unit 2. System 9 coatings in Unit 1 demonstrated adhesion failure in approximately 6% of the cases tested as compared to approximately 18% in Unit 2. The results also indicated that failure occurred in a random pattern throughout Unit 1 containment similar to that seen in Unit 2.

B. ADDITION OF SOLVENTS

Although no solvents were specified to be used in application of the surfacer, a detectable solvent odor can be identified immediately after delaminating an area of the surfacer. Laboratory investigations to determine and identify the presence of solvent in the applied coating have been initiated and are nearing completion. The results of this investigation will be reported after this work is completed.

III. UPDATE OF CONCLUSIONS FROM THE INVESTIGATION TO DETERMINE ROOT CAUSE

The determination of root cause as reported in Interim Report 5 has not been changed.

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IV. UPDATE OF CORRECTIVE ACTIONS

A. QUALIFYING COATING SYSTEM 9

System 9 coating areas known to pass the knife adhesion test in Unit 2 containment have been sampled to determine whether they pass the radiation and design basis accident (DBA) criteria of ANSI N 101.2. Areas which did not pass the knife adhesion test were not included in the sampling program because they will be scheduled for removal. The sampling program was based on a statistically significant sampling program in which 90 random locations were generated.

The specific sample sites were visually inspected and tested for adhesion to ensure that the sampled coatings were free of defects as defined in the technical specification. Where the adhesion test failed or the sampling site was unacceptable, another randomly generated site was chosen. Following adhesion testing and inspection, the findings were recorded and samples were collected, labeled, and prepared for irradiation and DBA testing.

The applied System 9 coating samples are being tested at the Oak Ridge National Laboratories. The samples are being DBA tested following irradiation. An additional 10 samples have been taken, are being DBA tested without prior irradiation, and will act as controls to determine the effect radiation may have on the DBA-tested samples. This work is currently in progress. After the results are evaluated, this work will be fully reported.

If it can be shown that the applied System 9 coating which passed the knife adhesion test also passes the DBA and radiation tests, the knife test will be considered a valid test procedure and will be used in determining the acceptability of System 9 coatings applied in Unit 1 and 2 containments.

B. COATING SYSTEM 9 ADHESION ACCEPTANCE PROCEDURE

Assuming that the samples adequately pass the testing program described above, a procedure has been developed for removing the failed coating and accepting the coated areas that pass the knife test.

Coatings that demonstrate poor adhesion will be removed by specified procedures. The remaining coated area will be mapped and divided into test grids. These grids will be randomly selected for adhesion testing based on a statistically significant sampling program. If it can be shown

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that the coated area is acceptable, the entire sampled coating will be allowed to remain. If it cannot be demonstrated that the sampled area is acceptable, the coating will be evaluated in accordance with Subsection 17.1.1.9 of the Midland Units 1 and 2, Final Safety Analysis Report and corrective action will be taken as required.

Procedures for this work will be included in a specification and will be performed under a quality assurance program. This sampling program for coating adhesion acceptance will not begin until the radiation and DBA testing program for the applied coating is complete.

C. COATING SYSTEM 9 REPAIR PROCEDURE QUALIFICATIONS

Coating materials, surface preparations, and application procedures for Coating System 9 repair have been developed for testing. Test coating applications are being made in Unit 2 containment over areas where delaminated Coating System 9 has been removed. After application, the applied coatings will be evaluated for acceptability and samples will be selected for DBA testing. The selected coatings will be collected, labeled, and prepared for irradiation and DBA testing.

The collected samples will be submitted to Oak Ridge National Laboratories for irradiation and DBA testing. The results will be evaluated and a specific acceptable coating will be selected for repair and/or replacement of Coating System 9.

The testing work is being performed under specifications which include an approved quality assurance program. The procedures for performing the actual System 9 coating repair will be included in the design documents. The surface preparation and application will be based on procedures established in the test application program.

D. SPECIFICATION FOR APPLICATION OF DECONTAMINABLE COATINGS APPLIED TO CONCRETE

The subcontractor who applied the existing decontaminable coatings has been requested to submit procedures for use in repair of System 9 in containment which will preclude a recurrence of the delamination problem. These submittals will be reviewed based on clarity, specificity, and the items addressed in MCAR 35 before approval is granted.

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The contractor is preparing a new specification for use in applying the remaining decontaminable coatings to concrete and for use in repairing System 9 in the event the contractor performs any repair work. This specification is based on a thorough review of items addressed in MCAR 35 interim reports and will be issued for increased specificity and clarity and specifically to preclude a recurrence of the delamination problem.

Some of the items being addressed in new specifications are listed below:

1. Incoming coating materials will be more closely inspected and controlled.
2. Additional controls will be placed on mixing and pot life to account for variables in the material, environmental conditions, and workmanship.
3. Application methods, coating materials, and equipment will be more specifically identified.
4. Surface contamination will be controlled by improved surface preparation and inspection procedures.
5. Time between coats, both minimum and maximum, will be specified. Corrective procedures will be specified when compliance is not achieved.
6. Allowable ambient, surface, and material temperatures and dew points will be more clearly defined.
7. Coating thickness controlled by inspection will be increased.
8. Use of solvents will be prohibited unless specifically provided for in the specification.
9. Manufacturer's instructions will be more closely controlled.
10. Specific repair procedures will be identified for deviations in work. Procedures for repair of the System 9 delamination will be issued when investigations and evaluations are complete.
11. Inspection, including adhesion testing and coating work documentation, will be increased and clearly defined.

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E. REPAIR OF COATINGS APPLIED TO CONCRETE IN UNIT 1 AND 2
CONTAINMENTS

Coating work on concrete in both containments will be allowed to begin when the new specification is issued for field use or after the subcontractor's procedures are approved. System 9 coatings will be repaired when required investigations on the repair coating are complete and specific direction is incorporated into the specification.

V. NEXT REPORT

The next interim report is scheduled for May 15, 1981, and will provide a status report on corrective actions and results of ongoing investigations available at that time.

Submitted by:

J. Christensen

Approved by:

L.H. Edwards for L.H. Curtis

Concurrence by:

K.P. Bailey