

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
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TITLE (4)
Unit 1 Reactor Trip Due to Unit 2 Breaker Trip

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)
1	0	1	8	8	4	8	4	0	1	2	0
1	0	1	8	8	4	8	4	0	1	2	0
									N/A		0 5 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)

OPERATING MODE (9) 1	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 9 4	20.405(a)(1)(i)	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(e)
	20.405(a)(1)(ii)	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	
	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Robert J. Druga, Manager, Technical Services	TELEPHONE NUMBER AREA CODE: 4 1 2 6 4 3 1 - 5 3 0 8
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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	F	K I I S I	I 2 1 2	N	X	F	K R L Y I	I 2 1 2	N
B	F	K R L Y I	I 2 1 2	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

Unit 1 was operating at 94% reactor power and in preparation for the start of the Fourth Refueling Outage to begin in approximately two days. During the performance of a Unit 2 relay protection test, Unit 1 experienced a reactor trip. Offsite power was temporarily lost to Unit 1 4KV busses 1A and 1B. 1A Emergency diesel generator automatically started and sequenced on all of its safety related loads. Offsite power was regained and Unit 1 continued on a normal shut-down to operational mode 3 with one reactor coolant pump in service.

Two causes of the incident were recognized. First, a faulty current transformer shorting switch and second, the physical location of the ground on the overcurrent circuit for 4KV bus 2A. The shorting switch was replaced and the ground was relocated on Unit 2 4KV busses. (2A, 2B, 2C & 2D)

A third component failure was identified but is not considered to be an incident cause. However, it should have served to protect the unit from the reactor trip had it operated. Unit 1 breaker 141A did not open after Unit 2 breaker 42A tripped. An undervoltage condition should have existed on SSST 1A which, in turn, should have initiated automatic bus transfer of the 1B bus from SSST 1A to USST 1C. This would have been accomplished by 141A opening then 141C closing, but 141A did not open. This problem is currently under investigation.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

On 10/11/84, a special test was being performed to verify relay protection on the Unit 2 Main Transformer and the Unit 2 Station Service Transformers (USST) 2C and 2D. The procedure established an electrical circuit from Unit 2 Main Transformer through USST 2C, 4KV bus 2A, System Station Service Transformer (SSST) 2A, Station Service Feeder A, to Unit 1 SSST 1A and Unit 1 4KV bus 1B. The normal configuration was transferred to this line up as per this procedure by opening Oil Circuit Breaker (OCB) 92. (Normal offsite supply to Unit 1 SSST 1A).

During relay verification checks relay crew personnel attempted to obtain phase angle readings from the overcurrent protection circuitry on Unit 2 breakers 42A and 42C. (These breakers connect Unit 2 bus 2A to Unit 2 SSST 2A and Unit 2 USST 2C respectively). When the phase angle meter was connected from phase A of the overcurrent transformer to phase A of the overcurrent relays of breaker 42C a current path was established through the ground overcurrent relay for breaker 42A. Breaker 42A tripped open due to its overcurrent relay actuation. This caused a loss of power to USST 1A. 4KV bus 1B was, at the time, being fed via SSST 1A. A low voltage condition on bus 1B caused the "B" reactor coolant pump to trip. The pump trip caused low flow bistables to actuate on loop B. At approximately 1453 hours, a reactor trip signal was generated by protection interlock P8, low flow on 2/3 bistables in one reactor coolant loop while at greater than 31% power.

The automatic bus transfer scheme did not operate on bus 1B. If it had operated the low voltage condition and the reactor coolant pump trip and subsequent reactor trip should not have occurred. It is believed that the breaker feeding the bus via Unit 1 SSST 1A (141A) should have tripped from an undervoltage on SSST 1A. This in turn would have caused 141C to close and feed the bus (1B) from onsite power via USST 1C. The probable cause is a faulty undervoltage relay and its operability is currently under investigation.

Following the reactor trip an automatic bus transfer was completed on busses 1C and 1D. (Switched from USST 1D to SSST 1B). Busses 1A and 1B temporarily lost their offsite power source along with the loss of onsite power due to the reactor trip. The 1A emergency diesel generator started and sequenced on all of its designated safety related loads because of the loss of power to emergency bus 1AE. (Bus 1A is the normal power supply to bus 1AE).

The plant was stabilized at approximately 1515 hours. OCB 92 was manually closed in to allow busses 1A and 1B to be powered through their normal offsite power source. With all power sources now in normal alignment the emergency diesel generator was shutdown and a normal shutdown to operational mode 3 was continued with one reactor coolant pump in service.

The loss of one of two physically independent circuits between the offsite transmission network and the onsite distribution system caused the station to enter Technical Specification (T.S.) 3.8.1.1. An unusual event was declared as a result of the EPP (Tab 20). Subsequent re-evaluation of the EPP revealed that no unusual event should have been declared because the T.S. action statement was not exceeded. All appropriate notifications were made.

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

Two root causes have been identified as contributors to the trip. First, the current transformer shorting switch blade/jaw interface did not make satisfactory contact. Weak contact pressure and the existence of some dirty film in the contact area resulted in a slight impedance between this point and ground. Thus when the phase angle meter was connected from the transformer to the overcurrent relay lead, a parallel path existed to ground through the impedance of the shorting switch contact and the overcurrent relays.

Second, the physical location of the circuit ground allowed a current path to exist through the overcurrent trip relay of breaker 42A. It was a combination of the shorting switch contact resistance problem and the physical location of the circuit ground that caused the overcurrent relay to trip breaker 42A.

The current transformer shorting switch has been replaced and the ground locations for all Unit 2 4KV busses, 2A, 2B, 2C, 2D have been relocated as agreed upon by Duquesne Light Company and Stone and Webster (Unit 2 Architect Engineers) personnel.

There were no safety implications to the health and safety of the plant personnel or the general public. All safety systems functioned as designed and all emergency equipment remained operable.



Duquesne Light

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

Telephone (412) 393-6000

November 9 1984
ND1SS1 2248

Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
LER 84-012

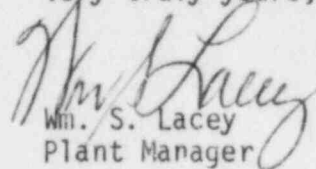
Dr. Thomas E. Murley
Regional Administrator
United States Nuclear Regulatory Commission
Region I
Park Avenue
King of Prussia, PA 19046

Gentlemen:

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

LER 84-012, 10 CFR 50.73.a.IV, "Engineered Safeguards Features System Actuation."

Very truly yours,


Wm. S. Lacey
Plant Manager

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Attachment

T E Murley
November 9, 1983
ND1SS1 2248
Page two

cc: Director of Management & Program Analysis
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C. A. Roteck, Ohio Edison

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