


**LICENSEE EVENT REPORT**

CONTROL BLOCK: 

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	N	J	S	G	S	2	2	0	0	-	0	0	0	0	0	-	0	0	3	4	1	1	1	1	4			5		
7	8	LICENSEE CODE						14	15	LICENSE NUMBER										25	26	LICENSE TYPE					30	31	CAT SE		57

CON'T

REPORT SOURCE 01 16 05 00 00 31 17 06 20 83 81 20 28 59

7 8 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

## EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | On June 20, 1983, during a routine shutdown operation, No. 2B 460V Transformer infeed  
0 3 | breaker tripped on timed overcurrent relay operation. No apparent physical damage  
0 4 | was found, and the breaker was reclosed. Shortly thereafter, a fire occurred in the  
0 5 | transformer. The transformer and associated bus were de-energized and the fire was  
0 6 | extinguished. No other equipment was affected by the fire, and the minimum required  
0 7 | A.C. Bus Trains were operable throughout the occurrence.

0 8 | \_\_\_\_\_

09		SYSTEM CODE		CAUSE CODE		CAUSE SUBCODE		COMPONENT CODE				COMP SUBCODE		VALVE SUBCODE					
7	8	E	B	E		A		T	R	A	N	S	F	Z		Z			
		9	10	11		12		13					14	15		16			
17		EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE		REPORT TYPE		REVISION NO.									
LER RO REPORT NUMBER		8	3			0	3	0	/	0	3	X		1					
		21	22	23		24		26	27	28		29	30	31	32				
ACTION TAKEN	FUTURE ACTION	EFFECT ON PLANT		SHUTDOWN METHOD		HOURS		ATTACHMENT SUBMITTED		NPRD-4 FORM SUB		PRIME COMP. SUPPLIER		COMPONENT MANUFACTURER					
C	Z	C		Z		0	1	0	0	Y		Y		A		B	4	5	5
33	34	35		36		37		40	41		42		43		44		47		

## CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The transformer neutral winding, in the low voltage coil of phase A, failed turn to

1 1 turn. A new transformer was installed and satisfactorily tested. The transformer

1 2 fault does not appear to be generic, and no further corrective action was required.

1 3

1 4

FACILITY STATUS			% POWER			OTHER STATUS			METHOD OF DISCOVERY			DISCOVERY DESCRIPTION		
1	5	G	0	0	0	NA			A	OPERATIONAL EVENT				
(28)			(29)			(30)			(31)			(32)		

ACTIVITY CONTENT  
RELEASED OF RELEASE

1 6 2 33 10 11 NA

AMOUNT OF ACTIVITY (35)

LOCATION OF RELEASE (36)

PERSONNEL EXPOSURES			
NUMBER		TYPE	DESCRIPTION
1	7	0 0 0 37	2 38 NA

PERSONNEL INJURIES		DESCRIPTION	
NUMBER			
1	H	40	NA

1 9 2 42 NA

8512110546 851202  
PDR ADOCK 05000311  
S PDR

ISSUED DESCRIPTION (45) NA

2 0 N 44

NRC USE ONLY

NAME OF PREPARER J. L. Rupp

PHONE: (609)-339-4309



Public Service Electric and Gas Company P.O. Box E Hancocks Bridge, New Jersey 08038

Salem Generating Station

December 2, 1985

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Dear Sir:

SALEM GENERATING STATION  
LICENSE NO. DPR-75  
DOCKET NO. 50-311  
UNIT NO. 2  
LICENSEE EVENT REPORT 83-030/03X-1  
SUPPLEMENTAL REPORT

Pursuant to the requirements of Salem Generating Station Unit 2 Technical Specifications, Section 6.9.1.9.b, this supplemental Licensee Event Report is being submitted to update the "Apparent Cause" and "Corrective Action" sections of the subject report.

Sincerely yours,

J. M. Zupko, Jr.  
General Manager  
Salem Operations

JLR:ama

C Distribution

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Report Number: 83-030/03X-1  
Report Date: 12/02/85  
Occurrence Date: 06/20/83  
Facility: Salem Generating Station Unit 2  
Public Service Electric & Gas Company  
Hancock's Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Electrical Power Systems - No. 2B 460V Vital Bus - Inoperable.

This report was initiated by Incident Report 83-113.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 5 - Rx Power 0 % - Unit Load 0 MWe.

DESCRIPTION OF OCCURRENCE:

At 1100 hours, June 20, 1983, during routine shutdown operation, the Control Room Operator started No. 24 Containment Fan Coil Unit (CFCU). Within 1 minute, the 4kv infeed breaker to No. 2B 460V Transformer tripped open on a Phase C timed overcurrent relay operation. The overcurrent relay was reset and the 4kv breaker and transformer were inspected for signs of distress. No apparent physical damage was found. The loads on the associated bus were de-energized and, at approximately 1140 hours, the transformer infeed breaker was reclosed.

Approximately 30 seconds later, an Elevation 84' Switchgear Room fire alarm was received in the Control Room. Shortly after, an Auxiliary Building 460/230V Bus Hot Spot overhead annunciator was received. The Control Room Operator immediately tripped No. 2B Transformer infeed breaker, isolating the associated bus. The fire was extinguished with carbon dioxide extinguishers, and a fire hose was utilized to cool the transformer core. At 1145 hours, an Unusual Event was declared and appropriate notifications were performed in accordance with Emergency Procedure EP I-1. No other equipment was damaged by the fire. The unusual event was terminated at 1150 hours.

Due to the plant being in a shutdown mode, only two A.C. Bus Trains (including their associated vital buses) were required to be operable; the two redundant trains were operable throughout the occurrence. The loss of the No. 2B 460V Bus resulted in de-energization of the stack flow recorder, which is required to be operable during the release of gaseous effluent to the environment, in accordance with Environmental Technical Specification (ETS) 2.3.4b.

APPARENT CAUSE OF OCCURRENCE:

A review of the circumstances surrounding the event revealed that, prior to the fault, the transformer was carrying 266 KVA (No. 22 CFCU) or 320 amps at 480 volts, and the failure occurred upon starting No. 24 CFCU.

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APPARENT CAUSE OF OCCURRENCE: (cont'd)

Investigation revealed that the fault originated near the center of the low voltage coil of Phase A; the neutral winding failed turn to turn. When the feeder circuit breaker (2B4D) was reclosed into the fault, extensive damage occurred to the failed winding, thus destroying evidence of the exact cause of the failure.

ANALYSIS OF OCCURRENCE:

The operability of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for the safe shutdown of and the mitigation and control of accident conditions within the facility. Operability of minimum specified sources during shutdown and refueling ensures that the facility can be maintained in the shutdown or refueling condition for extended time periods and sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

As noted, the event occurred during shutdown operation, and the minimum required sources were available. The occurrence therefore involved no undue risk to the health or safety of the public. Due to the potential for operation in a degraded mode permitted by a limiting condition for operation, the event is reportable in accordance with Technical Specification 6.9.1.9b.

CORRECTIVE ACTION:

No. 24 CFCU was checked with satisfactory results, and determined not to be the cause of the transformer failure. Analysis of the failed transformer revealed that heat generated by the fault (which originated in the low voltage winding) caused visual damage to the high voltage winding. The transformer was inspected in detail to determine if the failure was caused by moisture; however, no physical evidence of moisture was found. PSE&G Testing Laboratory power factor test reports and equipment failures were reviewed which also indicated that no moisture or high through-faults have previously been experienced. There also has been no history of high operating temperatures associated with the failed transformer. The connections between the transformer taps and the bus were examined with no discrepancies noted. The transformer core adjacent to the failed winding appeared satisfactory, and core insulation tests verified that no damage was sustained.

A new transformer was installed and satisfactorily tested on June 24, 1983. No. 2B 460V Vital Bus and its associated loads, including the stack flow monitor, were re-energized, and compliance with ETS 2.3.4b was regained. The individual who authorized reclosure of the breaker was counseled concerning his actions during the event.

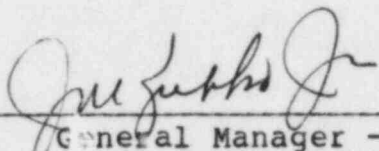
As previously stated, the extent of the damage sustained by the transformer precluded a determination of the exact cause of the failure. However, based on the operating history of Salem's approximately 32 ITE dry type transformers, and on the location of the fault in the 2B transformer, it does not appear to be a generic problem. No further corrective actions were deemed necessary.



FAILURE DATA:

Gould-Brown Boveri/ITE Imperial Corp.  
1000 KVH Ventilated-Dry Transformer  
Type VU-9

Prepared By J. L. Rupp

  
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General Manager -  
Salem Operations

SORC Meeting No. 85-151