

LICENSEE EVENT REPORT (LER)

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

Title (4) TURBINE TRIP/REACTOR TRIP DUE TO MAIN TRANSFORMER PHASE IMBALANCE CAUSED BY TRANSMISSION TOWER ICING

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	2	1	7	8	6	8	6	0	0	0
0	2	1	7	8	6	8	6	0	0	0
0	2	1	7	8	6	8	6	0	0	0

OPERATING MODE (9) 1

POWER LEVEL (10) 0 | 9 | 8

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

20.402(b)	20.405(c)	X	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
20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	in Abstract
20.405(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)	below and in
20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(x)	Text)

LICENSEE CONTACT FOR THIS LER (12)

Name A. Chernick, Compliance Supervisor Ext. 2280

TELEPHONE NUMBER 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-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
C	F K	I F D	T 3 8 9	N					

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 February 17, 1986 at 0809 a Turbine Generator/Reactor trip occurred due to a phase differential current sensed by the Main Transformer. This was the result of a phase to phase flashover between phases A and B on bus 4 in the 345KV Switchyard. The generator trip caused a voltage transient on the electrical system. The voltage transient resulted in three Radiation Monitors interlocking. The radiation monitor interlocks caused a Containment Ventilation Isolation and a Train B Fuel Building Ventilation System transfer to the Engineered Safety Features (ESF) alignment.

The flashover between phases A and B of Bus 4 was the result of ice buildup on a transmission line tower during an ice storm. The ice fell from the tower onto Bus 4. A potential transformer was destroyed by the flashover and was subsequently replaced. Due to the uniqueness of this event, no action is planned to modify the switchyard bus. The chance of ice formation causing a similar event is considered remote.

There were no previous similar occurrences of this type.

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

A. PLANT CONDITIONS PRIOR TO EVENT:

MODE 1 - Power Operation Rx Power 98% RCS [AB] Temperature/Pressure Normal Operating

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of this event that contributed to the severity of the event. On February 17, 1986 at 0809 a Turbine Generator/Reactor Trip occurred when a phase differential current condition was sensed at the Main Transformer [EZ]. The licensed operators in the Main Control Room were alerted to the Main Generator [EZ] trip by the "Main Transformer Differential Current Trip" annunciator and to the Reactor [AA] trip by the "Turbine Trip Above P-7 Reactor Trip" annunciator. Coincident with the trip, the 1A and 1B Auxiliary Feedwater Pumps [BA] automatically started on low low steam generator level as expected following a trip from high power. The licensed operators carried out the Reactor Trip or Safety Injection Unit One emergency procedure (IBEP-0) and the Reactor Trip Response emergency procedure (IBEP ES-0.1). At 0855 the 1B Auxiliary Feedwater Pump was manually stopped and at 0912 the Startup Feedwater Pump [SJ] was started. At 0915 IBEP ES-0.1 was exited as the plant had achieved stable conditions in Hot Standby. At 0936 the 1A Auxiliary Feedwater Pump was manually stopped. At the time of the Main Generator trip a voltage transient was induced on the station's electrical system which caused the two Containment Building Fuel Handling Incident Area Radiation Monitors [IL] (1RT-AR011 and 1RT-AR012) and the Fuel Building Fuel Handling Incident Area Radiation Monitor [IL] (ORT-AR056) to enter interlock conditions. The radiation monitor interlocks caused a Containment Ventilation Isolation [VA] and a Train B Fuel Building Ventilation System [VG] transfer to its Engineered Safety Features (ESF) alignment.

The failure mode was a current imbalance between phases A and B on Bus 4 in the 345 KV Switchyard [FK] which activated Main Generator electrical protection circuits that effected the Main Generator breaker trip. The automatic opening of Main Generator Output Breakers, BT 3-4 and BT 4-5, isolated the plant's electrical system from an electrical fault in the 345 KV Switchyard by switching to offsite power sources. During the event a potential transformer located in the 345 KV Switchyard was destroyed by arcing due to the phase differential condition.

This event is being reported in accordance with 10CFR50.73(a)(2)(iv) due to the ESF actuations.

C. CAUSE OF EVENT:

The electrical fault on bus 4 in the 345 KV Switchyard was caused by ice formation on a transmission line tower during an ice storm (External Cause Code C). The ice fell from the tower onto Bus 4 between phases A and B causing a flashover between the two phases. The flashover caused an actual phase imbalance at the Main Transformer. The electrical arcing associated with the flashover destroyed a potential transformer.

D. SAFETY ANALYSIS:

Plant/public safety were not affected by this event. The electrical phase imbalance was detected by main generation system protection features, and the system properly responded by opening the Main Generator output breakers which prevented equipment damage that would have resulted had the phase imbalance persisted. The Main Turbine [TB] properly responded to the Main Generator trip by tripping the steam supply valves shut. The Reactor Protection System [JG] properly responded to the Main Turbine trip by opening the Reactor Trip Breakers which fully inserted all control rods, effectively shutting down the reactor.

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E. CORRECTIVE ACTIONS:

The potential transformer which was destroyed during the event has been replaced. Due to the uniqueness of this incident, no action is planned to modify the switchyard bus. The chance of ice formation causing this event again is considered remote.

F. PREVIOUS OCCURRENCES:

<u>LER NUMBER</u>	<u>TITLE</u>
NONE	

G. COMPONENT FAILURE DATA:

<u>MANUFACTURER</u>	<u>NOMENCLATURE</u>	<u>MODEL NUMBER</u>	<u>MFG PART NUMBER</u>
Trench Electric Ltd.	Coupling Capacitor Potential Device	--	TEV 345



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

March 14, 1986

LTR: BYRON 86-0251

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 86-008-00; Docket No. 50-454.

Very truly yours,

R. E. Querio
Station Manager
Byron Nuclear Power Station

REQ/RP/bf

Enclosure: Licensee Event Report No. 86-008-00

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

#3/017

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