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CONTROL NO: 951

FILE: INCIDENT REPORT

FROM: American Elec. Power NY, NY 10004 T. E. Tipton		DATE OF DOC 1/21/75	DATE REC'D 1/28/75	LTR yy	TWX	RPT	OTHER
TO: Region III, Keppler		ORIG 1 signed	CC	OTHER	SENT AEC PDR <u>XXXX</u> SENT LOCAL PDR <u>XXXXX</u>		
CLASS	UNCLASS XXXXX	PROP INFO	INPUT	NO CYS REC'D 1 signed	DOCKET NO: <u>50-315</u> & 316		

DESCRIPTION:

Ltr trans. copies of ltrs sent to Knuth re: deficiencies in coils on certain Westinghouse relays and improper wiring of the Foxboro Reactor Protection System on-line test panel.

PLANT NAME: Cook 1 & 2

ENCLOSURES:

DO NOT REMOVE

ACKNOWLEDGED

FOR ACTION/INFORMATION LDM 1/29/75

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AMERICAN ELECTRIC POWER Service Corporation



2 Broadway, New York, N. Y. 10004
(212) 422-4800

50-315 and 50-316

January 21, 1975

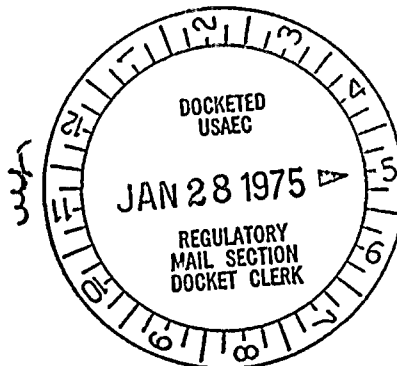
Nuclear Regulatory Commission
Directorate of Regulatory Operations
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Attention: Mr. James G. Keppler
Regional Director

Gentlemen:

Enclosed are copies of letters sent to Mr. Donald F. Knuth, Director, Directorate of Regulatory Operations, on December 20, 1974. These letters addressed deficiencies in coils on certain Westinghouse relays and improper wiring of the Foxboro Reactor Protection System on-line test panel.

Your office was not listed on the letter as receiving carbon copies. I apologize for any inconvenience this may have caused Regulatory Operations.



TET:ma
Enclosure

cc: R. S. Hunter/S. J. Milioti
G. E. Lien
S. J. Trippy - Bridgman
AEC Letter File

Very truly yours,

T. E. Tipton, Head
Nuclear Safety and
Licensing Section

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December 20, 1974

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Docket No. 50-315
and 50-316
O CPPR No. 61 and DPR-58

U.S. Atomic Energy Commission
Directorate of Regulatory Operations
7920 Norfolk Avenue
Bethesda, Maryland 20845

Attention: Mr. Donald F. Knuth, Director

Gentlemen:

P
Y Pursuant to the regulations of 10CFR50.55(e), we herewith submit this written report concerning an equipment deficiency that occurred during construction at the Donald C. Cook Nuclear Plant, Bridgman, Michigan. Unit 1 is currently operating under AEC Operating License DPR-58 and Unit 2 is under construction under AEC Construction Permit No. CPPR-61.

The equipment deficiency has been identified as open circuited coils on certain Westinghouse relays (Catalog No. ARD 440TR, Style 54 E4249, Coil 177C772 G02 240 VDC) which are used in plant safeguards systems. This deficiency was discovered after the above relays had been in service for approximately 5 months and was reported by Mr. R. S. Hunter, Vice President, Nuclear Engineering, American Electric Power Service Corporation to Mr. Cecil Jones in a telephone conversation on December 2, 1974.

An investigation into this deficiency has determined that the voltage rating of these particular relays is insufficient for all circuit conditions. Although the voltage rating of 240 VDC is sufficient for normal operation of the plant Direct Current System, they were placed under voltages of approximately 280VDC during periodic equalizing charging of the plant batteries. Repeated exposure to this increased voltage, which caused a higher-than-rated current flow through the coils, resulted in overheating and opening of these coil circuits.

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December 20, 1974

All Westinghouse 240VDC relays used in Unit 1 of the Donald C. Cook Nuclear Plant have been inspected and any damaged relays replaced. To prevent future damage to relays of this type, current limiting resistors have been placed in series with each relay coil to bring current flow through these coils during the 280 VDC equalizing charging of the plant batteries to within manufacturer's specifications. Correct operation of these relays has been verified with this revision. This modification will also be incorporated into Unit 2 of the Donald C. Cook Nuclear Plant.

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In addition, to assure that this circuit modification is suitable in operation, surveillance of Westinghouse 240 VDC relays associated with plant safeguards systems will be performed during plant operation.

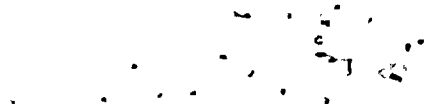
Very truly yours,

John E. Dolan
John E. Dolan

JED:ma

cc: P. Stokatee, Esq.
R. J. Vollen, Esq.
R. C. Callen, Esq.
K. Walsh, Esq.
G. Charnoff, Esq.
R. W. Jurgensen

bcc: G. E. Lien
S. J. Trippy
T. E. King/R. C. Carruth
R. S. Hunter/S. J. Milioti
T. E. Tipton/P. C. Higgins
DC-N-6079
AEC Letter File
M. H. Judkis



December 20, 1974

Docket No. 50-315
and 50-316
CPR No. 61 and DPR-58

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U.S. Atomic Energy Commission
Directorate of Regulatory Operations
7910 Norfolk Avenue
Bethesda, Maryland 20545

Attention: Mr. Donald F. Knuth, Director

Gentlemen:

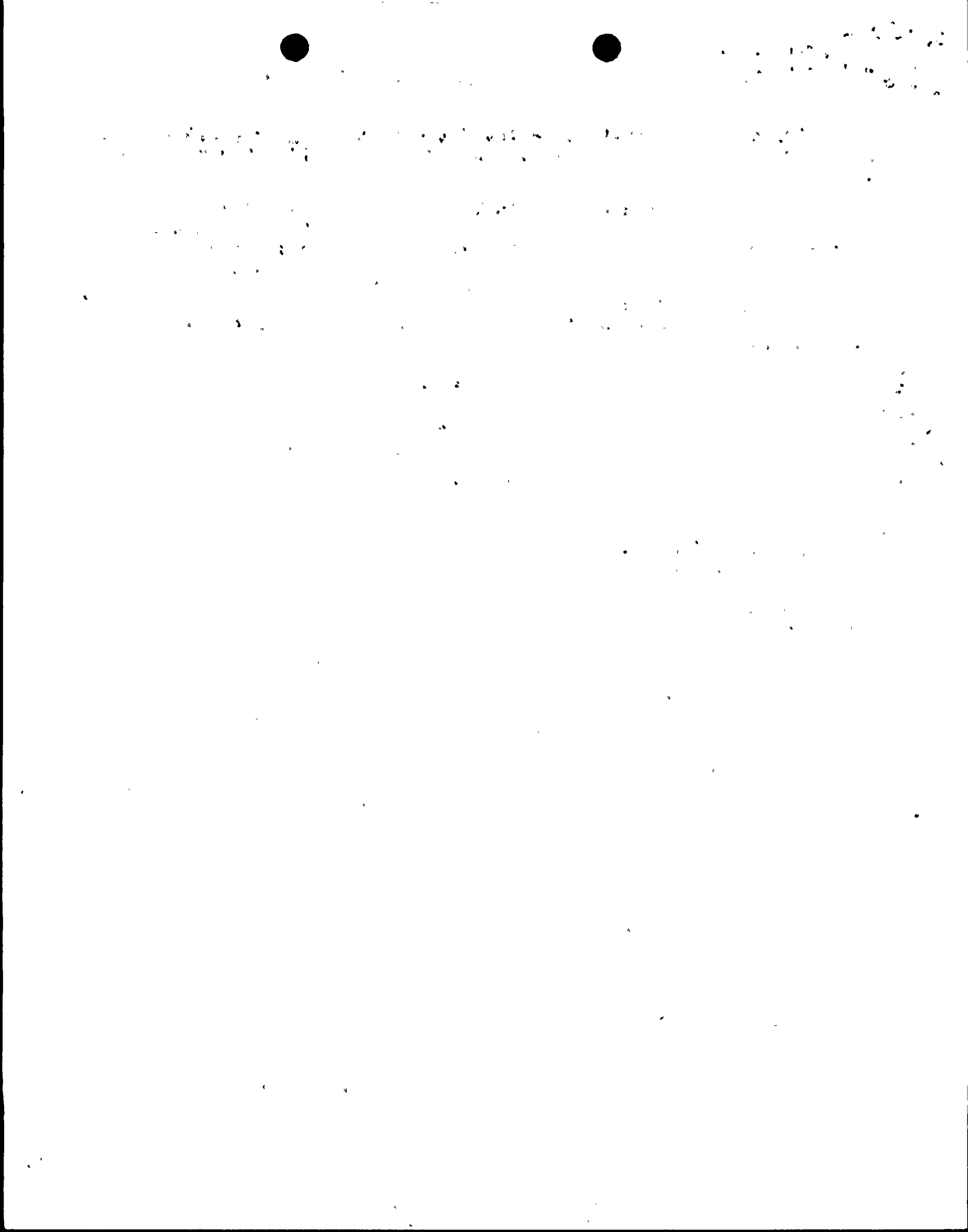
Pursuant to the regulations of 10 CFR 50.55(e), we herewith submit this written report concerning an equipment deficiency that occurred during construction at the Donald C. Cook Nuclear Plant, Bridgman, Michigan. Unit 1 is operating under License DPR-58 and Unit 2 is under construction under AEC construction permit CPR-61.

The equipment deficiency has been identified as improper wiring of the Foxboro Reactor Protection System on-line test panel. This equipment is supplied by Westinghouse. This deficiency was reported by Mr. R. S. Hunter, Vice President, Nuclear Engineering, American Electric Power Service Corporation, to Mr. Cecil Jones in a telephone conversation on December 2, 1974.

Signals from the process sensors, which measure various safety-related parameters, are processed through the Foxboro Reactor Protection System. The on-line test panel is provided to enable periodic testing of protection circuitry during plant operation.

The difficulty arose because the bistable (comparator) output test switches used are double pole and, therefore, break both sides of the output to the load while the bistables only break one side. Therefore, certain types of short circuits could remain undetected. As can be seen in Figure 1, a short circuit which shunts the bistable switching element and the switch contact is undetected. This is true because the return line is opened. Thus

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December 20, 1974

even though a short circuit existed the status lights would operate normally during the test and yet the channel could not generate a valid trip signal.

To preclude the possibility of such short circuits remaining undetected, jumpers were added within the test panel, one for each bistable test switch as shown on the attached sketch. The purpose of these jumpers is to short cut the pole on the test switch that is not in series with the bistable element so that the operation of the channel while in test exactly simulates the operation of the channel under normal operating conditions.

Very truly yours,

John E. Dolan
John E. Dolan

JED:ma

cc: P. Stoketee, Esq.
R. J. Vollen, Esq.
R. C. Callen, Esq.
R. Walsh, Esq.
G. Charnoff, Esq.
R. H. Jurgensen

bcc: M. H. Judkis
G. E. Lien
T. E. King/R. C. Carruth
T. E. Tipton/P. C. Higgins
R. S. Hunte /S. J. Milioti
S. J. Trippy
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AEC Letter File

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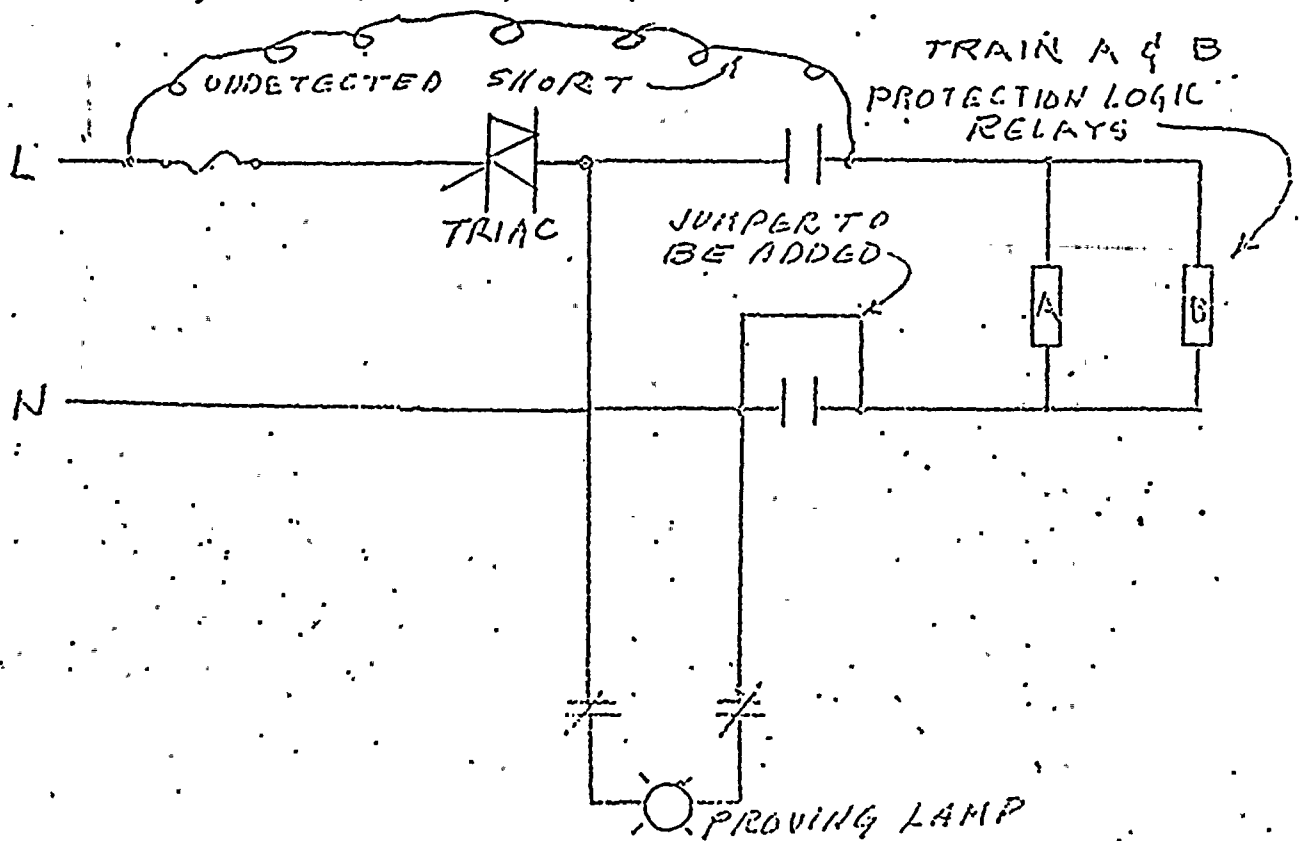
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FIGURE 1

PLANTS WITH FOXBORO EQUIPMENT



SCHEMATIC REPRESENTATION
OF UNDETECTED SHORT



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Journal of Management Studies, 19(6), 701-718.