

ILLINOIS POWER COMPANY



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CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

DMB

November 1, 1983

Docket No. 50-461

Mr. James G. Keppler
Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: 10 CFR Part 21 Defect (21-82-11)
Seepage of Oil from Okonite Cable

Dear Mr. Keppler:

On July 13, 1982, Illinois Power Quality Assurance was informed of a potentially reportable defect in cable supplied to the Clinton Power Station (CPS) by The Okonite Company. The potential defect was documented as seepage of an oily substance from the cable. Illinois Power has performed an evaluation of this condition, and is notifying the Commission of a 10 CFR Part 21 defect. This report provides information as required by 10 CFR Part 21.21(3).

- (i) D. P. Hall, Vice President of Illinois Power Company, by means of this report, hereby informs the Commission of a 10 CFR Part 21 defect.
- (ii) The defective basic component is certain power and control cables supplied to CPS by The Okonite Company. The defect involves the seepage of an oily substance, deposited during manufacture of the cable, from the end of installed and terminated non-divisional power and control cable, and in certain uninstalled divisional power cable.
- (iii) The power and control cable was supplied to CPS by The Okonite Company of Ramsey, New Jersey. It was constructed by The Okonite Company plant located in Passaic, New Jersey.
- (iv) Power and control cable were provided by The Okonite Company for use at CPS in class 1E and non-class 1E systems under specifications K2982 and K2983. On September 17, 1982, Okonite contacted Illinois Power and stated that the substance leaking from the cable was a lubricating oil used during the cable's overall jacketing process. The lubricating oil was identified by Okonite as being either Flexon 756 or 766.

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Prior to the conductor bundle entering the jacketing process, an extruded filler material is placed over the conductor bundle and under the overall jacket. The extruded filler material is used to insure the cylindrical configuration of the cable. Before the conductor bundle, covered with the extruded filler material, passes into the overall jacketing process, it is run through an oil bath and wiping operation to lubricate the surface to allow for easy passage through the jacketing extruder. Prior to early 1979, insufficient wall thickness of the extruded filler material caused tearing of this material prior to passage through the oil bath. The result of this tearing was the entry of lubricating oil into the core of the cable.

Okonite recognized this problem and initiated a design change, incorporated in early 1979, to increase the wall thickness of the extruded filler material and changed the extruder filler material compound to provide for better extrusion behavior and hot strength. This change significantly reduced tearing in the extruded filler material, and prevented significant amounts of lubricating oil from entering the cable's core.

Testing by Okonite verified that the lubricating oil has no effect on the cable integrity or qualification. However, the effect of this oil on equipment connected to the cable is of concern. If oil that leaked from the divisional cable were allowed to accumulate on essential components in Class 1E equipment, the possibility exists that misoperation of Class 1E equipment could occur. Misoperation of Class 1E equipment could result in a condition or circumstance that could contribute to the exceeding of a safety limit or could result in a substantial safety hazard.

- (v) The existence of the oil leakage from Okonite power and control cable was first noted in a Potential Deficiency, Defect or Noncompliance Referral from IP Project Management to the IP Director-Quality Assurance on July 12, 1982.
- (vi) A determination of the total scope of the oil leakage problem was made by identification of the extruded filler material used on each of the Okonite reels. No oil leakage has been found in Okonite cable that used the strengthened extruded filler material after early 1979. Based on the jacketing dates, Illinois Power identified those reels received at CPS using the old extruded filler material that could be subject to oil leakage:

<u>Cable Type</u>	<u>Amount (ft.)</u>	<u>Class</u>	<u>Installed</u>
03091	50,000	Non-1E	Yes
03091	50,000	1E	No
03126	6,500	Non-1E	Yes
07126	69,975	Non-1E	Yes
12126	12,620	Non-1E	Yes

In addition to the above listed cable types, two cable types, 09126 and 15126, were jacketed using the old filler material. These cable types, manufactured as divisional (1E) control cable, have been installed at CPS, but have not exhibited an oil leakage problem. To determine cable adequacy, a testing program was developed by Okonite, approved by Sargent & Lundy (CPS Architect Engineer), and was implemented. The results of this test have shown that no oil would have leaked from this cable, and was found acceptable for use at CPS without further corrective action.

- (vii) Nonconformance Report No. 7334 was initiated by Baldwin Associates on July 21, 1982, recommending that all the divisional power cable using the old filler material (cable type 03091), be returned to Okonite for analysis and replacement. All type 03091 divisional cable was subsequently returned. Okonite, upon receipt of the divisional cable, ran tests to verify integrity and qualification. Okonite concluded from these tests that cable with and without oil tested identically with no significant differences.

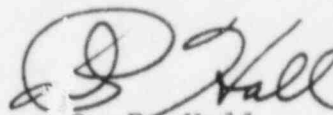
The Okonite Company has provided a qualified means of sealing the installed non-divisional cable to prevent oil leakage. This corrective action uses Raychem heat shrinkable breakouts as seals on cables that contain oil. Sargent & Lundy has reviewed this corrective action, and concluded that the Raychem breakouts would be an acceptable means of sealing non-divisional installed cable where necessary to prevent oil from leaking onto equipment.

- (viii) It is unlikely that this situation could have gone undetected and therefore uncorrected at CPS. However, the evaluation indicated that the use of the uninstalled divisional power cable received at CPS could possibly have resulted in a substantial safety hazard. It is further noted that the potential exists that cable such as received at CPS could have been delivered to other nuclear facilities.

November 1, 1983

Our evaluation of this reportable defect is available for your review at our offices. I trust that this letter provides sufficient information for your review and analysis of the problem and solutions.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "J. P. Hall". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

J. P. Hall
Vice President

RDW/jf

cc: NRC Resident Office
Illinois Department of Nuclear Safety
Director, Office of I&E, USNRC, Washington, DC 20555
INPO Records Center
The Okonite Company, Ramsey, New Jersey