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) INADVERTENT SAFETY INJECTION SIGNAL DURING SURVEILLANCE TEST DUE TO AN INADEQUATE DESIGN

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 4	0 8	8 7	8 7	---	0 0 9	0 0	0 5	0 7	8 7	NONE	0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
6	___ 20.402(b)	___ 20.405(c)	X 50.73(a)(2)(iv)	___ 73.71(b)		
POWER LEVEL (10) 0 0 0	___ 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	TELEPHONE NUMBER
William Kouba, Assistant Technical Staff Supervisor Ext. 2245	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

SUPPLEMENTAL REPORT EXPECTED (14)

		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	___ X NO				

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

On April 8, 1987, at 0500, an inadvertent Safety Injection signal was generated on Unit 1 during surveillance testing of the Reactor Protection System. The Unit was in Mode 6 (Refueling) at the time and consequently all safeguards equipment was blocked from actuating except Containment Ventilation Isolation. Containment Ventilation Isolation actuated as design upon receipt of the Safety Injection signal. Shift personnel entered the appropriate emergency procedures and recovered without incident. The cause of the event was, during a simulation of Pressurizer Pressure, a 2 out of 4 coincidence logic was made up when a test lead became loose. One channel was already tripped to monitor actual Pressurizer pressure. Corrective actions include issuing a memorandum to remind appropriate personnel to exercise more caution while working in the Safeguard Protection Cabinets and to implement a modification to allow Containment Ventilation Isolation safeguard feature to be blocked from actuating on a safety injection signal while in a non-applicable mode.

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A. PLANT CONDITIONS PRIOR TO EVENT:

Byron Unit 1 Event Date/Time 04/08/87 / 0500
MODE 6 - Refueling Rx Power 0% RCS [AB] Temperature/Pressure 100°F /de-pressurized

B. DESCRIPTION OF EVENT:

There were no systems inoperable at the beginning of the event which contributed to its significance. An inadvertent safety injection signal occurred while performing the Reactor Protection System Response Time Surveillance [JG].

The surveillance requires extensive process parameter simulation in the Process Protection Cabinets, consequently, as a requirement in this surveillance, all safeguards [JE] equipment not required to be operable in Mode 6 is blocked from actuating to protect against inadvertent actuations during the conduct of this surveillance. The safeguard feature of Containment Ventilation isolation [VA] actuates from both a safety injection signal and a high radiation in containment signal. The high radiation actuation is required in Mode 6. Due to the circuitry design the safety injection input can not be blocked without also blocking the high radiation input, consequently, a Containment Ventilation isolation from a safety injection signal can not be blocked in Mode 6.

The section of the surveillance being performed required simulating three of the four (3/4) Pressurizer pressure channels above the low Pressurizer pressure reactor trip setpoints to clear the reactor trip signal. Once the pressure was raised above the safety injection block permissive setpoint the safety injection protection was unblocked. One of the four (1/4) channels was left unsimulated (below the Pressurizer safety injection setpoint) per the surveillance procedure. The safety injection signal was generated while adjusting a channel simulation to 5% above its low pressure reactor trip setpoint. The System Engineer (non-licensed) in touching the test signal wire caused the Pressurizer pressure channel to spike below the safety injection setpoint making up the 2/4 coincidence necessary for a safety injection signal.

Containment Ventilation dampers actuated as designed. After determination that the safety injection signal was spurious, Shift Operating personnel recovered the Unit consistent with the appropriate Station Operating Procedures.

Containment Ventilation was the only safety system that actuated. A Engineered Safeguard Feature actuation is reportable pursuant to 10CFR 50.73(a)(2)(iv).

C. CAUSE OF EVENT:

The intermediate cause of this event was the lead used to simulate Pressurizer pressure above its low pressure setpoint became momentarily loose while being touched. The loose condition caused that channel of Pressurizer pressure to drop below the low Pressurizer pressure safety injection setpoint.

The root cause of this event was that all of the safeguard equipment actuated on a safety injection signal could not be blocked from inadvertent actuation during the conduct of this surveillance. Due to the extensive activity in the cabinets in simulating process parameters during this surveillance an inadvertent safety injection signal is a probable event.

D. SAFETY ANALYSIS:

This event had no affect on the health and safety of the public and plant. Containment Ventilation Isolation worked as designed. All other Engineered Safeguards Features were blocked, as allowed, in mode 6. This event could only occur in modes 5 (Cold Shutdown) and 6, in which Containment Ventilation Isolation on a safety injection signal is not required.

E. CORRECTIVE ACTIONS:

A memorandum was issued to Technical Staff Engineers and Instrument Maintenance Technicians to use extra caution when working in the Process Protection Cabinets.

A modification is planned to remove the high radiation actuation portion of the Containment Ventilation Isolation from the same circuitry as the safety injection actuation. This will allow Containment Ventilation Isolation on a safety injection signal to be blocked when the Unit is in a non-applicable mode. Action Item Record #6-87-073 will track this modification.

F. PREVIOUS OCCURRENCES:

LER NUMBER	TITLE
NONE	

G. COMPONENT FAILURE DATA:

a)

MANUFACTURER	NOMENCLATURE	MODEL NUMBER	MFG PART NUMBER
Not Applicable			

b) RESULTS OF NPRDS SEARCH:

Not Applicable

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

May 8, 1987

LTR: BYRON 87-0563

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 10CFR50.73(a)(2)(iv) which requires a 30 day written report.

This report is number 87-009-00; Docket No. 50-454.

Very truly yours,

for R. E. Querio
Station Manager
Byron Nuclear Power Station

REQ/JL/bf

Enclosure: Licensee Event Report No. 87-009-00

cc: A. Bert Davis, Acting NRC Region III Administrator
J. Hinds, NRC Resident Inspector
INPO Record Center
CECO Distribution List

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