

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Beaver Valley Power Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 3 4	PAGE (3) 1 OF 0 3
--	--------------------------------------	----------------------

TITLE (4)

Turbine Trip/Reactor Trip while performing Turbine Pedestal Checks

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
0	1	14	84	84	001	000	2	14	84	N/A	0 5 0 0 0
										N/A	0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																			
	20.402(b)					20.406(c)					50.73(a)(2)(iv)					73.71(b)				
	20.406(a)(1)(i)					50.36(e)(1)					50.73(a)(2)(v)					73.71(e)				
	20.406(a)(1)(ii)					50.36(e)(2)					50.73(a)(2)(vii)					OTHER (Specify in Abstract below and in Text, NRC Form 366A)				
	20.406(a)(1)(iii)					50.73(a)(2)(i)					50.73(a)(2)(viii)(A)									
	20.406(a)(1)(iv)					50.73(a)(2)(ii)					50.73(a)(2)(vii)(B)									
20.406(a)(1)(v)					50.73(a)(2)(iii)					50.73(a)(2)(x)										

LICENSEE CONTACT FOR THIS LER (12)																			
NAME Robert J. Druga, Chief Engineer										TELEPHONE NUMBER 4 1 1 2 6 1 4 3 1 - 1 1 2 6 1 4									

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	CAUSE	SYSTEM
X	IIT	PISIX	X	M	2	3	5	N			

SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO				

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

On 1/14/84, Operations personnel were performing Pedestal Checks on the Main Turbine. During the performance of the Low Bearing Oil Pressure Trip, the main turbine tripped. This caused an automatic reactor trip since reactor power was above the P-9 setpoint of 10%. Operations personnel followed the applicable emergency procedure and stabilized the plant in Hot Standby. An investigation into the cause of the turbine trip (including repeated performances of the pedestal checks) has determined that a pressure switch (63-AST-3) on the Auto Stop Oil Header actuated and caused the actuation of a solenoid valve (SOV-20-ET) on the Auto Stop Oil Header. This caused a loss of Auto Stop Oil Pressure and a resulting turbine trip. A check of the setpoint for the pressure switch (63-AST-3) was then initiated. Additionally, the other pressure switches (63-AST-1, 2, 4, 5, 6) were checked for proper calibration. These switches were all found to be within their calibration limits. A check of 63-AST-3 showed that the setpoint was slightly low, but still within its operational limits. The frequency of performance of the Pedestal Checks has been changed from weekly to monthly after consultation with the turbine vendor.

1E72

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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

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

On 1/14/84, Operations personnel (three licensed operators and a shift administrative assistant) proceeded to perform and observe the weekly performance of the Main Turbine Pedestal Checks. This test was being conducted under the direction of Shift Supervision. One operator was stationed at the manual Overspeed Test Lever holding it in the TEST position, while another operator performed the necessary valving in accordance with the Pedestal Checks procedure. The check of the Overspeed Trip Device had been successfully performed and the Low Bearing Oil Pressure Trip check was initiated.

This test required opening a manual valve (LO-35) which decreases bearing oil pressure applied to a spring-loaded diaphragm on the Low Bearing Oil Pressure Trip Mechanism. When bearing oil pressure falls to a specified value, diaphragm displacement through a trip bar mechanism opens the auto stop trip valve, draining the auto stop oil header. This low pressure will also cause actuation of an Auto Stop Oil pressure switch (63-AST-3). This pressure switch causes actuation of a solenoid valve (SOV-20-ET) on the Emergency Trip Header, which opens to drain the header. The loss of fluid causes the main turbine throttle and governor valves to close. However, with the manual Overspeed Test Lever in the TEST position, pressure downstream of this lever is allowed to decrease and actuate protective functions without allowing the actual drainage of the Emergency Trip Header.

During the performance of the Low Bearing Oil Pressure Trip Check, bearing oil pressure decreased and the trip/latch lever moved to the TRIP position as required. The manual valve (LO-35) was closed and bearing oil pressure returned to normal. The Main Turbine then tripped before the operator had reset the trip/latch lever. This caused a resulting reactor trip since reactor power was above the P-9 setpoint of 10%. This interlock (P-9) causes an automatic reactor trip when a turbine trip occurs and reactor power is greater than 10%. Operations personnel then followed Emergency Procedures E-5 "Reactor Trip" and stabilized the plant in Hot Standby.

An investigation into the cause of the turbine trip was then initiated. While the turbine was coasting down and on the turning gear, repeated performances of the Low Bearing Oil Pressure Pedestal check were conducted. On two (2) of fifteen (15) performances, the turbine trip was actuated. The turbine tripped from a latched condition prior to resetting the trip/latch lever after performing the Low Bearing Oil Pressure Trip check, while holding the Overspeed Test Lever in the TEST position. The Nuclear Shift Operating Foreman (NSOF) noted that during the testing, the pressure gauge on solenoid valve SOV-20AST-2 (backup solenoid valve located on the Auto Stop

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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

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

Oil Header) and pressure indicator (PI-TB-231, Local Auto Stop Oil Header Pressure) both dropped from approximately 90 psig to approximately 50 psig when the Low Bearing Oil Pressure Trip Device (63/LBO) actuated during the performance of the periodic test. The NSOF also noted that Auto Stop Oil pressure switches (63-AST-4, 5) were also beginning movement toward a tripped condition during the decrease in Auto Stop Oil Pressure. Pressure switches 63-AST-3, 4, 5 are connected in parallel on the Auto Stop Oil Header. It is believed that the reduced pressure in conjunction with the inherent turbine vibrations were sufficient to cause the actuation of pressure switch 63-AST-3. This caused actuation of a solenoid valve (SOV-20-EST) which drains Auto Stop Oil and causes a turbine trip. It was also determined during this test that the manual Overspeed Test Lever could be moved approximately one-half ($\frac{1}{2}$) of its full travel from the TEST position to the NORMAL position before the turbine would trip.

All the operators involved in the performances of these periodic checks had completed the required training and were qualified to perform periodic checks. These operators had performed and/or observed the performance of the Main Turbine Periodic Checks in the past.

As a result of this incident, the following corrective actions are planned or have been completed:

- (1) A maintenance work request was written to check the setpoint of pressure switch 63-AST-3. The setpoint was found to be slightly low, but still within its operational limits.
- (2) The other pressure switches on the Auto Stop Oil Header (63-AST-1, 2, 4, 5, 6) were all checked and all were found to be within their calibration limits.
- (3) The pressure gauge on the backup solenoid trip valve (SOV-20AST-2) was also verified for proper operation with a temporarily installed Test Gauge. The results were satisfactory.
- (4) A maintenance work request was initiated to inspect the manual Overspeed Test Lever for scoring or damage that could cause leak-by in the TEST position. This work will be performed during the next extended outage.
- (5) A maintenance work request was initiated to inspect the Auto Stop Oil flow orifices. This work will be performed during the next extended outage.
- (6) The test frequency for the Main Turbine Pedestal Checks has been changed from a weekly to a monthly frequency. This was based on a recommendation from the turbine vendor (Westinghouse) and utility engineering personnel.



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

Telephone (412) 393-6000

February 14, 1984
ND1SS1:1096

Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
LER 84-001

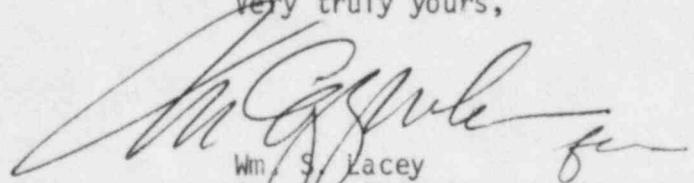
United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

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

LER 84-001, 10CFR 50.73.a.2.IV, "Automatic Actuation of Reactor Protection
System(RPS)".

Very truly yours,



Wm. S. Lacey
Station Superintendent

Attachment

IE22
1/1

U. S. NRC - Document Control Desk
February 14, 1984
ND1SS1:1096
Page two

cc: Director of Management & Program Analysis
United States Nuclear Regulatory Commission
Washington, D.C. 20555

C. A. Roteck, Ohio Edison

Director, Office of Inspection and Enforcement Headquarters
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Peter Tam, BVPS Licensing Project Manager
United States Nuclear Regulatory Commission
Washington, D.C. 20555

W. Troskoski, Nuclear Regulatory Commission, BVPS Site 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

Dr. Thomas E. Murley
Regional Administrator
United States Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, PA 19406