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April 8, 1994
ND3MNO:3558

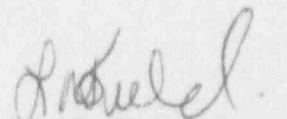
Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, Licensee No. NPF-73
LER 94-002-00

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 94-002-00, 10 CFR 50.73.a.2.ii.B, "Insufficient Design Review Results in Condition Outside Plant Design Basis."


L. R. Freeland
General Manager
Nuclear Operations

JWM/tp

Attachment

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Page 2

cc: Mr. T. T. Martin, Regional Administrator
United States Nuclear Regulatory Commission
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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MREB) 7714, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Beaver Valley Power Station Unit 2	DOCKET NUMBER (2) 05000 412	PAGE (3) 1 OF 04
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TITLE (4)
Insufficient Design Review Results in Condition Outside Plant Design Basis

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
3	10	94	94	002	00	4	10	94	N/A	05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 4: (Check one or more) (11)								
POWER LEVEL (10)	100	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)		OTHER
		20.405(a)(1)(iii)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)			X 50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)		
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

NAME L. R. Freeland, General Manager Nuclear Operations	TELEPHONE NUMBER (include Area Code) (412) 643-1258
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
A	BQ	XXXX	XXXX	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (if yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On 2/21/94, with Unit 2 operating at 100 percent power, the plant staff determined that a plant design change, which retired in place the High Head Safety Injection (HHSI)/Charging Pump alternate minimum flow (mini-flow) recirculation flow-path, failed to address the single failure requirements of Nuclear Regulatory Commission Branch Technical Position ICSB 18. The design change had been implemented during the last refueling outage (4R). Actions were immediately taken to place the HHSI/Charging Pump's normal mini-flow recirculation flow-path in compliance with the Branch Technical Position by deenergizing in the open position the normally open charging pump mini-flow discharge header isolation valve 2CHS-MOV373, common to all three Charging Pumps. An evaluation was performed to determine reportability. On 3/10/94, it was determined that failure to place an electrical lockout on 2CHS-MOV373, before retiring the alternate mini-flow path in place, resulted in the plant being outside its Design Basis and therefore the event was reportable. The NRC was notified via the Emergency Notification System at 1023 hours on 3/10/94, in accordance with 10 CFR 50.72(b)(1)(ii)(B). This written report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B).

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 - FACILITY NAME 8 TOTAL - DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 30.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MMBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Beaver Valley Power Station Unit 2	05000 412	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	02 OF 04
		94	002	00	

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

DESCRIPTION OF EVENT

On 2/21/94, with Unit 2 operating at 100 percent power, the Beaver Valley Power Station Nuclear Safety Department notified the station that Design Change Package (DCP 2040), which was implemented in the last refueling outage (4R), and eliminated the alternate mini-flow recirculation flow path from the HHSI/Charging system, failed to address single failure criterion as required by Nuclear Regulatory Commission (NRC) Branch Technical Position ICSB 18 "Application of the Single Failure Criterion to Manually - Controlled Electrically-Operated Valves." The Nuclear Safety Department became aware of this concern after reviewing a Westinghouse Nuclear Safety Advisory Letter (NSAL) concern (Ref. DLW-94-702, dated 2/23/94) which identified potential safety issues regarding HHSI/Charging Pump mini-flow recirculation. One of the concerns involved changes made to the design basis for charging pump mini-flow isolation valves and specific licensing commitments for power lock-out. To eliminate the immediate concern, the normally open, charging pump normal mini-flow discharge header isolation valve 2CHS-MOV373, common to all three charging pumps, was deenergized in the open position.

Historically related to this issue; on May 8, 1980, Westinghouse notified the NRC, via 10 CFR Part 21, of a safety concern regarding the operation of the HHSI/Charging Pumps following a high energy steamline rupture on the secondary side of the plant. The concern was that following such a rupture, the charging pumps could be damaged due to lack of mini-flow recirculation. Beaver Valley Unit 1 addressed the issue by eliminating the Safety Injection auto-closure signal to the mini-flow valves, performing an analysis to confirm adequate mass injection still existed, and by modifying Emergency Operating Procedures to include operator action based on the appropriate plant conditions. This action was commensurate with NRC IE Bulletin 80-18. During this time period Beaver Valley Unit 2 was under construction. To address the concerns of Branch Technical Position ICSB 18 (Rev. 1 Jated May, 1980) at Unit 2, Duquesne Light Company authorized procurement of an alternate mini-flow path, as recommended by Westinghouse.

In 1992, the NRC issued Information Notice 92-61 "Loss of High Head Safety Injection" in which concerns were raised involving potential alternate mini-flow failure concerns. In part as a result of this concern and following an analysis which concluded that the charging system normal mini-flow valves could remain open for the duration of all analyzed accidents, a minor design change was implemented at Unit 2, during the Fourth Refueling Outage (fall of 1993). The modification retired the charging system alternate mini-flow path in place, and removed the Safety Injection auto-closure signal from the normal mini-flow valves.

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The February 1994 Westinghouse NSAL identified that if changes were made to the design basis for the charging pump mini-flow isolation valves, specific licensing commitments for power lock-out should have been reviewed. The letter also identified that specifically, spurious closure of motor operated mini-flow valves should be considered relative to the plant licensing basis and referenced NRC Branch Technical Position ICSB 18. Following notification of this Westinghouse concern, the Nuclear Safety Department reviewed the plant modification package which was implemented during 4R and found that since an electrical lock-out had not been placed on 2CHS-MOV373, the design failed to satisfy the single failure criteria as identified in Branch Technical Position ICSB 18. Since Branch Technical Position ICSB 18 was issued while Unit 2 was under construction, and since compliance was demonstrated via the alternate mini-flow path, failure to place an electrical lock-out on 2CHS-MOV373 when the alternate mini-flow path was removed, placed the plant outside its Licensing Basis. Plant operators were notified of this on February 21, 1994, and 2CHS-MOV373 was deenergized in the open position to address the single failure concern. The Nuclear Safety Department then performed a further evaluation for reportability, in which the NRC was consulted. On March 10, 1994 it was determined that Unit 2 had operated outside its Design Basis and the NRC was notified via the Emergency Notification System in accordance with 10 CFR 50.72(b)(1)(ii)(B).

Unit 2 was determined to be outside of its design basis because in its license, it was confirmed that the original design was in compliance with the single failure criteria associated with the specific application of NRC Branch Technical Position ICSB 18, and as such the branch position became part of a design requirement. The application of this specific criteria is governed by the original Design Basis.

CAUSE OF EVENT

The cause of the event was insufficient design review prior to initiating the modification of the charging system mini-flow recirculation flowpath. The modification was reviewed from a fire protection safe shutdown standpoint and as a result the "21B" Charging Pump's individual mini-flow isolation valve, 2CHS-MOV275B, was deenergized open to preclude spurious closure; however, the single failure criteria, as specified by NRC Branch Technical Position ICSB 18, was not addressed in the initial design review or the 10 CFR 50.59 safety evaluation. The primary contributing factor to this event is the lack of specific design basis information in the licensing documents. That is, the fact that the alternate mini-flow satisfied BTP ICSB 18 as it applied to the normal mini-flow valves is not included in the UFSAR and Technical Specifications.

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CORRECTIVE ACTIONS

The charging pump mini-flow discharge header isolation valve, common to all three charging pumps, 2CHS-MOV373, was deenergized open when the problem was initially identified, and will remain in this configuration until long term corrective actions are completed.

The following long term corrective actions are being performed or evaluated:

1. The Design Input Checklist, currently used by the Nuclear Engineering Department, will be reviewed to determine if any additional required resources should be specified on the checklist.
2. Nuclear Engineering Department's administrative procedures, related to review of minor design changes, will be reviewed to determine if clarification is required specifying when the Nuclear Safety Department's review should be obtained.
3. A Root Cause Analysis of the event is being performed by the Site Independent Safety Evaluation Group (ISEG) to determine if any additional corrective actions are required to prevent recurrence.
4. The plant will determine and implement a long term design modification that meets the BTP ICSB 18 criteria.

REPORTABILITY

Following an evaluation by the Nuclear Safety Department, Beaver Valley Unit 2 reported the event to the NRC via the Emergency Notification System as a Condition Outside The Design Basis of the Plant, in accordance with 10 CFR 50.72(b)(1)(ii)(B). This written report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B).

SAFETY IMPLICATIONS

There were minimal safety implications as a result of this event. Mini-flow recirculation was maintained available to the charging pumps at all times.

PREVIOUS SIMILAR EVENTS

There have been no previous similar reportable events.