

ATTACHMENT 1 to AEP:NRC:0775D
CATEGORY II.A EQUIPMENT IN AEP:NRC:0775C WHICH HAVE
JUSTIFICATION FOR CONTINUED OPERATION PER 10 CFR 50.49 (i)
DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 and 2

<u>Equipment Description</u>	<u>Plant Identification</u>	<u>Equipment Manufacturer</u>	<u>Model or Item Number</u>
RG 11U Cable	Various	Raychem	3074
RG 11U Cable	Various	Brand Rex	3074
RG 11AU Cable	Various	Raychem	3112
RG 11AU Cable	Various	Brand Rex	3112
RG 59 B/U Cable	Various	Brand Rex	3059
RG 59 B/U Cable	Various	Raychem	3059
Cable Terminations at RMS Detectors	N/A	AEP Design & Conax Corp	N/A
Cable Terminations at Charge Converter (Acoustic Monitors)	N/A	AEP Design & Conax. Corp.	N/A
Differential Pressure Transmitters	NLA-310 NLI-110, 120, 130, 111, 121, 131, 311, 320, 321	ITT Barton	<u>W</u> 764; 764
Solenoid Actuated Globe Valve	NSO-021, 022, 023, 024, 061 062, 063, 064	Target Rock Corp.	79AB-007
Acoustic Valve Flow Monitoring System Components	QR-107A, 107B, 107C, 107D	Technology for Energy; Endevco (via TEC)	500; 504A; 2273A; 2273AML; 3075M6-36

#8308160304

RMS Detector	VRA-1310 1410 (Unit 1); VRA-2310, 2410 (Unit 2)	Victoreen	877-1
RMS Detector	VRS-1101, 1201 (Unit 1); VRS-2101, 2201 (Unit 2)	Eberline	DAL-6CC

ATTACHMENT 2 TO AEP:NRC:0775D
EQUIPMENT CLASSIFIED IN NRC CATEGORY IV
DONALD C. COOK NUCLEAR PLANT UNITS NOS. 1 AND 2

<u>FRC TER</u> <u>Number</u> <u>(Documentation</u> <u>Reference)</u>	<u>D. C. Cook</u> <u>Unit #</u>	<u>Equipment</u> <u>Description</u>	(SCEW) * <u>Plant ID,</u> <u>or</u> <u>Item Number</u>	<u>Equipment</u> <u>Manufacturer</u>
80 (See Note below)	1, 2	Cable Terminations at Instruments (See Plant I.D.)	FFI-210, 220 230, 240	Foxboro
91 (25)	1	Cable	3116 (CP-8)	Essex
91 (25)	2	Cable	3116 (CP-10)	Essex
93 (7,70,72)	1	Cable	324 (CP-11)	Kerite
93 (38,40,65)	2	Cable	3127 (CP-2)	Cyprus
94 (7, 72)	1	Cable	3116 (CP-9)	Kerite
94 (7, 72)	2	Cable	3116 (CP-11)	Kerite

Documentation for the above equipment is enclosed, except as noted.

Note: These terminations were tested as part of the respective instruments, therefore the qualification documentation is being handled as identified in Attachment 3 to letter AEP:NRC:0775C, dated May 20, 1983, from Mr. R. F. Hering to Mr. H. R. Denton.

* SCEW - System Component Evaluation Worksheet (e.g., CP-8)

ATTACHMENT 3 TO AEP:NRC:0775D
AMENDMENT TO SUBMITTAL AEP:NRC:0775C (10 CRF 50.49(G) EQUIPMENT LIST)
DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2

<u>Equipment Description</u>	<u>Model Number</u>	<u>Equipment Manufacturer</u>	<u>Plant Identification</u>
Cable (7/C #12 Cu)	3121	Samuel Moore	Various

The qualification requirements for this item has been fulfilled with the exception of aging. We have contracted the services of EDS Nuclear, Inc., to perform the aging analysis for this cable and to propose changes to the Donald C. Cook Nuclear Plant surveillance and maintenance procedures. The results of the analysis and the proposed changes will be used to establish a surveillance/maintenance/replacement program which complies with Section 7.0 of the DOR Guidelines.

At present we expect the aging analysis of the cable and the proposed procedure changes will be completed by August 31, 1983. A complete revision to the D. C. Cook Nuclear Plant surveillance and maintenance procedures and the establishment of the surveillance/maintenance/replacement program will be completed by November 30, 1985.

Therefore, we are amending our request for a schedular extension, as addressed in our letter AEP:NRC:0775C, Attachment 2, to include the cable identified above. The request was for a schedular extension to November 30, 1985, for the establishment of a surveillance/maintenance/replacement program at the Donald C. Cook Nuclear Plant.



April 30, 1970

REPORT ON THE EFFECTS OF
GAMMA RADIATION AND AUTOCLAVING
ON KERITE POWER AND CONTROL CABLES

A. Objective

The objective of this test is to determine the capability of Kerite power and control cables to operate after exposure to 1×10^8 rads and 1.2×10^8 rads of Cobalt 60 gamma radiation and while being exposed to saturated steam at 82 psig and a temperature of 325°F . for 13 hours, followed by exposure at 5 psig and a temperature of 228°F . for 7 days. These conditions were postulated to be equivalent to a Design Basis Accident (DBA). Borated water spray was introduced into the test chamber for a 2 hour period in the form of 1 1/2% solution of boric acid and distilled water buffered at a ph of 9.5.

B. Cables Tested

1. 1/C No. 6 (7) AWG, 5/64" HTK insulation (N98).
3/64" FR jacket (HC711). (Sample A.)
2. 2/C No. 12 (7) AWG, 3/64" FR insulation (H170),
printed color, name and number, cabled, lenoweave
tape, 3/64" FR jacket (HC711). (Sample C.)

C. Test Facility

1. Irradiation was conducted at Neutron Products, Inc., Dickerson, Md., between February 15, 1970 and February 20, 1970.
2. Autoclaving, electrical loading, and dielectric tests were conducted at Franklin Institute, Philadelphia, Pa., between February 23, 1970 and March 6, 1970.

D. Test Procedure

1. Samples were irradiated to 1.2×10^8 rads at a rate of 8×10^5 rads/hour.
2. After irradiation, the samples were placed in an autoclave, with a potential of 600 volts being maintained between adjacent conductors and/or ground, while a current to 50 amps./ conductor was maintained in the No. 6 conductors and a current of 12 amps./conductor in the No. 12 conductors. The potential and current was maintained throughout the autoclaving, except during daily testing. The pressure in the autoclave was increased from atmospheric to 82 psig and a temperature of 325°F ., maintained for 13 hours, and decreased to 5 psig and a temperature of 228°F ., for 7 days.
3. D. C. high voltage withstand and insulation resistance tests were conducted on the samples once a day during the autoclaving. A D.C. test voltage of 4000 volts was maintained between each conductor and ground for 5 minutes.

QA DOC. INDEX
SER. # <u>EQ0007</u>
DATE <u>4/30/70</u>
KEYWORDS
1. _____
2. _____
3. _____
4. _____
5. _____
REF. <u>EE</u>
EXP. _____

WILLIAM C. COCA NUCLEAR PLANT
ACCEPTED FOR Q/A BY ELECTRIC
GENERATION SECTION AESPC, N. Y.

ACCEPTED BY: W.R. Fayerher
DATE: 022576
FILE: EE 16-5 Kerite Cbs

Test Data

1. Appropriate test data was taken during the irradiation at Neutron Products, Inc., and the autoclaving at Franklin Institute.

2. The results of the electrical and physical tests are given in Attachment 1.

F. Conclusions and Results

It is concluded that a 1/C Kerite High Temperature insulated (N98), FR jacketed (HC711) power cable and a multi-conductor Kerite FR insulated (H170), FR jacketed (HC711) control cable will operate under the DBA conditions of 1.2×10^8 rads, 82 psig, and 325° F. for 13 hours, followed by a decrease of pressure to 5 psig and 228° F. for 7 days.

G. Attestation

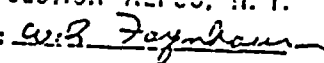
Portions of the above tests were personally witnessed by the undersigned, and the data presented herein is accurate and complete to the best of my knowledge and belief.



R. B. Budrow
Engineer

Subscribed and sworn to before me this 30th day of April, 1970


Notary Public

DONALD C. COOK NUCLEAR PLANT
ACCEPTED FOR Q/A BY ELECTRIC
GENERATION SECTION AEPSC, N. Y.
ACCEPTED BY: 
DATE: 022576
FILE: EE 16-5 Kerite Co.

May 1, 1970

EFFECTS OF GAMMA RADIATION AND AUTOCLAVING ON
KERITE POWER AND CONTROL CABLES

Sample Exposure	Capacitance	Resistance	AC	Dissipation	Tensile		Elongati	
	Microfarads /1000 ft.	Megohm - 1000 ft.	Breakdown Strength KV		Factor %	Strength PSI	%	
					Ins.	Jkt.	Ins.	Jkt.
<u>Sample A - Power Cable</u>								
Control	.07	4000	73	0.7	800	2350	380	360
Irradiated, autoclaved	.10	400	52	3.5	670	2160	220	110
<u>Sample C - Control Cable</u>								
Control	.08	43	50	1.4	1960	1540	360	270
Irradiated, autoclaved	.27	58	14	5.3	1460	1090	150	80

- NOTES:
1. Above electrical properties were determined for complete cables (with jackets intact) at room temperature and then converted to 60° F.
 2. A. C. Breakdown strength was obtained by applying a quick rise voltage at a rate of 1000 volts/second until breakdown.
 3. Samples irradiated to 1×10^8 rads and 1.2×10^8 rads at Neutron Products, Inc., Dickerson, Md.
 4. Samples autoclaved and electrically loaded at Franklin Institute, Philadelphia, Pa.
 5. Electrical and physical properties were obtained using the following:

<u>Electrical and Physical Properties</u>	<u>Equipment Used</u>	<u>Test Medium</u>
IR, 60° F.	General Radio Megohmmeter Type 1864	Water
Capacitance and D.F., 60° F.	General Radio 60 H ₂ Bridge Type 740-BG	Water
Tensile Strength and Elongation	Scott Tester	Air
Dielectric Strength (tin foil breaks)	70 KV Potential Transformer HV Lab	Air

DONALD C. COOK NUCLEAR PLANT
ACCEPTED FOR CIA BY ELECTRIC
GENERATION SECTION, AEC, N. Y.
ACCEPTED BY: *W. J. Ferguson*
DATE: *072576*
FILE: *EE 16.5 Kerite Cables*

