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April 12, 1994
ND3MNO:3559

Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, Licensee No. NPF-73
LER 94-004-00

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 94-004-00, 10 CFR 50.73.a.2.iv, "Inadvertent ESF Actuation During Solid State Slave Relay Testing."

L. R. Freeland
General Manager
Nuclear Operations

JHK/ke

Attachment

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cc: Mr. T. T. Martin, Regional Administrator
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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 (MNRB 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)

Beaver Valley Power Station Unit 2

DOCKET NUMBER (2)

05000 4 1 2

PAGE (3)

1 OF 04

TITLE (4)

Inadvertent ESF Actuation During Solid State Slave Relay Testing

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
03	15	94	94	004	00	04	12	94	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9) 1

POWER LEVEL (10) 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

20.402(b)	20.405(c)	<input checked="" type="checkbox"/> 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 Part 3, NRC Form 366A
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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

L. R. Freeland, General Manager Nuclear Operations

TELEPHONE NUMBER (Include Area Code)

4 1 2 6 4 3 - 1 2 5 8

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
A	JE	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)

During performance of a Solid State Protection slave relay actuation test, an Engineered Safety Feature actuation occurred when an incorrect test switch was actuated. Surveillance testing was being performed on relays associated with the Safety Injection (SI) System due to recent realignments of the Service Water (SW) pumps, which receive a start signal from an SI signal via the slave relays. On 3/15/94, pump alignments were performed to permit SI Train A relay testing for SW pump 2SWS*P21A. A test procedure was being utilized by a licensed operator to actuate a test switch in the Train A relay test cabinet. After successful Train A relay testing, pump realignments were performed to permit SI Train B relay testing of the Train B supply breaker for SW pump 2SWS*P21C. The same licensed operator was assigned to actuate the relay test switch in the Train B relay test cabinet, again using a test procedure. When the operator went to perform the test, he inadvertently opened the door to the Train A test cabinet and actuated the Train A test switch which started the Train A containment hydrogen analyzer (an ESF actuation). Other equipment associated with the Train A relays did not actuate as they were properly removed from service. Operations personnel reset the Train A actuation signal and following supervisor event review, the Train B slave relay test was completed correctly.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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Beaver Valley Power Station Unit 2	05000 4 1 2	9 4	- 0 0 4 -	0 0	OF 02 04

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

Description of Event

During performance of a Solid Scate Protection System (SSPS) slave relay actuation test, an Engineered Safety Feature (ESF) actuation occurred when an incorrect test switch was actuated. On March 15, 1994, during 100% steady state operation, two surveillance tests were scheduled to be performed on slave relays associated with the Safety Injection System due to recent realignments of the Service Water System. The safety related Service Water System contains three pumps, 2SWS*P21A (supplied from Train A emergency 4kV power), 2SWS*P21B (supplied from Train B emergency 4kV power), and a swing pump 2SWS*P21C (which can be supplied from either Train A or Train B emergency 4kV power). A mechanical interlock system exists on the two swing pump supply breakers to prevent both breakers from being connected onto their respective busses at the same time. This prevents the independent emergency busses from being cross tied through the swing pump breaker. One pump from each Train is required to be operable during power operations in accordance with Technical Specification 3.7.4.1, and each pump receives a start signal in response to a Safety Injection signal via the slave relays. Operability of the pumps requires a quarterly functional test of the slave relays.

At 0854 hours on March 15, 1994, pump alignments were performed to permit Safety Injection Train A slave relay testing for 2SWS*P21A following a recent discharge expansion joint replacement. An Operating Surveillance Test procedure was being utilized by a licensed operator to actuate a test switch in the Train A SSPS test cabinet to functionally test the Train A slave relays. The test was completed satisfactorily at 1238 hours, and 2SWS*P21A was declared operable at this time. Pump realignments were again performed at 1244 hours to permit Safety Injection Train B slave relay testing of the Train B supply breaker for 2SWS*P21C. The same licensed operator was to actuate test switch S826 in the Train B SSPS test cabinet in accordance with the Train B surveillance test procedure. When the operator entered the Process Control Room with the surveillance test, he inadvertently opened the door to the Train A SSPS test cabinet and actuated Train A test switch S826 at 1324 hours.

Test switch S826 in the Train A test cabinet actuates SSPS relays K610A and K610XA. These slave relays start the swing high head safety injection pump 2CHS*P21C (Train A supply), the swing service water pump 2SWS*P21C (Train A supply), containment hydrogen analyzer 2HCS*HA100A, and resets the sequencer for the #1 emergency diesel generator if the diesel generator is operating and is loaded. When the test switch was actuated in the incorrect SSPS cabinet, only the

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

Description of Event (cont.)

Train A containment hydrogen analyzer started, which is considered to be an ESF actuation. The swing high head safety injection pump had been removed from service and did not start as its breaker was cleared and disconnected from the electrical bus. The swing service water pump also did not start as its supply breaker from the Train A 4kV bus was disconnected from the bus as designed by the mechanical interlock. There was no affect on the #1 emergency diesel generator sequencer as it was not operating at this time.

Following the slave relay operation, operations personnel reset the Train A actuation signal by following the restoration steps of the Train A surveillance test procedure. The containment hydrogen analyzer was shutdown at 1330 hours. Following supervisory investigation onto the cause of the event and determination that relay testing could proceed, Train B SSPS slave relay test was then completed satisfactorily at 1410 hours.

Cause of the Event

The cause of the event was inappropriate operator actuation of a slave relay test switch in the incorrect Train of the Solid State Protection System. One hour prior to the event, the operator had completed a slave relay actuation test in Train A of the Solid State Protection System. When the relay actuation test was assigned to be performed in Train B of the Solid State Protection System, the operator inadvertently went to the test cabinet in Train A that was used for the previous relay test.

Corrective Actions

- 1). The Train A Safety Injection signal was reset and the containment hydrogen analyzer was shutdown.
- 2). A Human Performance Evaluation System investigation was performed to determine the root cause and implement corrective actions. These corrective actions include enhanced labeling of the cabinets and identifying the Train A and Train B SSPS cabinet door keys.

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TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 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

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TEXT (If more space is required, use additional copies of NRC Form 368A) (17)

Corrective Actions (cont.)

- 3). This event will be presented in licensed and non-licensed operator training, with emphasis placed on proper verification of the correct Train and component during testing and routine component manipulations.
- 4). The involved operator has been counseled.

Reportability

The inadvertent SSPS slave relay actuation and starting of the containment hydrogen analyzer is considered an Engineered Safety Feature (ESF) Component actuation. This event was reported to the Nuclear Regulatory Commission at 1430 hours via the Emergency Notification System on March 15 1994, in accordance with 10 CFR 50.72.b.2.ii as an event involving an ESF component actuation. This written report is submitted in accordance with 10 CFR 50.73.a.2.iv.

Previous Events

There are no previously submitted Licensee Event Reports concerning an ESF actuation that was a result of surveillance testing on the incorrect train.

Safety Implications

There were no safety implications as a result of the inadvertent relay actuation and starting of the containment hydrogen analyzer. Quarterly slave relay testing is required by Technical Specifications on all equipment which can be repositioned on a Safety Injection Signal without causing adverse affects on the operating unit. The containment hydrogen analyzers are included in this surveillance, and as a result, are started quarterly by actuation of their respective Safety Injection slave relays.