

## LICENSEE EVENT REPORT

CONTROL BLOCK:

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 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 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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

CON'T

REPORT  
SOURCE

01 L 6 0 5 0 0 0 3 1 1 7 0 3 1 4 8 3 8 0 7 1 3 8 3 9  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

## EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 Pressurizer Code Safety Valves 2PR3, 2PR4, and 2PR5 were tested for lift set pressure  
03 and seat leakage by Wyle Laboratories during the period of February 24-25, 1983. All  
04 valves lifted below the 2485 psig  $\pm$  1% pressure range specified in Technical Speci-  
05 fication 3.4.3. All valves displayed heavy audible and visual seat leakage at 2236  
06 psig. The test lift pressures were: 2PR3 - 2416 psig (44 psig below), 2PR4 - 2400  
07 psig (60 psig below), 2PR5 - 2454 psig (6 psig below). Engineering evaluation revealed  
08 that the setpoint deviations did not present a safety concern.  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

09 SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP SUBCODE VALVE SUBCODE  
C B 11 D 12 Z 13 V A L V E X 14 J 15 B 16  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

17 LER RO REPORT NUMBER EVENT YEAR  
8 3  
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

ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPD-4 FORM SUB PRIME COMP. SUPPLIER COMPONENT MANUFACTURER  
D 18 G 19 Z 20 Z 21 0 0 0 0 Y 23 Y 24 N 25 C 7 1 0 26  
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

## CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 All three valves have been repaired and retested satisfactorily, then reinstalled.  
11 Testing revealed that the setpoint deviation and seat leakage were apparently due to  
12 the testing methods utilized. The valves will be tested again during the next  
13 refueling; support will be provided to improve testing methods.  
14  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

15 FACILITY STATUS % POWER OTHER STATUS (30) METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)  
H 28 0 0 0 29 NA C 31 Pressure Lift Test  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

16 ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)  
Z 33 Z 34 NA NA  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

17 PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39)  
0 0 0 37 2 38 NA  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

18 PERSONNEL INJURIES NUMBER DESCRIPTION (41)  
0 0 0 40 NA  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

19 LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION (43)  
Z 42 NA  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

20 PUBLICITY ISSUED DESCRIPTION (45)  
N 44 NA  
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 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

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PDR ADOCK 05000311  
S PDR

NRC USE ONLY

NAME OF PREPARER

R. Frahm

PHONE: (609) 935-6000 Ext. 4309



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

Salem Generating Station

July 27, 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 83-002/03X-1  
SUPPLEMENTAL REPORT

Pursuant to the requirements of Salem Generating Station  
Unit No. 2 Technical Specifications, Section 6.9.1.9b,  
we are submitting supplemental Licensee Event Report for  
Reportable Occurrence 83-002/03X-1.

Sincerely yours,

A handwritten signature in cursive script, reading "J. M. Zupko, Jr.", written in dark ink.

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

RF:kl *742*

CC: Distribution

*FE22*  
*11*

Report Number: 83-002/03X-1  
Report Date: 07-13-83  
Occurrence Date: 03-14-83  
Facility: Salem Generating Station, Unit 2  
Public Service Electric & Gas Company  
Hancocks Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Pressurizer Code Safety Valves - Inoperable.

This report was initiated by Incident Report 83-054.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 6 - Rx Power 0% - Unit Load 0 MWe.

DESCRIPTION OF OCCURRENCE:

Pressurizer Code Safety Valves 2PR3, 2PR4, and 2PR5 were tested for lift set pressure and seat leakage by Wyle Laboratories during the period of February 24-25, 1983. All valves lifted below the 2485 psig  $\pm$  1% pressure range specified in Technical Specification 3.4.3. All valves displayed heavy audible and visual seat leakage at 2236 psig. The actual lift pressures were: 2PR3 - 2416 psig (44 psig below), 2PR4 - 2400 psig (60 psig below), 2PR5 - 2454 psig (6 psig below). This was the first time these valves had been tested since startup, this being the first refueling outage. No Reactor Coolant System (RCS) pressure transients occurred during previous power operation which resulted in actuation of the safety valves; the integrity of the RCS and redundant fission product barriers was maintained.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE:

Subsequent investigation revealed that leakage observed through the valves could be attributed partly to the difference in test versus actual operating conditions. During testing, the valve was directly placed above the pressurizing chamber and was subjected to temperatures close to 500°F. In the plant, a long water loop seal precedes each valve, and each valve body inlet temperature is less than 200°F. The valve internals are of a type that provides leak tightness during plant operation and are not designed to be tight against high temperature steam. This was substantiated by nitrogen tests where the last valve tested was leak tight (while during tests at the same setpoint with steam, the valve leaked). A steam test followed the nitrogen test with the body temperature limited to 200°F. The valve was successfully lift tested with no subsequent seat leakage. It was therefore tentatively assumed that the setpoint variations were related to the elevated test temperatures utilized.

ANALYSIS OF OCCURRENCE:

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its safety limit of 2735 psig. Each safety valve is designed to relieve 420,000 pounds per hour of saturated steam at the valve setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety valves are operable, an operating RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperatures.

During operation, all pressurizer code safety valves must be operable to prevent the RCS from being pressurized above its safety limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss of load assuming no reactor trip until the first Reactor Protective System trip setpoint is reached (i.e., no credit is taken for a direct reactor trip on the loss of load) and also assuming no operation of the power operated valves or steam dump valves.

Evaluation of the potential impact of the possible safety valve setpoint variation on plant performance during the analyzed transient was performed. The evaluation S-C-R200-NSE-193 states:

Valve performance with the lowered setpoint during operation did not present any safety concern since the design basis valve function of providing overpressure protection was never compromised. The lowest observed set pressure was well above the set pressure of the power-operated relief valves (PORV) and as such, it would not have complicated normal system function.

Apart from the qualitative difference between the test and operating condition, a leaky valve does not pose any safety concern, as long as the Unit Technical Specification governing the allowable RCS leakage is not violated.

As noted, no pressure transient was involved and the integrity of multiple fission product barriers was maintained. Finally, the problems apparently involved testing methods and not an actual variation in valve setpoints. The occurrence therefore constituted 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:

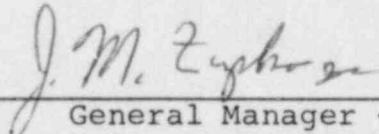
The valve manufacturer, in conjunction with Wyle engineers, refurbished the valves by ultrasonic cleaning, lapping the seating surfaces and reestablishing the ring positions. Subsequent retesting indicated the opening pressures to be within the allowable tolerance and no leakage was observed.

The refurbished and retested valves have shown acceptable performance. The valves will be tested again during the next refueling. At that time support will be provided to insure that testing performed more closely models actual valve operating conditions.

FAILURE DATA:

Crosby Valve and Gage Co.  
Pressurizer Safety Valve  
Part No. HB-86-BP

Prepared by R. Frahm

  
General Manager -  
Salem Operations

SORC Meeting No. 83-094