

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	9						14	15	25										26	30					34	35		
		LICENSEE CODE							LICENSE NUMBER											LICENSE TYPE						CAT	SE		

CON'T

7 8 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

REPORT SOURCE DOCKET NUMBER EVENT DATE REPORT DATE

0 1 1 6 0 5 0 0 0 3 1 1 7 0 5 3 0 8 3 8 0 6 0 8 8 3 9

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

On May 30, 1983, during routine shutdown operation, the No. 2C Vital Instrument Inverter failed, rendering the associated electrical bus train inoperable. Since No. 2A Diesel Generator was also inoperable at the time, Action Statement 3.8.2.2 was entered. Containment integrity was established within 8 hours as required by the action statement, however. Due to operation less conservative than the least conservative aspect of a limiting condition for operation, the event is reportable in accordance with Technical Specification 6.9.1.8b.

0	9	SYSTEM CODE		E	B	11	CAUSE CODE		D	12	CAUSE SUBCODE		Z	13	COMPONENT CODE				I	N	S	T	R	U	14	COMP SUBCODE		P	15	VALVE SUBCODE		Z	16			
7	8			9	10				11				12						13						14			15				16				
17		LER RO REPORT NUMBER		EVENT YEAR		8	3	21	22	SEQUENTIAL REPORT NO.		0		2	2	24	25	26	OCCURRENCE CODE		0		1	28	29	REPORT TYPE		T		30	31	REVISION NO.		0		32
ACTION TAKEN		FUTURE ACTION		EFFECT ON PLANT		SHUTDOWN METHOD		HOURS		22	ATTACHMENT SUBMITTED		Y		23	NPRD-4 FORM SUB		PRIME COMP. SUPPLIER		A		25	COMPONENT MANUFACTURER		X		9	9	9	44	45	46	47			
A	18	G	19	Z	20	Z	21	0	0	0	0	Y	23	Y	24	A	25	X	9	9	9	26														
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47																						

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The fact that one surveillance test necessary to establish containment integrity was

1 1 expired was overlooked until insufficient time remained to complete the test. A review

1 2 of applicable procedures and Technical Specifications will be performed to identify

1 3 improvements which will prevent recurrence. The inverter was repaired and the action

1 4 statement was terminated.

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

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

ACTIVITY CONTENT RELEASED OF RELEASE (1) 6 (Z) (33) (Z) (34) NA AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36) NA

PERSONNEL EXPOSURES									
NUMBER			TYPE	DESCRIPTION					
1	7	0	0	0	37	2	38	NA	39

PERSONNEL INJURIES		NUMBER		DESCRIPTION	
1	H	0	0	40	NA

1		2		3		4		5		6		7		8		9		10		11		12	
LOSS OF OR DAMAGE TO FACILITY																							
TYPE		DESCRIPTION																					
1	9	2	42	NA																			

7 8 9 10 11 12

TE 22 11

PUBLICITY
 ISSUED DESCRIPTION (45)
 2 0 N 44 NA
 7 8 9 10
 8306170362 830610
 PDR ADOCK 05000311
 S PDR
 NRC USE ONLY
 68 69 80

NAME OF PREPARER R. Frahm

PHONE: (609) 935-6000 Ext. 4309

NRC USE ONLY

8306170362 830610
PDR ADCK 05000311
S PDR

017-978



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

Salem Generating Station

June 10, 1983

Mr. J. Allan
Acting Regional Administrator
USNRC
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Allan

LICENSE NO. DPR-75
DOCKET NO. 50-311
REPORTABLE OCCURRENCE 83-022/01T

Pursuant to the requirements of Salem Generating Station Unit No. 2, Technical Specifications, Section 6.9.1.8.b, we are submitting Licensee Event Report for Reportable Occurrence 83-022/01T. This report is required within fourteen (14) days of the occurrence.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "J. M. Zupko, Jr.", with a stylized flourish at the end.

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

RF:ks

Handwritten initials "J42" in dark ink, positioned to the right of the text "RF:ks".

CC: Distribution

Report Number: 83-022/01T
Report Date: 06-08-83
Occurrence Date: 05-30-83
Facility: Salem Generating Station Unit 2
Public Service Electric & Gas Company
Hancock's Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Electrical Power Systems - Nos. 2A and 2C A.C. Electrical Bus Trains - Inoperable.

This report was initiated by Incident Reports 83-087 and 83-088.

CONDITIONS PRIOR TO OCCURRENCE:

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

DESCRIPTION OF OCCURRENCE:

At 0043 hours, May 30, 1983, during routine shutdown operation, the Control Room Operator observed that the No. 2C Vital Instrument Bus had tripped, de-energizing its associated loads. Immediate investigation of the problem revealed that the vital inverter was "chattering"; the inverter was immediately taken out of service. The No. 22CSD 4KV Infeed Breaker was found in the open position, with no relay flags locked in. No audible alarm had been received for the breaker trip. The No. 2C 4KV Bus loads were found de-energized, with the No. 21 CSD Breaker closed in.

Loss of the No. 2C Vital Instrument Bus resulted in de-energization of the following equipment: Fuel Storage Pool Area Monitors 2R5 and 2R9, sprinklers in the Containment and Fuel Handling Buildings, miscellaneous fire hose stations, and Nos. 2A and 2C Diesel Generators. Due to the loss of No. 2C Vital Instrument Bus and Diesel Generator, the associated A.C. bus train was rendered inoperable. Accordingly, Technical Specification Action Statements 3.3.3.1b, 3.7.10.2a, 3.7.10.4a, 3.8.1.2, and 3.8.2.2 were entered.

With the inverter de-energized, and investigation indicating the device was the source of the problem, power was supplied to the vital instrument bus via the alternate power supply. All necessary 115V loads were restored, and at 0143 hours, the appropriate action statements were terminated. Since the alternate supply does not meet the requirements of the Technical Specifications, however, the associated bus train remained inoperable. Steps were immediately taken to comply with Action Statement 3.8.2.2, which required that containment integrity be established within 8 hours of entry.

At 0730 hours, a review of the documentation for verification of containment integrity revealed that the portions associated with the Main Steam System were not current. These portions were required since the steam generator manways were removed; it had been

DESCRIPTION OF OCCURRENCE: (cont'd)

erroneously assumed that they were up to date. Containment integrity was therefore not established within 8 hours as required. Necessary surveillance was completed, and at 1145 hours, May 30, 1983, containment integrity was established. Prompt notification of the Resident NRC Inspector was performed on May 31, 1983, with written confirmation transmitted later that day.

All operations involving core alterations or positive reactivity changes were suspended during the occurrence. No abnormal degradation of fuel cladding was involved; a redundant A.C. bus train was available throughout the occurrence.

APPARENT CAUSE OF OCCURRENCE:

Investigation of the inverter problems revealed several failed electronic components. The failures were assumed to be related to the transient which occurred May 25, 1983 (see LER 83-021/01T). Damage to the inverter had occurred at that time, and apparently some components had been degraded in addition to those that had failed.

ANALYSIS OF OCCURRENCE:

The operability of minimum specified A.C. and D.C. power sources and associated distribution systems 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.

Limiting Condition for Operation 3.3.3.1 requires:

With the number of operable Fuel Storage Pool Area monitoring channels less than the minimum channels operable requirement, perform area surveys of the area with portable monitoring instrumentation at least once per 24 hours.

Action Statement 3.7.10.2b requires:

With one or more of the required spray or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.

Action Statement 3.7.10.4b requires:

With one or more of the fire hose stations inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an operable hose station within one hour if the inoperable fire hose is the primary means of fire suppression; otherwise, route the additional hose within 24 hours.

ANALYSIS OF OCCURRENCE: (cont'd)

Action Statement 3.8.1.2 requires:

With less than the minimum required A.C. electrical power sources operable, suspend all operations involving core alterations or positive reactivity changes until the minimum required A.C. electrical power sources are restored to operable status.

Action Statement 3.8.2.2 requires:

With less than the minimum specified A.C. busses and inverters operable and energized, establish containment integrity within 8 hours.

As noted, no core alterations or positive reactivity changes occurred. Although the 8 hour period was exceeded, a redundant A.C. bus was operable throughout the occurrence. Integrity of the fuel cladding was maintained providing a redundant fission product barrier, and the plant was maintained in a stable shutdown condition in accordance with the specification basis. The instrument bus was re-energized within one hour, in compliance with the other action statements.

The event constitutes operation of the unit with a system subject to a limiting condition for operation less conservative than the least conservative aspect of the limiting condition for operation. The occurrence is therefore reportable in accordance with Technical Specification 6.9.1.8b.

CORRECTIVE ACTION:

As noted, containment integrity was established at 1145 hours. May 30, 1983, in compliance with the limiting condition for operation. The inverter was repaired and satisfactorily tested; the associated bus train was declared operable at 0600 hours, May 31, 1983, and Action Statement 3.8.2.2 was terminated.

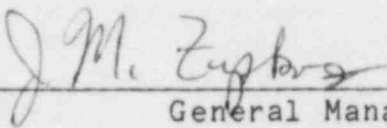
The vital instrument bus alternate supply modification will provide added assurance that the bus and its associated train will be maintained operable both during shutdown and power operation. The modification is scheduled for completion during the present refueling. A review of the Technical Specifications will also be performed to determine possible revisions to instrument bus power supply and action time requirements.

Finally, due to previous problems with re-energization of the vital inverters, a review of the applicable procedure will be performed. Appropriate improvements to the procedure will be made on the basis of the review.

FAILURE DATA:

Garrett - Airesearch Manufacturing Co.
15 KW Power Supply
Part No. 524034-1

Prepared By R. Frahm


General Manager -
Salem Operations

SORC Meeting No. 83-077