

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)										DOCKET NUMBER (2)										PAGE 3															
BYRON, UNIT 1										0 5 0 0 0 4 5 4 1										OF 0 3															
TITLE (4)																																			
POWER RANGE EXCORE NEUTRON DETECTOR FAILURE																																			
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 NAME				DOCKET NUMBER(S)													
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OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																	
2		20.408(a)										20.408(a)										X		60.73(a)(2)(iv)										73.71(b)	
POWER LEVEL (10)		20.408(a)(1)(i)										60.36(a)(1)												60.73(a)(2)(vi)										73.71(a)	
Q 0 3		20.408(a)(1)(ii)										60.36(a)(2)												60.73(a)(2)(vii)										OTHER (Specify in Abstract below and in Part 4 of NRC Form 308A)	
		20.408(a)(1)(iii)										60.73(a)(2)(iii)												60.73(a)(2)(viii)											
		20.408(a)(1)(iv)										60.73(a)(2)(iv)												60.73(a)(2)(ix)											
		20.408(a)(1)(v)										60.73(a)(2)(v)												60.73(a)(2)(x)											
LICENSEE CONTACT FOR THIS LER (12)																																			
NAME										TELEPHONE NUMBER																									
Don George, Technical Staff Engineer, Ext. 607										AREA CODE 8 1 5 2 3 4 - 5 4 4 1																									
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																			
CAUSE	SYSTEM	COMPONENT	MANUFAC. TURNER	REPORTABLE TO NPROS		CAUSE	SYSTEM	COMPONENT	MANUFAC. TURNER	REPORTABLE TO NPROS																									
X	I G	D E T	W 1 2 0	N																															
SUPPLEMENTAL REPORT EXPECTED (14)																																			
YES (if yes, complete EXPECTED SUBMISSION DATE)										NO																									
										X																									

ABSTRACT (Limit to 1400 words; approximately fifteen single-space typewritten lines) (15)

During a Power increase to approximately 3.2% Power, a Unit One Reactor Trip occurred due to a High Positive Rate on the Power Range Excore Neutron Detectors. The trip was due to the lower detector on one channel failing, while at the same time a second channel was Out-Of-Service for Low Power Physics Testing. This combination completed the 2/4 logic, thus producing the Reactor Trip. The failed detector was replaced and there have been no further problems.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

On February 18, 1985 at 08:25, a Unit One Reactor Trip occurred due to a High Positive Rate on the Nuclear Instrumentation System, Power Range Channels. At this time the Unit was operating in Mode 2 (startup), increasing in power from 0% to 3.2% during the Low Power Physics Testing Phase of the Startup Program. The trip was caused by a High Positive Rate received on N41 while at the same time N44 was Out-Of-Service, connected to the Reactivity Computer. This combination completed the 2/4 logic, thus producing the Reactor Trip. After this trip, the plant was stabilized safely in Mode 3 (hot standby).

After the trip, channel N44 was returned to service and N41 was taken Out-Of-Service and connected to the reactivity computer. This allowed for the continuation of some Startup Testing while the problem with channel N41 could be investigated.

Investigation of the N41 problem started with obtaining data from the plant PRIME computer. This data included signals from the Upper and Lower detectors on channel N41, N42, and N43 (N44 being Out-Of-Service at the time). The attached figure illustrates the spiking seen on the Lower detector of channel N41 and the contrasting steady signal received from the Upper detector. Channels N42 and N43 exhibited similar steady responses for both the Upper and Lower detectors. Note that the data points collected by the PRIME are at one minute intervals. Even at this sampling rate the spiking is evident. The spiking on the lower detector could be seen in more detail on the output of the reactivity computer when it was connected to channel N41, however that data was not available for inclusion in this report. Having had extensive noise problems in the Source Range Nuclear Instrumentation on this same Unit, the Operational Analysis Department walked down the cable runs for channel N41 with noise monitoring equipment, but could not find any excessive noise sources. It was concluded that the Lower detector on N41 was bad and should be replaced.

The detector assembly (both upper and lower detectors are one unit) for N41 was removed and replaced with a spare. Subsequent observations and plant operations have yielded no further problems with this detector. This has been the only occurrence of a failed Nuclear Instrumentation Excore Neutron Detector that this station has experienced.

This event did not affect plant or public safety since it provided a reactor trip which shut down the reactor, as it was designed.

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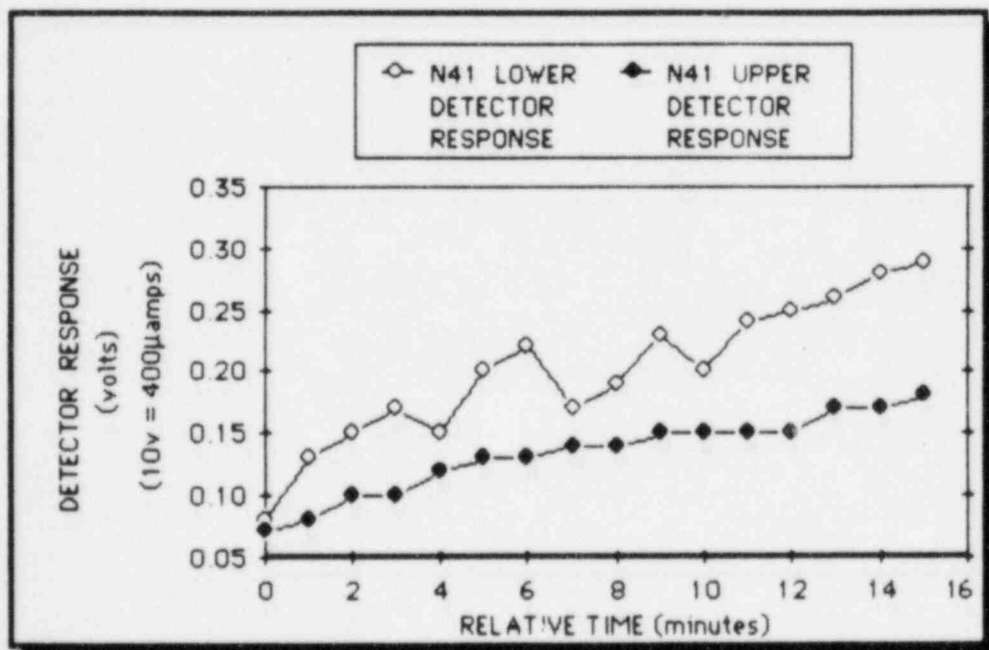
PAGE (3)

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

Response of both the Upper and Lower Detectors for Channel N41. This data is taken from the plant PRIME computer which collects at 1 minute intervals. This illustrates the spiking observed on the Lower detector while the Upper detector remains steady. The steady response was the same for channels N42 and N43 (N44 was Out-Of-Service at the time).





Commonwealth Edison
Byron Nuclear Station
4450 North German Church Road
Byron, Illinois 61010

March 19, 1985

LTR: BYRON 85-0420

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

Dear Sir:

The enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR 50.73(a)(2)(iv) which requires a 30 day written report.

This report is number 85-022-00, Docket No. 50-454.

Very truly yours,

R. E. Querio
Station Superintendent
Byron Nuclear Power Station

REQ/vda

Enclosure: Licensee Event Report No. 85-022-00

Attachment

cc: J. G. Keppler, NRC Region III Administrator
J. Hinds, NRC Resident Inspector
INPO Record Center
CECO Distribution List