

**LICENSEE EVENT REPORT**

CONTROL BLOCK:

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

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7	8	LICENSEE CODE						14	15	LICENSE NUMBER										25	26	LICENSE TYPE					30	57	CAT	56

CON'T

REPORT SOURCE 1 6 0 5 0 0 0 3 1 1 7 0 6 2 3 8 3 8 0 7 1 3 8 3 9

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

EVENT DATE

REPORT DATE

## EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

On June 23, 1983, during routine shutdown operation, an Equipment Operator performing routine surveillance discovered a large leak in the No. 2 Service Water Bay. Due to the accumulation of approximately 6 feet of water in the bay, and an apparently continuing rise in the water level following an initial attempt to isolate the leak, all service water pumps were stopped, resulting in the loss of flow to the Boron Injection, residual Heat Removal and Diesel Generator Systems. Action Statements 3.1.2.3, 3.4.1.4, 3.8.1.2b, and 3.8.2.2 were entered. The event constituted operation in a degraded mode in accordance with Technical Specification 6.9.1.9b.

0 9 7 8

SYSTEM CODE 9 W 10 A 11 11

CAUSE CODE 11 B 12 12

CAUSE SUBCODE 12 A 13 13

COMPONENT CODE 13 PIPE 18 EX 14

COMP. SUBCODE 19 E 15 19

VALVE SUBCODE 20 Z 16 20

17 LER RO REPORT NUMBER

EVENT YEAR 21 8 22 3

23 — 23

SEQUENTIAL REPORT NO. 24 0 25 3 26 2

27 / 27

OCCURRENCE CODE 28 0 29 3

REPORT TYPE 30 L 31

31 — 31

REVISION NO 32 0 32

ACTION TAKEN 33 A 34 18 35 F 36 19

FUTURE ACTION 37 — 38

EFFECT ON PLANT 39 Z 20 40

SHUTDOWN METHOD 41 Z 21 42

HOURS 22 43 0 44 0 45 0 46 0

ATTACHMENT SUBMITTED 47 Y 23 48

NPRD-4 FORM SUB. 49 Y 24 50

PRIME COMP. SUPPLIER 51 A 25 52

COMPONENT MANUFACTURER 53 U 54 0 55 8 56 0 57 26

## CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Investigation revealed that the leakage was due to a failed gasket in the joint down-

1 1 stream of Check Valve 22SW5; the gasket failure was attributed to an isolated problem

1 2 in installation related to poor access to the joint. The connection had recently been

1 3 opened then remade during cleaning of the No. 21 Nuclear Header. Related problems with

1 4 the bay sump pumps and alarms will be corrected by a design change. The joint was remade

7 8 and the action statements terminated

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

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
ACTIVITY CONTENT RELEASED OF RELEASE													AMOUNT OF ACTIVITY (35)													LOCATION OF RELEASE (36)																											

1 6 Z (33) Z (34) NA NA

PERSONNEL EXPOSURES				
NUMBER	TYPE	DESCRIPTION	(39)	
1	2	(37)	(38)	NA

[illegible]

NUMBER		DESCRIPTION
1	8	NA

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		61		62		63		64		65		66		67		68		69		70		71		72		73		74		75		76		77		78		79		80		81		82		83		84		85		86		87		88		89		90		91		92		93		94		95		96		97		98		99		100																					
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7 8 9 10 NA 8308010303 830713  
PDR ADOCK 05000311 NRC USE ONLY

ISSUED DESCRIPTION S PDR

7 8 9 10 68 69 80

2 0 NA

NAME OF PREPARER R. Frahm

PHONE: (609) 339-4309

NRC USE ONLY

91 Y-930



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

Salem Generating Station

July 21, 1983

Dr. Thomas E. Murley  
Regional Administrator  
USNRC  
Region 1  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Dear Dr. Murley:

LICENSE NO. DPR-75  
DOCKET NO. 50-311  
REPORTABLE OCCURRENCE 83-032/03L

Pursuant to the requirements of Salem Generating Station Unit No. 2, Technical Specifications, Section 6.9.1.9.b, we are submitting Licensee Event Report for Reportable Occurrence 83-032/03L. This report is required within thirty (30) days of the occurrence.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. M. Zupko, Jr.", is written above the typed name.

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

RF:klb *g4*

CC: Distribution

Report Number: 83-032/031  
Report Date: 07-13-83  
Occurrence Date: 06-23-83  
Facility: Salem Generating Station Unit 2  
Public Service Electric & Gas Company  
Hancock's Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Boron Injection System, Residual Heat Removal System, and A.C. Power Sources - Inoperable.

This report was initiated by Incident Report 83-116.

CONDITIONS PRIOR TO OCCURRENCE:

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

DESCRIPTION OF OCCURRENCE:

At 2055 hours, during routine shutdown operation, an Equipment Operator performing routine surveillance discovered a large leak in No. 2 Service Water Bay. The operator reported the leak to the Control Room. The operating pumps in the bay were de-energized and an attempt was made to isolate the leak by shutting the No. 21 Nuclear Header Supply Valve 22SW20 (the operator suspected that the header flexible coupling had failed; the coupling is upstream of Check Valve 22SW5). Due to the accumulation of approximately 6 feet of water in the bay and an apparently continuing rise in the level, all operating service water pumps were then stopped to protect the pump motors (Crosstie Valves 21SW23 and 22SW23 were open due to the shutdown configuration, allowing backflow from the No. 22 Header).

The loss of service water flow to the charging pumps, residual heat removal (RHR) pumps and heat exchangers, and diesel generator coolers rendered the associated systems and A.C power sources inoperable. Technical Specification Action Statements 3.1.2.3, 3.4.1.4, 3.8.1.2b, and 3.8.2.2 were entered. An unusual event was declared and appropriate notifications were made in accordance with Emergency Procedure EP I-1.

The flooding was stopped before reaching the motors of the service water pumps. The leak was isolated manually and service water flow was restored at 2150 hours; the unusual event and action statements were terminated. Only limited damage to controls and equipment in the bay resulted. No core alterations or positive reactivity additions were involved in the occurrence; containment integrity was being maintained at the time.

APPARENT CAUSE OF OCCURRENCE:

Investigation revealed that the leakage was from the downstream flange of Check Valve 22SW5; the rubber gasket which was installed at the joint was found to have failed. The connection had been

APPARENT CAUSE OF OCCURRENCE: (cont'd)

reassembled following recent cleaning of the No. 21 Service Water Header. Some leakage had occurred following the reassembly and was eliminated by retightening the studs at the joint.

Some distortion was observed around the stud holes in the vicinity of the failed portion of the gasket. Installation and proper tightening of the connection is difficult due to physical obstruction of access to the rear and underneath the flange. A controlled work package was utilized for the task, and included appropriate quality verifications. The failure was therefore assumed to involve an isolated problem in installation of the gasket.

The original sump pumps in the service water bay had previously failed. A design change to install improved pumps was in progress, but had not yet been implemented. Temporary pumps were being utilized in the interim. Upon receipt of a sump high level alarm, an operator would be dispatched to start the temporary pump. The alarm therefore did not provide warning of a large leak in the bay.

ANALYSIS OF OCCURRENCE:

The boron injection system, including the charging pumps, ensures that negative reactivity control is available during each mode of facility operation. With the Reactor Coolant System (RCS) Temperature below 200°F, one injection system is acceptable on the basis of the stable reactivity condition of the reactor and the additional action requirements in the event the system becomes inoperable.

The operation of one RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the RCS. Single failure considerations require that two RHR loops be operable in Mode 5.

Finally, the operability of the A.C. power sources, including the associated emergency diesel generator, during shutdown and refueling ensures that the facility can be maintained in this condition for extended time periods and that sufficient instrumentation and control capability is available for monitoring and maintaining the unit status. Action requirements specified for the levels of degradation provide restriction upon operation commensurate with the level of degradation.

Technical Specifications 3.1.2.3, 3.4.1.4, and 3.8.1.2b require:

With less than the required equipment operable, suspend all operations involving core alterations or positive reactivity changes until the minimum required equipment is restored to operable status.

Technical Specification 3.8.2.2 requires:

With less than the required A.C. buses and inverters operable and energized, establish containment integrity within 8 hours.



ANALYSIS OF OCCURRENCE: (cont'd)

As noted, appropriate action was taken to comply with all action requirements. Service water flow was restored, and all safety related equipment restored to operation in a timely manner. The incident would not likely have resulted during operation at power, when redundant equipment would not be removed from operation for maintenance or isolation of the leak. The service water headers are normally separated during power operation, minimizing the effect of a leak in one bay on the redundant header and loads. The event therefore did not involve any undue risk to the health or safety of the public. The occurrence constituted operation in a degraded mode in accordance with Technical Specification 6.9.1.9b.

CORRECTIVE ACTION:

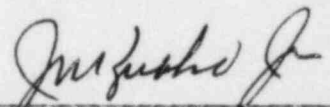
As mentioned, the appropriate action was taken immediately to stop the leak and insure compliance with the Technical Specifications. The flexible coupling at the joint was inspected with no problems evident. A new gasket was installed, the joint was reconnected, and the system was satisfactorily tested. No further problems have been noted with the joint. Implementation of the design change for improved, permanent sump pumps will be expedited. This will allow proper use of the alarm function for leak detection.

FAILURE DATA:

Service Water System  
24 inch Piping  
Rubber Gasket

Prepared By R. Frahm

SORC Meeting No. 83-094



General Manager -  
Salem Operations