



**Duquesne Light Company**

Beaver Valley Power Station  
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April 19, 1996  
NPD1VPO:0464

*Beaver Valley Power Station, Unit No. 1*  
*Docket No. 50-334, Licensee No. DPR-66*  
*LER-96-003-00*

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

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

LER 96-003-00, 10 CFR 50.73.a.2.iv, "ESF Actuation - Feedwater Isolation Due to Steam Generator Water Level Transient".

T. P. Noonan  
Division Vice President  
Nuclear Operations/Plant Manager

STC/nlc

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 (MNBB 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 1

DOCKET NUMBER (2)

05000334

PAGE (3)

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## ESF Actuation - Feedwater Isolation Due to Steam Generator Water Level Transient

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 NAME	DOCKET NUMBER	
03	22	96	96	003	00	04	19	96	N/A		
									FACILITY NAME	DOCKET NUMBER	
									N/A		
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 20 CFR § (Check one or more) (11)								
			20.402(b)			20.405(c)			X	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		1%	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)(i)				50.73(a)(2)(viii)(A)	(Specify in abstract below and in Text
			20.405(a)(1)(iv)			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)	NRC Form 366A)

## LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (include Area Code)
T. P. Noonan, Vice-President Nuclear Operations/Plant Manager	(412) 393-7622

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS				COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
D	TA	XXX	XXX	N						

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (if yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

## ABSTRACT (Limited to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 22, 1996, at 2256 hours, during a station shutdown for a refueling outage, a steam generator level transient was initiated when the main unit electrical generator output breakers were opened. In response to the generator shutdown, reactor power was reduced. Steam flow increased as the turbine governor valve modulated to automatically control turbine speed. Steam pressure dropped causing indicated steam generator water level to increase or "swell" and reactor coolant temperature to drop to 538° F.

At 2312 hours, the "A" steam generator level reached the 75 % high steam generator setpoint which initiated a turbine trip and feedwater Isolation signal (FWI). The motor driven auxiliary feed pumps started and the main turbine and the in service main feed pump tripped as designed. The turbine trip stopped the cooldown and the reactor coolant temperature recovered to the normal no load temperature (547°F) at 2316 hours.

This event was reported in accordance with 10CFR50.72(b)(2)(ii) as an event that resulted in an automatic actuation of an engineered safety feature. This written report is being submitted in accordance with 10CFR50.73(a)(2)(iv) as an event involving an Engineered Safety Feature (ESF) Actuation.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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 (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0061, 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 1		05000334		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
				96	003	00	

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

**DESCRIPTION OF EVENT**

On March 22, 1996 at 2312 hours, a station shutdown was in progress when a high steam generator level turbine trip and feedwater isolation automatically actuated. Actions were in progress to stabilize the reactor at approximately 1% power while maintaining the turbine latched for turbine trip testing. The main unit generator was removed from the electrical grid at 2256 hours. The turbine governor valves modulated closed to maintain 1800 rpm and the turbine bypass valves opened to maintain main steam header pressure at setpoint. Using boration and control rod movement, reactor power was reduced to 2% indicated which was below actual steam demand creating a power mismatch. The governor valves modulated open to maintain turbine speed which resulted in increased steam flow causing indicated steam generator water level to increase or "swell" and reactor coolant temperature to drop to 538° F.

At 2312 hours, the "A" steam generator level reached the 75 % high steam generator setpoint which initiated a turbine trip and feedwater isolation (FWI). The motor driven auxiliary feed pumps started, the in-service main feed pump tripped as designed, and the main turbine tripped stopping the cooldown. The reactor coolant temperature recovered to the normal no load temperature (547° F) at 2316 hours.

**CAUSE OF EVENT**

The primary cause of this event was a power mismatch which allowed actual steam demand to exceed reactor power. This resulted in a drop in steam pressure as the turbine governor valves modulated open to maintain turbine speed at setpoint. The drop in steam pressure led to the "swell" in steam generator water level. The post event review was unable to confirm the complete closure of the turbine bypass valve (PCV-MS-106A) when steam pressure dropped below setpoint.

**CORRECTIVE ACTIONS**

1. Operating procedures will be revised to permit a higher reactor power when performing turbine trip testing. This will place a greater demand on the automatic turbine bypass system ensuring increased system stability.
2. Reactor control at end of life and steam generator level control at low power will be scheduled into periodic simulator training for licensed operating personnel.
3. Troubleshooting will be performed to evaluate the performance of turbine bypass valve PCV-MS-106A during plant startup following the current refueling outage.

**REPORTABILITY**

This event was reported to the NRC in accordance with 10CFR50.72(b)(2)(ii). This written report is being submitted in accordance with 10CFR50.73(a)(2)(iv) as an event involving an Engineered Safety Feature (ESF) Actuation.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

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 (MNBB 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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Beaver Valley Power Station Unit 1		05000334		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
				96	003	00	

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

**SAFETY IMPLICATIONS**

There were minimal safety implications due to this event. All safety systems functioned as designed. All plant parameters were restored in accordance with plant procedures.

**PREVIOUS SIMILAR EVENTS**

The following similar events have been previously reported regarding ESF actuations resulting from excessive steam generator transients:

LER 1-89-017 - "Feedwater Isolation Due to Erroneous Level Transmitter Root Valve Position."

LER 1-89-016 - "Feedwater Isolation Due to Erratic Steam Generator Level Transmitter Behavior."