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

April 28, 1992

Ltr: BYRON 92-0288

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).

This report is number 92-002; Docket No. 50-455.

Sincerely,

R. Pleniewicz
Station Manager
Byron Nuclear Power Station

RP/CW/mw

Enclosure: Licensee Event Report No. 92-002

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

(0907R/VS)

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Byron, Unit 2	0 5 0 0 0 4 5 5	1 of 0 3

Title (4)

Containment Ventilation Isolation due to Voltage Transient caused by Lightning Strike

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)
									Byron, Unit 1	0 5 0 0 0 4 5 4
0 4	1 0	9 2	9 2	0 0 2	0 0	0 4	2 8	9 2		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 AREA CODE
P. Casarotto, Technical Staff Engineer Ext. 2415	
R. Wegner, Asst. Tech Staff Supervisor Ext. 2274	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-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
				Y					

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 10, 1992 at 1417 with Unit 1 in Mode 1 at 100% reactor power and Unit 2 in Mode 6, Refuel, a voltage transient occurred due to lightning. Selected radiation monitors sensed the voltage transient and transferred to the interlock mode. A containment release was in progress on Unit 2. The interlock signal from 2RT-AR012 automatically closed all open containment isolation valves and the interlock signal from 0PR09J automatically closed the Component Cooling Surge Tank Vent Valves.

All radiation monitors returned to normal after the voltage transient ceased.

All ESF actuations were reset. No further corrective actions were required.

This event is reportable per 10CFR50.73.a.2.iv.

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 04/10/92 / 1417

Unit 1 MODE 1 - Power Operation Rx Power 100% RCS [AB] Temperature/Pressure Normal Operation

Unit 2 MODE 6 - Refuel Rx Power 0% RCS [AB] Temperature/Pressure 80°F / 0 psig

B. DESCRIPTION OF EVENT:

On April 10, 1992 at 1417, with Unit 1 in (Mode 1) at 100% reactor power, and Unit 2 in (Mode 6) refueling outage, a voltage transient occurred due to a lightning strike during a thunderstorm. Area radiation monitors 1RT-AR011 (Unit 1 Containment Building Fuel Handling Incident) (AR) [IL], 2RT-AR012 (Unit 2 Containment Building Fuel Handling Incident) (AR) [IL] and Process Radiation Monitor 0PR09J (Unit 0 Component Cooling Heat Exchanger Outlet) (PR) [IL] sensed a voltage transient and transferred to their interlock mode. With Unit 2 in Mode 6, the containment hatch was removed and a continuous containment release was in progress. Thus, the interlock signal from 2RT-AR012 automatically closed all open containment ventilation valves to their (ESF) positions. The interlock signal from 0PR09J automatically closed the Component Cooling (CC) [CC] System Surge Tank Vent Valves (1CC017 and 2CC017). All radiation monitors returned to normal operating condition immediately after the voltage transient passed.

On 04/10/92 at 1730, the National Weather Service (NWS) issued a tornado watch for Ogle County. Operating Department Abnormal Procedure BOA ENV-1, Operation During Tornado or Sustained Wind Conditions, was performed. Limiting Condition for Operation Action Requirement, LCOAR 0BOS 7.5-1A for the Ultimate Heat Sink was also entered. At 2018, the NWS upgraded the condition to a tornado warning. At 2328 on 04/10/92, the NWS suspended the tornado warning and watch. BOA ENV-1 and LCOAR 0BOS 7.5-1A were exited at 2330 on 04/10/92.

Additionally following the lightning strike, it was observed that Unit 1 Main Generator Output was oscillating. The Main Generator power system stabilizer was taken off. The oscillations improved somewhat. Finally, the voltage regulator was taken to manual and the generator output stabilized.

All ESF equipment functioned as required during the voltage transient. No plant systems or components were previously inoperable that contributed to this event. All operator actions taken were correct. Plant conditions remained stable, except U1 main generator output, throughout the event. The U2 containment ventilation valve auto isolation event is reportable per 10CFR50.73(a)(2)(iv).

C. CAUSE OF EVENT:

The cause of this event was lightning from a thunderstorm. This in turn initiated a voltage transient on the Byron Station electrical system. The bus voltage sensed by the monitors momentarily dropped below the low voltage setpoint of 90 ± 3 vac which caused the monitors to transfer to the interlock mode of operation. The interlock mode automatically actuates the ESF containment ventilation isolation signal.

D. SAFETY ANALYSIS:

There was no effect on plant or public safety. All affected monitors performed their associated ESF actuations which establishes a safe plant condition. Unit 2 had a containment release in progress. Thus, all associated open containment isolation valves closed upon receiving an isolation signal. None of these radiation monitors showed an increase in radioactivity level. The safety consequences would have been the same had this event occurred under a more severe set of initial conditions.

E. CORRECTIVE ACTIONS:

All ESF actuations were reset. A modification was previously installed in all radiation monitors to lower the undervoltage trip setpoint from 100 ± 3 vac to 90 ± 3 vac in order to reduce the sensitivity of the monitors to distribution system voltage transients. Past experience indicates the setpoint modification has reduced the monitors' sensitivity to voltage transients caused by large pump starts and most grid disturbances. There will be no further corrective actions taken.

F. RECURRING EVENTS SEARCH AND ANALYSIS:

a) EVENT SEARCH (DIR, LER)

There have been previous occurrences of radiation monitor power failures causing ESF actuations. The root causes of these events is lightning and no trends have been identified.

LER NUMBER	TITLE
86-026	Control Room Ventilation Actuation due to Lightning induced Distribution System Voltage Transient
89-007	Control Room Ventilation Actuation due to Voltage Transient caused by Lightning
91-002	Engineered Safeguard Features Actuation due to Lightning Strike on 345 KV Transmission Lines

b) INDUSTRY SEARCH (OPEX's NPRDS)

None found.

c) NWR

None.

d) ANALYSIS

No trends have been identified.

G. COMPONENT FAILURE DATA:

MANUFACTURER	NOMENCLATURE	MODEL NUMBER	MFG PART NUMBER

This event did not involve component failure.