

# LICENSEE EVENT REPORT

**CONTROL BLOCK:**

						(1)
--	--	--	--	--	--	-----

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	V	A	S	P	S	2	2	0	0	-	0	0	0	0	-	0	0	3	4	1	1	1	1	4			5	
7	3	9						14						25						30						57		58	
		LICENSEE CODE												LICENSE NUMBER															

CON'T

0 1 7 8

REPORT SOURCE L 6 0 5 0 0 0 2 8 1 7 0 3 0 5 7 8 8 1 0 0 3 7 8 9

60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | During normal full power operation, it was observed that there was no service water  
0 3 | flow through charging pump intermediate seal cooler 2-SW-E-1B. Cooler 2-SW-E-1A was  
0 4 | verified in service and the "B" cooler was isolated for investigation. This event is  
0 5 | contrary to T.S. 3.3.A.8.C. and is reportable per T.S. 6.6.2.b.(2). The health and  
0 6 | safety of the public were not affected because one cooler is sized to handle 100% of  
0 7 | the intermediate seal cooler heat load.  
0 8 |  
7 8 9

SYSTEM CODE [ 0 ] [ 9 ] 7      8		CAUSE CODE [ W ] [ A ] (11) 9      10		CAUSE SUBCODE [ E ] (12) 11		COMPONENT CODE [ D ] (13) 12				VALVE SUBCODE [ V ] [ A ] [ L ] [ V ] [ E ] [ X ] (14) 13      14      15      16      17      18				COMP. SUBCODE [ E ] (15) 19		VALVE SUBCODE [ D ] (16) 20			
(17) LER/RO REPORT NUMBER [ 7 ] [ 8 ] 21      22		EVENT YEAR [ 7 ] [ 8 ] 21      22		SEQUENTIAL REPORT NO. [ 0 ] [ 1 ] [ 1 ] 23      24      25		OCCURRENCE CODE [ 0 ] [ 3 ] 26      27      28      29				REPORT TYPE [ X ] 30		REVISION NO. [ 1 ] 31      32							
ACTION TAKEN [ B ] (18) 33		FUTURE ACTION [ A ] (19) 34		EFFECT ON PLANT [ Z ] (20) 35		SHUTDOWN METHOD [ M ] (21) 36		HOURS (22) [ 0 ] [ 0 ] [ 0 ] [ 0 ] 37      38      39      40				ATTACHMENT SUBMITTED [ Y ] (23) 41		NPRO-4 FORM SUB. [ Y ] (24) 42		PRIME COMP. SUPPLIER [ A ] (25) 43		COMPONENT MANUFACTURER [ W ] [ 0 ] [ 3 ] [ 0 ] (26) 44      45      46      47	

### CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Loss of flow to the charging pump intermediate seal cooler was due to the failure of  
1 1 the cooler's discharge gate valve. Corrosion of the gate valve's stem caused its disc  
1 2 to drop free and obstruct service water flow. The disc was removed from the valve and  
1 3 the cooler returned to service. Subsequently, a new stem was fabricated and the disc  
1 4 and new stem installed.

FACILITY STATUS      % POWER      OTHER STATUS (30)      METHOD OF DISCOVERY      DISCOVERY DESCRIPTION (32)

1	5	E	(28)	1	0	0	(29)	NA	B	(31)	Operator's Observation	(32)
---	---	---	------	---	---	---	------	----	---	------	------------------------	------

ACTIVITY CONTENT  
RELEASED OF RELEASE

1 6 Z (33) Z (34) NA (35)

7 8 9 10 11 44

AMOUNT OF ACTIVITY

NA

LOCATION OF RELEASE (36)

45 30

PERSONNEL EXPOSURES									
NUMBER					TYPE		DESCRIPTION		
1	7	0	0	0	(37)	Z	(38)	NA	(39)
7	8	9	10	11	12	13	83		

PERSONNEL INJURIES  
NUMBER DESCRIPTION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50	
1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23</																																																							

10  
PUBLICATION  
ISSUED DESCRIPTION (45) NA  
2 0 Z (44)  
NRC USE ONLY

NRC USE ONLY

NAME OF PREPARER

PHONE:

Virginia Electric and Power Company  
Surry Power Station, Unit 2  
Docket No: 050-0281  
LER 78-011/03X-1  
Event Date: 3-5-78

Loss of Service Water Flow Through The Charging Pump Intermediate Seal Cooler

1. Description of Event:

On 3-5-78, at about 1300, with the unit at full rated power, it was observed that there was no service water flow through Charging Pump Intermediate Seal Cooler 2-SW-E-1B. This event is contrary to Technical Specification 6.6.2.b.(2).

2. Probable Consequence of Event:

The loss of the Charging Pump Intermediate Seal Cooler 2-SW-E-1B had no effect upon the health or safety of the general public because adequate cooling of the Charging Pump Component Cooling System was available via the "A" Charging Pump Intermediate Seal Cooler, which is a full size cooler.

3. Cause of Event:

The loss of flow to the "B" Intermediate Seal Cooler was due to the failure of the cooler's discharge gate valve. Corrosion of the stem permitted the disc to drop free and obstruct the service water flow path.

4. Immediate Corrective Action:

The immediate action was to verify flow to Seal Cooler 2-SW-E-1A. Cooler "B" was then isolated, the suspected valve was opened and the disc removed. A new stem was fabricated from stainless steel. The new stem and the old disc were re-installed and the valve returned to service.

Following repair of the "B" cooler discharge valve, the "B" cooler was placed in service. The "A" cooler was isolated to examine its discharge valve. A similar condition of stem corrosion was found but had not advanced to the point of dropping the disc. A new stem was fabricated and installed in this valve.

5. Scheduled Corrective Action:

The initial report indicated that all of the 1 1/2" and 2" valves in the charging pump service water system would be inspected during the then current steam generator evaluation outage. This inspection was performed and several of the valves were found in various stages of deterioration. However, due to the availability of spare parts, only those valves required to provide flow to at least two lube oil coolers and one intermediate seal cooler were repaired or replaced. The other lube oil cooler and seal cooler are operable but with valves in varying stages of deterioration. As parts become available, these valves will be repaired. If they should fail before this, flow can be established by removal of the disc.

6. Action Taken to Prevent Recurrence:

An engineering study was instituted to identify possible long term corrective action. Also discussed in the study was the mode of corrosion. From observation of the failed components, it was decided that the mode of corrosion was predominantly galvanic, due to the brass stem in contact with the bronze disc. The brass, being the anode of this galvanic couple, would be wasted as was observed.

Virginia Electric and Power Company  
Surry Power Station, Unit 2  
Docket No: 050-0281  
LER 78-011/03X-1  
Event Date: 3-5-78

Loss of Service Water Flow Through The Charging Pump Intermediate Seal Cooler

6. Action Taken to Prevent Recurrence (Continued):

As far as long term corrective action is concerned, it was concluded that a suitable replacement, a valve with a valve design that embodies less dissimilarity of materials and a "fail-as-is" principle, should be installed in place of the existing valves. Based on this conclusion, a design change has been initiated to implement this idea. Present indications are that the replacement will commence concurrent with the steam generator replacement.

7. Generic Implications:

The event possesses generic implications in that the corrosion observed in the cooler outlet valves may also exist in other gate valves of the charging pump service water system. Based on the inspection performed, it was found that this problem was generic in the Walworth 1 1/2" and 2" gate valves. Whether this problem exists in other types of safety related service water valves will be determined in a separate study.