



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

June 30, 1992

Ltr: BYRON 92-0460

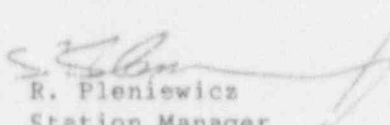
U. S. Nuclear Regulatory Commission
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Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Lyron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv).

This report is number 92-004; Docket No. 50-455.

Sincerely,


R. Pleniewicz
Station Manager
Byron Nuclear Power Station

RP/CW/mw

Enclosure: Licensee Event Report No. 92-004

cc: A. Bert Davis, NRC Region III Administrator
W. Kropp, NRC Senior Resident Inspector
NWPO Record Center
CECo Distribution List

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Byron, Unit 2										Docket Number (2) 0 5 0 0 0 4 5 5					Page (3) 1 of 0 4				
Title (4) Reactor Trip Due to Source Range Spiking Caused by Lightning																			
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)								
0 6	1 4	9 2	9 2	0 0 4	0 0	0 7	0 1	9 2	None		0 5 0 0 0 1 1								
OPERATING MODE (9) POWER LEVEL (10) 0 0 0			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																
			20.402(b)		20.405(c)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)								
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)				73.71(c)								
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)				Other (Specify in Abstract below and in Text)								
			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)(x)												
LICENSEE CONTACT FOR THIS LER (12)																			
Name F. Wilkins, Technical Staff Engineer Ext. 2161										TELEPHONE NUMBER									
D. Farr, Asst. Tech Staff Supervisor Ext. 2249										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	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS									
				N															
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)									
<input checked="" type="checkbox"/> Yes (If yes, complete EXPECTED SUBMISSION DATE)										0 1 1 5 9 4									
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																			

At 1346 on 06/14/92, Unit 2 tripped on source range high flux (channel N32). The shutdown banks were withdrawn prior to the trip and operators were prepared to withdraw the control banks for unit startup. A lightning storm in the vicinity caused channel N32 to spike to the trip setpoint.

The Shift Control Room Engineer (SCRE) consulted with the National Weather Service to confirm that the storm had left the area before the subsequent startup began. Additionally, surveillance 2B05 3.1.1-32, Analog Channel Operational Test of Source Range Channel N32, was performed to verify the High Flux level trip setpoint. The surveillance results were acceptable.

This event is reportable per 10CFR50.73(a)(2)(iv). Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature including the Reactor Protection System.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												Form Rev 2.0											
FACILITY NAME (1)		DOCKET NUMBER (2)				LER NUMBER (6)				Page (3)													
						Year	Sequential Number	Revision Number															
Byron, Unit 2		0	5	0	0	0	4	5	5	9	2	-	0	0	4	-	0	0	0	2	OF	0	4

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 06/14/92 / 1346

Unit 2 MODE 3 - Hot Standby Rx Power 0% RCS [AB] Temperature/Pressure 557°F/2235 psig

B. DESCRIPTION OF EVENT:

At 1346 hours on 06/14/92, Unit 2 tripped on source range high flux due to a spurious spike exceeding the source range channel N32 (NR) [IG] trip setpoint. A lightning storm in the vicinity of the plant was the cause of the spiking. Prior to the reactor trip, shutdown rods were fully withdrawn and operators were preparing to withdraw control rods to start up the reactor per 2BGP 100-CA1.

Due to spurious spikes on N32, the Shift Engineer (SE) and Reactivity Manager had agreed to hold the Reactor Startup until the storm passed. In response to this decision, N32 source range detector was to be placed in the level trip bypass position since it was most affected by the storm. Before this could be done, the reactor tripped on source range high flux.

Upon the reactor trip, all shutdown rods were fully inserted and the P-4 feedwater isolation signal closed valves 2FW034A-V and 2FW035A-V. All equipment responded as expected and the feedwater isolation was reset at 1347. There was no effect on safety. Procedures 2BEP-0, 2BEP ES-0.1, and 2BGP 100-2 were entered. No systems or components were inoperable that contributed to this event. Operator actions were correct and aided in the immediate resolution of this event.

After the reactor trip, it was decided by the Shift Engineer and Reactivity Manager that the reactor startup would not commence until all thunderstorm activity was out of the area. At 1910, the National Weather Service was contacted and it was determined that no more storm activity was expected near Byron Station. Preparations were then commenced for reactor startup. Surveillance 2B05 3.1.1-32, Analog Channel Operational Test of Source Range N32, was performed to verify the High Flux Level Trip Setpoint and the result was satisfactory. Criticality was achieved at 2133 on 06/14/92.

This event is being reported to satisfy 10CFR50.72, which requires NRC event notification whenever an engineered safety feature (ESF) and reactor protection system actuation (scram) have occurred.

C. CAUSE OF EVENT:

The cause of the spiking on source range channel N32 was a lightning storm in the vicinity of the plant. There was not a direct failure of source range N32 circuitry. Lightning has been known to cause source range spiking in the past. This channel has the particular characteristic of being sensitive to any type of electrical noise.

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Byron, Unit 2		0	5	0	0	0	4	5	5	9	2	-	0	0	4	-	0	0	0	3	of	0	4

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D. SAFETY ANALYSIS:

There were no adverse safety consequences as a result of this event since the shutdown banks were fully inserted into the core. A reactor trip signal preventing startup is a protective measure designed to ensure the health and safety of the public is not endangered by returning the reactor core to subcriticality. Under more severe circumstances, i.e., Source Range indication above the trip setpoint due to actual high neutron flux, a reactor trip and a Boron Dilution Protection System (BDPS) actuation would have been generated by both of the operable channels, returning the core to subcriticality.

E. CORRECTIVE ACTIONS:

The following short-term corrective action was undertaken prior to the subsequent startup.

1. Surveillance ZBOS 3.1.1-32, Analog Channel Operational Test of Source Range Channel N32, was performed to verify the High Flux Level Trip Setpoint. The results of the surveillance was satisfactory.
2. The Shift Control Room Engineer (SCRE) consulted with the National Weather Service to confirm that storms had left the area and that no more storm activity was pending such that startup could begin.

The following long-term corrective action will be undertaken during Byron Unit 2 Refueling Outage 4 (B2R04) to solve the electrical noise problem on N32.

1. The N32 detector cable will be replaced during B2R04 with a spare detector cable. If this does not resolve the problem, then prior to B2R05, the possibility of replacing the detector and/or re-routing the detector cable will be investigated. Nuclear Tracking System item number 455-200-92-00800-01 will track the investigation into the long-term corrective action.
2. A Source Range Noise Reduction Working Group has been organized as part of the Commonwealth Edison/Westinghouse Partnership Steering Committee at Byron to address the issue of source range noise. This group will initiate additional actions as appropriate. A supplemental report will be issued subsequent to effective corrective actions derived from this group.

F. RECURRING EVENTS SEARCH AND ANALYSIS:

a) EVENT SEARCH (DIR, LER)

There is no documentation of a high flux trip on Source Range caused by lightning. However, there have been numerous examples of BDPS actuations caused by Source Range spiking, some of which were caused by lightning strikes.

b) INDUSTRY SEARCH (OPEX's NPROS)

None found.

c) NWR

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Byron, Unit 2	0 5 0 0 0 4 5 5	9 2	-	0 0 4	-	0 0	0 4	OF	0 4				
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F. RECURRING EVENTS SEARCH AND ANALYSIS: (continued)

d) ANALYSIS

There is no open adverse trend in progress. Source Range Channel N32 has always been sensitive to noise. Trends 89-007 and 90-017 were documented for BOPs Actuation Events, however, they have since been closed. Previous corrective actions for specific noise sources were effective for those particular circumstances. However, an action plan exists to reduce N32's susceptibility to noise.

G. COMPONENT FAILURE DATA:

MANUFACTURER	NOMENCLATURE	MODEL NUMBER	MFG PART NUMBER
None.			

H. OTHER RELATED DOCUMENTS:

None.

I. EFFECTIVENESS REVIEW:

None scheduled.

J. ADDITIONAL DATA:

- a) Affected Technical Specification: 3/4.3.1 Reactor Trip System Instrumentation
3/4.9.2 Refueling Operations: Instrumentation
- b) Procedures: 2B05 3.1.1-32, "Analog Channel Operational Test of Source Range Channel N32"
- c) Cause Code: CW2
- d) Equipment Involved: Source Range Channel N32
- e) Other: Source Range, Noise Block, Reactor Trip, Feedwater Isolation, ESF