

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-315/78-31; 50-316/78-29

Docket No. 50-315; 50-316

License No. DPR-58; DPR-74

Licensee: American Electric Power Service
Corporation
Indiana and Michigan Power Company
2 Broadway
New York, NY 10004

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, MI

Inspection Conducted: October 10, 1978

Inspector:

J. Hughes for
F. J. Jablonski

11-6-78

Approved By: *R. L. Spessard*
R. L. Spessard, Chief
Engineering Support Section 1

11/6/78

Inspection Summary

Inspection on October 10, 1978 (Report No. 50-315/78-31; 50-316/78-29)

Areas Inspected: Licensee action on IE Circular No. 78-08. This inspection involved a total of six inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance were identified.

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DETAILS

1. Persons Contacted

- *B. A. Svensson, Assistant Plant Manager
- *J. F. Stietzel, QA Supervisor
- *E. Abshagen, QA Auditor

Other Personnel

- *K. R. Baker, Resident NRC Inspector

*denotes those present at the exit interview.

2. IE Circular No. 78-08-Environmental Qualifications of Safety-Related Electrical Equipment at Nuclear Power Plants - Units 1 and 2

- a. Assignment of review responsibility is as documented in IE Inspection Report No. 50-315/78-24 and No. 50-316/78-22. The RIII inspector reviewed AEP memorandum (memo), LaPoma to Stietzel, dated October 2, 1978. Attached to the memo was AEP's description of the environmental qualification of equipment installed at the Cook plant. The description included equipment identified in Circular No. 78-08. Based on AEP's review, no corrective action was deemed necessary.

Also included in the memo was a statement that AEP had "engaged an independent consulting firm (EDS) that is now conducting a thorough review of all cable schematics, elementary and flow diagrams to identify all safety-related equipment and to verify that proper documentation is on file." Completion of the review is scheduled for the first quarter of 1979. This matter is unresolved. (315/78-31-01; 316/78-29-01)

- b. A synopsis of AEP's review of Circular No. 78-08 and/or activities, and related NRC activities follows:

- (1) Connectors - AEP suspended power operation and replaced 70 electrical connectors with qualified butt splices. Refer to IE Bulletins 77-05 and 77-05A and IE Inspection Reports 315/77-23, 77-28, 78-08; 316/77-33, 77-41, 78-03.
- (2) Penetrations - AEP reported that all of the installed penetrations are identical to other penetrations manufactured and tested by Conax Corporation. Refer to IE Bulletin No. 77-06, IE Inspection Reports 315/77-28,

316/77-38 and 77-41, NRC letter to the licensee dated May 30, 1978 and paragraph 2(c) of Amendment 2 to DPR-74.

- (3) Terminal Blocks - AEP reported that all control terminal blocks on (sic) safety-related equipment within the containment were replaced with appropriate butt splices; all power terminal blocks were replaced with qualified splices. Refer to IE Bulletin No. 78-02, IE Inspection Reports 50-315/78-24 and 50-316/78-22, and paragraph 2(b) of Amendment 4 to license No. DPR-74-Safety Evaluation. Also, see (5) below.
- (4) Limit Switches - AEP reported that electrical circuits had been revised to eliminate dependence on limit switches for operation of air operated valves. Refer to IE Bulletin No. 78-04 and IE Inspection Reports 315/78-25 and 316/78-23.
- (5) Cable Splices - AEP reported that heat-shrink tubing, which is applied over splices, was environmentally qualified. Refer to "Connectors", (1) above. Other splices such as motor terminations, conductor to conductor in flood up tubes, power cable to penetration, and use of electrical tapes were reported by AEP to be qualified as documented in Westinghouse Canada Test Report CWAPD-332. The RIII inspector reviewed the above test report and determined that clarification of one apparent conflict is required. The conflict is between paragraph 5 on page -2- and paragraph 4 on page -8- of the test report. Specifically, "Samples were intended to be typical" vis-a-vis "field splice as tested, is not representative of the present installations". The inspector's concern is that the tested samples, including Kapton insulated conductors which failed, were supposedly typical of the splices used to replace terminal blocks in power and control circuits in the flood up terminal boxes. This matter is unresolved. (315/78-31-02; 316/78-29-02)
- (6) Cables - AEP reported that cables were qualified as documented in the memo, in A. above, and memo attachment "Electrical Equipment Qualification Summary" (Summary). During the review of the Summary, the RIII inspector counted 15 separate cable "item" numbers including: 3073-3076; 3092, 3093; 3111, 3112; 3119-3125. (Note missing numbers; test report CWAPD-332 references cable item 3116). The RIII inspector could not determine if "all" cable item numbers used in class IE circuits had been identified by the licensee and evaluated for environmental qualifications.

(During a previous inspection, i.e. 50-316/76-01, the RIII inspector reported that the licensee had contracts with 18 different cable vendors each having the potential of supplying Class 1E cables). This matter is unresolved. (315/78-31-03; 316/78-29-03)

NOTE: Two apparent typographical errors are included in the Summary:

Instrument Cable - paragraph I. A. - B7P73 should be B7P-3
Power Cable - paragraph II. D. - 1978 should be 1970

The Summary also listed several cable manufacturers and related qualification reports. Refer to IE Inspection Report No. 50-316/77-38 for discussion of all the cables and qualification reports except the following:

<u>Cable Manufacturer</u>	<u>Test Report</u>
Boston Insulated Wire	Conax Report No. IPS-348
General Electric	Conax Report No. IPS-348
Continental Wire and Cable Company	Conax Report No. IPS-348
Okonite	Franklin Institute Report No. F-C3694

Conax report No. IPS 348 was a result of tests performed during March 31 to April 15, 1978. The test profile was described in the Abstract of the report. Results of the test were apparently used in the licensee's determination that Continental Cable and terminal blocks should be removed from both units at the D. C. Cook Plant. Refer to IE Inspection Report No. 50-316/78-09.

NOTE: The RIII inspector did not review the Okonite test report.

Further information about cable qualification is contained in IE Inspection Reports 50-316/75-04, 75-07, 76-01 and 76-04.

c. Other Potential Problems

- (1) AEP determined, without any stated basis, that nylon components of solenoid valves "do not apply." This matter is unresolved. (315/78-31-04; 316/78-29-04)
- (2) AEP reported that Westinghouse supplied instruments were qualified as documented in their April 26, 1978 letter to E. G. Case. No mention was made of other

Class 1E instruments which may be installed, e.g.,
Rosemont. Refer to item (1) of Amendment 4 to DPR-74.
This matter is unresolved. (315/78-31-05; 316/78-29-05)

- (3) AEP did not report the environmental qualifications for
motor operated valves and recirculation fan motors including:

Motor insulation
Pigtail insulation
Lubricants

This matter is unresolved. (315/78-31-06; 316/78-29-06)

No items of noncompliance were identified.

3. Unresolved Items

Unresolved items are matters which more information is required in order to ascertain whether they are acceptable items, items of non-compliance or deviations. Unresolved items disclosed during the inspection are discussed in Paragraph 2.

4. Exit Interview

The inspector met with licensee representatives (denoted under Persons Contacted) on October 10, 1978, at the conclusion of the inspection and summarized the scope and findings of the inspection.