

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Haddam Neck Plant										DOCKET NUMBER (2) 0 5 0 0 0 2 1 1 3 1 OF 0 3										PAGE (3) 1 OF 3											
TITLE (4) Degraded Wiring of Reactor Protection and Control Instrumentation																															
EVENT DATE (5)						LER NUMBER (6)						REPORT DATE (7)						OTHER FACILITIES INVOLVED (8)													
MONTH		DAY		YEAR		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER		MONTH		DAY		YEAR		FACILITY NAMES						DOCKET NUMBER(S)							
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1 0		0 4		8 4		8 4		0 1		7		0 1		1 0		2 2		8 5								0 5 0 0 0					
OPERATING MODE (9) 6				THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																											
POWER LEVEL (10) 0 0 1 0				20.402(b)								20.405(c)								50.73(a)(2)(iv)								73.71(b)			
				20.405(a)(1)(i)								50.38(c)(1)								50.73(a)(2)(v)								73.71(c)			
				20.405(a)(1)(ii)								50.38(c)(2)								50.73(a)(2)(vi)								OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
				20.405(a)(1)(iii)								50.73(a)(2)(i)								50.73(a)(2)(viii)(A)											
				20.405(a)(1)(iv)								50.73(a)(2)(ii)								50.73(a)(2)(viii)(B)											
20.405(a)(1)(v)								50.73(a)(2)(iii)								50.73(a)(2)(ix)															
LICENSEE CONTACT FOR THIS LER (12)																															
NAME Gary H. Tylinski, Asst. Engineering Supervisor																TELEPHONE NUMBER AREA CODE 2 0 3 2 6 7 - 2 5 5 6															
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC							
B	J	C	I	M	O	D	F	I	E	O	Y																				
SUPPLEMENTAL REPORT EXPECTED (14)																EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR											
YES (If yes, complete EXPECTED SUBMISSION DATE)																NO															

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

While performing routine surveillance and calibration of reactor control instrumentation mounted in the main control board, a 15-conductor interconnection cable was found to be in a degraded condition. The degradation consisted of insulation which had become dried out and slightly hardened. It was determined that the wire insulation could be chipped off if the cabling was not handled properly. An inspection of the remaining similar type cables in the Foxboro reactor protection system revealed that most of the similar cables had the same signs of degradation.

It was decided that all cables of this type would be replaced (21 total) with vendor supplied direct replacements. This was to prevent further degradation from potentially impacting the ability of the reactor protection system functioning as designed.

The cause of the degradation was aging, as the equipment has been in service for over 19 years. An inspection for similar problems in other equipment concluded that this was an isolated problem.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

FACILITY NAME (1) Haddam Neck Plant	DOCKET NUMBER (2) 0 5 0 0 0 2 1 3	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The plant was in refueling mode on October 4, 1984 when surveillance and calibration activities were being performed on reactor protection and control instrumentation (JD, JE, JI, JC) which is mounted in the main control board. While reviewing the internal interconnection wiring on a Foxboro instrumentation rack module, a technician noticed that interconnecting coiled cable wiring at the field wire terminal block has degraded. It was not very flexible and the insulation appeared dried and hardened. A decision was made to have all similar devices inspected for signs of degradation. Almost all of the remaining Foxboro units which utilized the same type of interconnecting cable showed comparable deterioration.

The degradation was obviously a function of age as the instrumentation had been in service for over 19 years. Normal maintenance activities do not require access to the terminal block portion of the interconnection cable which is why the gradual problem had gone unnoticed. All twenty-one similar Foxboro units were restored with direct replacement interconnection cables supplied by the vendor. The following is list of the Foxboro device model numbers, internal terminal block colors, and associated cable part numbers which were affected.

<u>Model No.</u>	<u>T.B. Color</u>	<u>Cable Part No.</u>
M67RG-0	Orange	N101PZ
63SAP	Blue	N101BL
M62-5FTN-0 SPECIAL	"	"
62-FES-0	"	"
M62-4FEN-0	"	"
M62-2TN-0	"	"
M63-BP-OCHA	"	"
M63S-AP-OAHA	"	"
M62-5-FEN-0	"	"
M62-4	"	"
M62-SPECIAL	"	"
6402	Yellow	N101MN
62-5FTN-0	Red	N101NF
M62-2EN-0	"	"

It is difficult to assess a most probable system failure mode if cable degradation was allowed to continue other than spurious alarms or trips. However, since the cable undergoes no flexing when an instrument is in service, the cable clamps and set position which the wiring takes when inservice should prevent insulation from cracking even during a seismic event. Cracking can occur when a drawer is pulled out for servicing or calibration and the cabling is mishandled. Under these circumstances, the device would not be in service where it could affect any system.

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

Replacement of all similar cable was the immediate corrective action. Future inspections at refueling outage shutdowns will prevent recurrence of the identified problem. All other similar type equipment was inspected for similar potential problems and none were found. It was concluded that the degradation was an isolated case related only to the style and vintage of Foxboro equipment listed above. There is no history of a similar event with other equipment of this nature.

Subsequent to the cable replacement and inspections of similar type equipment, two cable sets were sent out to an outside agency for examination and evaluation. They were sent to the University of Connecticut, Institute of Material Science Department. The following is a brief synopsis of their report findings:

The service conditions at the unit locations are considered as being relatively mild. There is no exposure to nuclear radiation, unusually high temperature, intense light, high electric current or high humidity. Under these apparently mild service conditions, the conclusion for the degradation is that the insulation used in some production batches had poor stability. The poor stability may have resulted due to poor stabilizer choice and/or amount or due to the rubber type being inappropriate for the application.

All of the information has been forwarded to the manufacturer, Foxboro Company, who have indicated they will prepare a report in accordance with Chapter 10 of the Code of Federal Regulations, Part 21. As indicated in the initial LER, the plant will continue to inspect the replaced cables at refueling outage shutdowns until the Reactor Protection System is upgraded to state of the art equipment.



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

RR#1 • BOX 127E • EAST HAMPTON, CONN. 06424

October 22, 1985

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Reference: Facility Operating License No. DPR-61
Docket No. 50-213
Reportable Occurrence LER 84-017-01

Gentlemen::

This revision letter is being sent to supply additional information obtained from an outside agency's evaluation subsequent to the original submittal of LER 84-017-00 dated November 1, 1984.

Very truly yours,

Richard H. Graves
Station Superintendent

RHG:GHT/ssg
Attachment: LER 84-017-01
cc: Dr. T. E. Murley, Region I

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