

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Byron, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 4 5 4				PAGE (3) 1 OF 03											
TITLE (4) SOURCE RANGE CHANNEL SPIKING																									
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)												
1	1	0	7	8	4	8	4	0	0	3	0	0	1	1	2	0	8	4	0	5	0	0	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 1 0 1 0		20.402(b)				20.406(a)				X 50.73(a)(2)(iv)				73.71(b)											
		20.406(a)(1)(i)				50.36(a)(1)				50.73(a)(2)(v)				73.71(c)											
		20.406(a)(1)(ii)				50.36(a)(2)				50.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)											
		20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(vii)(A)															
		20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(vii)(B)															
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)															
LICENSEE CONTACT FOR THIS LER (12)																									
NAME William Smith, Technical Staff Engineer										TELEPHONE NUMBER 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	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC															
B	I	G	D	E	T	W	1	2	0	N															
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR									
X YES (If yes, complete EXPECTED SUBMISSION DATE)												NO		0	3	3	0	8	5						

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

During initial core loading of Byron Station Unit 1, signal spiking began to be seen on both Source Range channels. The signal spiking was determined to be caused by electrical noise generated on the system or induced onto the system. The Source Range channels were declared inoperable due to the spiking problem. A large variety of causes and cures were tried and tested in an effort to reduce electrical noise. Eventually the Source Range channels were declared OPERABLE and core loading was completed. The Source Range channels are presently OPERABLE and the permanent fix is still being investigated.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Byron, Unit 1	0 5 0 0 0 4 5 4	8 4	— 0 0 3	— 0 0	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 385A's) (17)

Between November 7, 1984 and November 24, 1984 there were 31 occurrences of noise spikes on Source Range channels N31 and N32 (see chart of occurrences). Early on these spikes were determined to be caused by electrical noise, instead of reflecting actual core behavior as was demonstrated by the temporary core loading instrumentation, and RCS boron samples which indicated a more than adequate shutdown margin. Byron Station was performing the initial core load for Unit 1 when the spiking began. Each time a spike event occurred the containment was evacuated per procedure. Radiation surveys were performed prior to re-entry into containment and before core loading was resumed. Eventually, core alterations were suspended for over one week while various tests were performed to alleviate or eliminate the spiking. Among those items done were the following:

- 1) changing preamplifiers
- 2) changing detectors
- 3) cleaning and reconnecting all connections on Source Range
- 4) reterminating triaxial connectors
- 5) monitoring the wave-forms on an oscilloscope
- 6) utilizing a time delay reflectometer to look for cable quality and anomalies
- 7) meggering all Source Range cables for comparison with installation data
- 8) rerouting Source Range cables away from noise sources
- 9) shortening the cable distance between detector and preamplifier

Some of these actions improved signal quality while others had no apparent benefit or result. Eventually signal quality was improved to allow both Source Range channels to be declared OPERABLE in order to complete core loading on Unit 1. The Source Range channels are presently OPERABLE and the permanent fix is being investigated. This will be documented in a more detailed supplemental report.

The safety consequences and implications are not adverse. The Source Range performance was such that core alterations could not be completed while noise was evident. Temporary core loading instrumentation was available to monitor the core during the time the installed channels were spiking and regular samples of RCS boron concentration and temperature were made to ensure adequate shutdown margin.

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FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (6)

PAGE (3)

Byron, Unit 1

0 5 0 0 0 4 5 4 8 4 - 0 0 3 - 0 0 0 3 OF 0 3

TEXT (If more space is required, use additional NRC Form 386A's) (17)

SOURCE RANGE

CHANNEL SPIKING

CHART OF OCCURRENCES

<u>Date/Time</u>	<u>Channels Affected</u>
11/07/84 0747	N31 and N32
11/07/84 1556	N32
11/08/84 1432	N32
11/08/84 0751	N31 and N32
11/09/84 0745-1200	N31 and N32
11/09/84 0745	N31 and N32
11/12/84 1052	N32
11/13/84 0055	N32
11/14/84 0504	N31
11/15/84 0812	N31
11/17/84 2246	N31
11/17/84 2354	N31
11/18/84 1403	N32
11/18/84 1449	N32
11/18/84 1443	N31 and N32
11/18/84 1855	N31 and N32
11/17/84 1340	N31
11/17/84 1420	N31 and N32
11/17/84 1530	N31
11/17/84 1629	N31
11/18/84 1336	N31
11/18/84 1934	N31 and N32
11/18/84 1955	N31
11/19/84 0211	N32
11/20/84 0411	N31
11/20/84 0334	N32
11/20/84 0350	N32
11/20/84 0803	N31 and N32
11/20/84 1403	N32
11/21/84 0751	N31 and N32
11/24/84 -	N32



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

November 27, 1984

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 84 -003 - 00, Docket No. 50 - 454.

Very truly yours,

R. E. Querio
Station Superintendent
Byron Nuclear Power Station

Enclosure: Licensee Event Report No. 84 -003-00

Attachment

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

IE22
11