

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Beaver Valley Power Station, Unit 2 DOCKET NUMBER (2) 050000412 PAGE (3) 1 OF 6

TITLE (4) Informational Report Providing Clarification of a 10CFR50.72 Notification Regarding PORV Inoperability.

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)		
03	20	89	89	004	00	04	19	89		050000		
03	20	89	89	004	00	04	19	89		050000		

OPERATING MODE (9) 4 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

20.402(b)	20.405(c)	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)	X OTHER (Specify in Abstract by Title and in Text, NRC Form 360A)
20.405(a)(1)(iii)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Mr. Thomas P. Noonan, General Manager Nuclear Operation TELEPHONE NUMBER 412 643-1258

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	AB	PCV	C711	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO X

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On 3/18/89 at 1630 hours, a plant cooldown was commenced. During the cooldown, Overpressure Protection System (OPPS) for two Pressurizer Power Operated Relief Valves (PORV) could not be accomplished due to position indication problems with the PORVs. The block valve for one PORV, 2RCS*PCV455C, was closed, while the other PORV, 2RCS*PCV456, remained available to relieve pressure if required. On 3/20/89 at 0638 hours, seat leakage prompted the closure of the block valve for 2RCS*PCV456, resulting in no OPPS operability and entry into the ACTION Statement of TS 3.4.9.3.b. At 0938 hours on 3/20/89, OPPS was placed in service for 2RCS*PCV455C. The cause for this event was due to compound acceptance criteria in the surveillance test used to verify OPPS PORV operability. The surveillance test has been revised to clarify the acceptance criteria which must be satisfied to show compliance for specific surveillance requirements. There were no safety implications to the public as a result of this event. The PORVs were shown to be capable of providing Overpressure protection. Additionally, redundant overpressure protection was provided by the relief valves installed on the inlet lines to the Residual Heat Removal System.

8904250443 890419
PDR ADOCK 05000412
S PDC

DE 22
1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Beaver Valley Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 2 8 9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
			0 0 0 4	0 0	0 2	OF	0 6

TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT

On 3/17/89, with the Unit in Hot Standby (Mode 3), preparing to cool down to Cold Shutdown (Mode 5) to begin the First Refueling Outage, Instrument and Control (I&C) personnel performed 2MSPs 6.68 (6.69), "Reactor Overpressurization Pressurizer Power Operated Relief Valves (PORV) 2RCS*PCV455C (456) Setpoint Functional Test". These procedures are prerequisites to placing the Cold Overpressurization System in service following the plant cooldown. These procedures were successfully completed on 3/17/89.

On 3/18/89 at 1630 hours, a plant cooldown was commenced. Initial plant conditions prior to the cooldown were: reactor coolant system (RCS) pressure 2250 psig and temperature 547F and both PORV block valves (2RCS*MOV535 and 536) open. At 1719 hours, when RCS pressure decreased to 2185 psig, both available PORVs block valves (2RCS*MOV535 and 536) auto-closed, reopened, and again auto-closed. This closing and opening of the block valves causes the PORV to quickly open and close due to the PORV pilot valve sensing the differential pressure change. As a result, PORV (2RCS*PCV455C) showed dual indication. Operators observed Pressurizer Relief Tank (PRT) pressure and temperature indications to verify closure of PORV 2RCS*PCV455C. As a result of the dual indication on 2RCS*PCV455C, Operations personnel applied Technical Specification (TS) 3.3.3.8 (which is applicable in Modes 1, 2 and 3) and closed and de-energized this PORV's associated block valve (2RCS*MOV535) and de-energized the associated heat trace circuitry. The unblocked PORV, 2RCS*PCV456, remained available to relieve any system pressure perturbations. At 2258 hours, RCS temperature indicated less than 350F, indicating entry into Hot Shutdown (Mode 4), in which TS 3.3.3.8 no longer applies. TS 3.4.9.3, Overpressure Pressure Systems, however, was applicable with RCS temperature less than 350F.

During the morning hours on 3/19/89, Operations personnel placed OPPS in service, with 2RCS*PCV456 only, in accordance with Operating Manual Procedure 2.51.4.C. TS ACTION Statement 3.4.9.3.a was entered, since one PORV (2RCS*PCV455C) was unavailable with its block valve closed. At 1421 hours, RCS temperature decreased to less than 200F, indicating entry into Cold Shutdown (Mode 5). In Cold Shutdown, TS 4.4.9.3.1.d requires the PORVs to be stroked to verify PORV operability, thus Operations personnel perform Operating Surveillance Test (OST) 2.6.8, "Placing Overpressure Protection System in Service", which strokes the OPERABLE PORVs and verifies position indication.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Beaver Valley Power Station, Unit 2	DOCKET NUMBER (2) 05000412	LER NUMBER (6)			PAGE (3)	
		YEAR 89	SEQUENTIAL NUMBER -004	REVISION NUMBER -00	03	OF 06

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On 3/19/89 at 1650 hours, during the performance of OST 2.6.8, PORV 2RCS*PCV456 was stroked, but failed to exhibit full open position indication as required by the OST acceptance criteria. Satisfactory valve operation for 2RCS*PCV456 had been verified through indirect means (observation of changing PRT indications). 2RCS*PCV455C was previously considered out of service due to its associated block valve being closed, and 2RCS*PCV456 was the only available PORV (its block valve 2RCS*MOV536 remained open) to provide overpressure protection. Since a satisfactory stroke time was not yet achieved, Operations personnel conservatively applied TS ACTION Statement 3.4.9.3.b and commenced parallel efforts to depressurize and vent (greater than or equal to 3.14 square inches) the RCS and to demonstrate a PORV stroke time within OST 2.6.8 criteria. This ACTION Statement requires the depressurization and venting of the RCS through a 3.14 square inch vent within 12 hours; and to maintain the RCS in a vented condition until both PORVs have been returned to service. Repeated efforts to obtain a satisfactory stroke time based on position indication, for 2RCS*PCV456 were unsuccessful.

On 3/20/89, efforts were directed toward establishing PORV operability because pressurizer temperature would not allow removal of a safety valve to obtain the required vent path with the ACTION statement of TS 3.4.9.3. The PORV operability evolution required the installation of a source of pressurization (nitrogen) on the PORV to obtain the pressure differential which would allow the valve to stroke. During this evolution, a defect was found in the hose connection for the nitrogen source and this hose had to be replaced. The replacement of the hose could not be completed by 0450 hours on 3/20/89 (the time limit specified by the application of the ACTION statement of TS 3.4.9.3). The Nuclear Regulatory Commission was notified of exceeding the conservatively applied ACTION statement, at 0451 hours, via the Emergency Notification System. At 0638 hours, 2RCS*PCV456 was stroked to verify operability. During the valve stroke, PRT conditions were observed to change (increased pressure) indicating satisfactory valve operation. The operator then vented the PRT to the Gaseous Waste System until high pressure alarms in the Gaseous Waste System were received. Upon closure of the PRT vent, the PRT pressure continued to rise (due to leakage past 2RCS*PCV456), prompting the operator to close the block valve (2RCS*MOV536) for 2RCS*PCV456. This resulted in both PORVs being blocked, requiring actual entry into TS ACTION Statement 3.4.9.3.b. At 0908 hours, OPSS was placed in service for 2RCS*PCV455C, as it had not demonstrated excessive seat leakage

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Beaver Valley Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	- 0 0 4	- 0 0	0 4	OF 0 6

TEXT (If more space is required, use additional NRC Form 366A's) (17)

and was successfully stroked, as indicated by changes to PRT pressure. TS ACTION Statement 3.4.9.3.b was exited and TS ACTION Statement 3.4.9.3.a was entered at this time, as one PORV was returned to service. Throughout the day both PORVs were successfully stroked, as evidenced by changing PRT pressure, however, positive position indication could not be verified through use of the PORV limit switches. After further discussion and review, it was determined that the acceptance criteria of OST 2.6.8 was incorrectly specified for verifying OPPTS PORV operability in Cold Shutdown.

It was concluded that the PORVs were capable of supplying Overpressure Protection and therefore, that the OPPTS was operable. Additionally, the Nuclear Steam System Supplier (NSSS) also provided an engineering evaluation stating that the PORV goes full open at 135 psig steam, since the mechanical design of the PORVs is such that, if the solenoid energizes and there is sufficient pressure differential the valve will open fully. This was discussed with the Licensing and Engineering Groups and it was concluded that the ACTION statement for two PORVs being inoperable, of TS 3.4.9.3 was not applicable.

On 3/21/89 at 1330 hours, the bonnet of Pressurizer Power Operated Relief Valve 2RCS*PCV455C was removed, providing the 3.14 square inch vent opening specified in the ACTION statement of TS 3.4.9.3.a. This allowed exiting of TS 3.4.9.3.a, at that time.

CAUSE OF EVENT

The cause for this event was due to compound acceptance criteria in OST 2.6.8 written to comply with several TSS (3.3.3.8, 4.0.5 and 3.4.9.3), for Modes 1,2,3 and Shutdown Modes 4 and 5 (OPPTS). OST 2.6.8 placed additional restrictions involving stroke time and position indication which are not necessary to verify OPPTS PORV operability for Modes 4 and 5.

OST 2.6.8 is written to satisfy several TS Surveillances: 4.0.5 (ASME stroke testing and timing), 4.3.3.8.4 (Accident Monitoring Instrumentation) and 4.4.9.3.1.d (stroking of the OPPTS PORVs each time the plant enters Cold Shutdown), and 4.4.11.1.b (stroke of all PORVs once every 18 months). Since plant conditions are optimum to meet all the aforementioned TS Surveillances, the acceptance criteria is written to satisfy all the requirements to stroke, time and verify position indication of the PORVs. The surveillance requirement of TS 4.4.9.3.1.d, to stroke the operable PORVs

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Beaver Valley Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	- 0 0 4	- 0 0	0 5	OF 0 6

TEXT (If more space is required, use additional NRC Form 386A's) (17)

when the plant enters Cold Shutdown can be verified through indirect means: monitoring PRT conditions (level, pressure and/or temperature). This indirect means of verification is consistent with ASME IWV-3412(b), Exercising Procedure, which is used in OST 2.6.8 to verify remote PORV positions at refueling. The surveillance requirements for TS 4.4.9.3.1.d can be met without actual electrical position indication by observing PRT conditions. Therefore OPPS can be demonstrated through observation of indirect evidence. Additionally, previous performances of OST 2.6.8 yielded stroke times for the OPPS PORVs as follows: 2RCS*PCV455C (0.53, 0.45 and 0.63 seconds) and 2RCS*PCV456 (0.58, 0.66 and 0.59 seconds). These stroke times were all below the limit specified in OST 2.6.8, of 2.0 seconds.

CORRECTIVE ACTION

1. PORV, 2RCS*PCV455C, operability for OPPS was demonstrated by stroking using PRT parameters.
2. PORV, 2RCS*PCV456, operability for OPPS was demonstrated by stroking using PRT parameters.
3. OST 2.6.8 has been revised to clarify the acceptance criteria which must be satisfied to show compliance for a specific TS surveillance requirement and to list the applicable Operating Modes for these acceptance criteria.
4. The PORV Magnet Rod, used to provide the limit switch indication will be changed to a solid stainless steel rod, versus the installed welded joint design, to improve the reliability of the limit switch position indication.
5. The shutdown procedure will be revised to provide administrative guidance regarding the block valve position to prevent inadvertent PORV cycling during the plant cooldown evolution.

SAFETY IMPLICATIONS

There were no safety implications to the public as a result of this event. The PORVs were shown to be capable of providing Overpressure Protection as evidenced by Pressurizer Relief Tank pressure, level and temperature changes, and by an NSSS engineering evaluation which stated that the valve will fully

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Beaver Valley Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 2	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	- 0 0 4	- 0 0	0 6	OF	0 6

TEXT (If more space is required, use additional NRC Form 366A's) (17)

open, if the solenoid energizes and there is sufficient pressure differential, due to the mechanical design. Additionally, each inlet line to the Residual Heat Removal System is equipped with a relief valve designed to relieve the combined flow of two charging pumps at the relief valve set pressure. These relief valves also protect the RCS from inadvertent overpressurization during plant cooldown or startup.

Additionally, the PORVs are stroke time tested within 48 hours of each Cold Shutdown, but not more often than once every 92 days, as part of the Inservice Testing Program. A "Cold Shutdown Justification" was granted from the original quarterly full stroke and time testing, due to the fact that cycling during normal operation while isolated is not practical since system pressure is required to stroke the valve (the control switch only energizes the Solenoid Valve to open the pilot path, which applies system pressure to an actuating cylinder, opening the valve). This testing is also deferred due to the consequences of a failure of this valve, in the open direction, at power while unisolated. These valves are normally closed and their safety function is to provide overpressure protection for the RCS. During normal operation, at power, safety grade over pressure protection is provided by the pressurizer safety valves.

REPORTABILITY

This event was conservatively reported to the Nuclear Regulatory Commission at 0451 hours, in accordance with 10 CFR 50.72.b.2.iii.D. This written report is being submitted as a clarification to the 10CFR50.72 notification.

PREVIOUS OCCURRENCES

There have been no previous Licensee Event Reports issued on this type of event.



Duquesne Light

Nuclear Group
P.O. Box 4
Shippingport, PA 15077-0004

Telephone (412) 393-6000

April 19, 1989
ND3MNO:1864

Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, License No. NPF-73
LER 89-004-00

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

In accordance with Appendix A, Beaver Valley Technical Specifications, the following Licensee Event Report is submitted:

LER 89-004-00, "Informational Report Providing Clarification of a 10CFR50.72 Notification Regarding PORV Inoperability".

Very truly yours,

T. P. Noonan
General Manager
Nuclear Operations

cj

Attachment

IER2
11

April 19, 1989

ND3MNO:1864

Page two

cc: Mr. William T. Russell
Regional Administrator
United States Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

C. A. Roteck, Ohio Edison

Mr. Peter Tam, BVPS Licensing Project Manager
United States Nuclear Regulatory Commission
Washington, DC 20555
J. Beall, Nuclear Regulatory Commission,
BVPS Senior Resident Inspector

Mr. Alex Timme, CAPCO Nuclear Projects Coordinator
Toledo Edison

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA 30339

G. E. Muckle, Factory Mutual Engineering, Pittsburgh

Mr. J. N. Steinmetz, Operating Plant Projects Manager
Mid Atlantic Area
Westinghouse Electric Corporation
Energy Systems Service Division
Box 355
Pittsburgh, PA 15230

American Nuclear Insurers
c/o Dottie Sherman, ANI Library
The Exchange Suite 245
270 Farmington Avenue
Farmington, CT 06032

Mr. Richard Janati
Department of Environmental Resources
P. O. Box 2063
16th Floor, Fulton Building
Harrisburg, PA 17120

Director, Safety Evaluation & Control
Virginia Electric & Power Co.
P.O. Box 26666
One James River Plaza
Richmond, VA 23261