

## LICENSEE EVENT REPORT

Update Report - Original Report dated February 21, 1983

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	S	C	H	B	R	2	0	0	-	0	0	0	0	0	0	-	0	0	3	4	1	1	1	1	4		5									
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									
LICENSEE CODE														LICENSE NUMBER										LICENSE TYPE										CAT		58	

0	1	L	0	5	0	0	0	2	6	1	0	1	0	7	8	3	1	0	1	5	8	4	9										
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					
CON'T		REPORT SOURCE		DOCKET NUMBER										EVENT DATE										REPORT DATE									

## EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

On February 7, 1983, at approximately 1400 hours, with the unit at 82% power, an investigation into a Low Flow Alarm condition on Containment Fan Cooler HVH-3 determined that with a Low Flow Alarm signal present, HVH-3 would not automatically restart on a Safety Injection signal concurrent with a station blackout event. This event could have resulted in performance of a system less conservative than that assumed in the FSAR and is reported pursuant to 6.9.2.a.9. The redundant HVH units were operable, thus, there was no threat to the public health and safety.

0	9	S	B	B	A	H	T	E	X	C	H	C	Z				
7	8	9	10	11	12	13	14	15	16	17	18	19	20				
SYSTEM CODE		CAUSE CODE		CAUSE SUBCODE		COMPONENT CODE						COMP. SUBCODE		VALVE SUBCODE			
17		18		19		20						21		22			
LER/RO REPORT NUMBER		EVENT YEAR		SEQUENTIA REPORT NO.		OCCURRENCE CODE						REPORT TYPE		REVISION NO.			
23		24		25		26						27		28			
ACTION TAKEN		FUTURE ACTION		EFFECT ON PLANT		SHUTDOWN METHOD		HOURS		ATTACHMENT SUBMITTED		NPRD-4 FORM SUB.		PRIME COMP. SUPPLIER		COMPONENT MANUFACTURER	
29		30		31		32		33		34		35		36		37	
F		Z		Z		Z		0000		Y		N		N		W120	

## CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

A 1974 modification removed the Low Flow Trip feature due to an excessive number of HVH unit trips. Unknowingly this modification prevented the low flow trip from resetting when the condition cleared. This sealed in the low flow trip signal and locked out the start circuit. Interim corrective action included a Temporary Repair and a revision to the annunciator procedure. Subsequent modifications made the temporary repair permanent, modified the Low Flow Alarm to enable it to automatically clear when the condition clears and also installed new type flow switches. No further action is planned.

1	5	E	0	8	2	N/A	A	Operator Observation	
7	8	9	10	11	12	13	14	15	
FACILITY STATUS		% POWER		OTHER STATUS		METHOD OF DISCOVERY		DISCOVERY DESCRIPTION	
28		29		30		31		32	
ACTIVITY CONTENT		RELEASED OF RELEASE		AMOUNT OF ACTIVITY		LOCATION OF RELEASE			
33		34		35		36			
Z		Z		N/A		N/A			
PERSONNEL EXPOSURES		NUMBER		TYPE		DESCRIPTION			
37		38		39		40		41	
0		0		0		Z		N/A	
PERSONNEL INJURIES		NUMBER		DESCRIPTION					
42		43		44		45		46	
0		0		0		Z		N/A	
LOSS OF OR DAMAGE TO FACILITY		TYPE		DESCRIPTION					
47		48		49		50		51	
Z		Z		N/A		N/A		N/A	
PUBLICITY		ISSUED		DESCRIPTION					
52		53		54		55		56	
N		N		N/A		N/A		N/A	

8410220167 841015  
PDR ADONCK 05000261  
S PDR

NAME OF PREPARER Carson L. Wrigg

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## SUPPLEMENTAL INFORMATION

### LICENSEE EVENT REPORT 83-001 REVISION 1

#### I. Cause Description and Analysis

On February 7, 1983, at approximately 1400 hours, with the unit at 82% power, an investigation into a Low Flow Alarm condition on Containment Fan Cooler HVH-3 determined that with a Low Flow Alarm signal present HVH-3 would not auto-start on a Safety Injection (SI) signal assuming a concurrent station blackout event.

The Low Flow Alarm was initially received on HVH-3 at 2059 hours on February 4, 1983, and was cleared by Maintenance personnel on shift. The alarm was received again at 1120 hours on February 5, 1983. A review of the HVH flow alarm system was initiated on the morning of February 7, 1983, and the alarm was subsequently cleared at 1430 hours following determination of the necessary corrective action. Also, at 1110 hours on February 11, 1983, the alarm was received and was immediately cleared.

As originally designed, the HVH units motor control circuits contained a trip feature and alarm which was actuated by two redundant air flow switches under low flow conditions. Simultaneous with the trip feature, the start circuit (both auto and manual) was locked out to prevent concurrent start and stop signals. When the HVH motor circuit breaker completed the trip action, the Low Flow Alarm and the start lockout feature were reset. The Low Flow Alarm and trip is designed to protect the HVH unit from abnormal operation as indicated by low air flow which, if operation was continued, could potentially disable the unit but would allow the unit to be restarted automatically if required by accident conditions. Due to air turbulence causing spurious Low Flow Alarms and subsequent tripping of the HVH units, a modification was developed and implemented in 1974 which removed the low flow trip feature. It was determined that the low flow trip feature was resulting in excessive HVH unit trips and that Operations personnel should evaluate the presence of a low flow condition and initiate appropriate actions rather than automatically tripping the unit. However, unknown to the personnel involved in this modification, the circuit configuration resulting from this modification prevented the Low Flow Alarm circuit from automatically resetting when the HVH unit tripped. The Low Flow Alarm was, therefore, sealed in which also maintained the start circuit in a locked out condition.

This event could have resulted in system operation different and less conservative than that assumed in the Final Safety Analysis Report and is, therefore, reported pursuant to Technical Specification 6.9.2.a.9. Although all four HVH units are subject to the same conditions, only HVH-3 has been subject to the Low Flow Alarm condition. Therefore, the three remaining HVH units would have restarted automatically following a Safety Injection signal concurrent with a station blackout event. In addition, HVH-3 could have been placed in operation by stopping the unit to reset the Low Flow Alarm condition and immediately restarting the unit.

## II. Corrective Action

Operations personnel were informed of interim corrective action on February 7, 1983. This interim corrective action consisted of stopping the HVH unit, which opens the motor circuit breaker and resets the Low Flow Alarm in the control circuit, and immediately restarting the unit. This action restored the ability of the HVH unit to start automatically if required by Plant conditions.

Also, a Temporary Repair Procedure was developed and implemented on February 11, 1983, which placed jumpers on the start circuit lockout contacts for all four HVH units. This action prevents a Low Flow Alarm condition from rendering the HVH unit inoperable. In conjunction with this temporary repair, the Annunciator Procedures for the HVH units were changed to clarify the cause and provide proper guidance on the corrective actions to be taken. This change was also implemented on February 11, 1983.

## III. Corrective Action to Prevent Recurrence

A modification was implemented to make permanent the removal of the low flow trip feature associated with the HVH unit's start circuit lockout contact. The Low Flow Alarm circuit was also modified, enabling it to reset automatically when the low flow condition clears. These actions will permanently restore the ability of the HVH units to start automatically, if required.

In addition, the existing paddle flow switches have been replaced with flow switches which act on differential pressure to generate a low flow signal. This modification should prevent spurious Low Flow Alarms which had been a problem with the paddle flow switches.



Carolina Power & Light Company

H. B. ROBINSON STEAM ELECTRIC PLANT  
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HARTSVILLE, SOUTH CAROLINA 29550

OCT 15 1984

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Serial: RSEP/84-605

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

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
LICENSEE EVENT REPORT 83-001 REVISION 1

Dear Sirs:

In accordance with Section 6.9.2 of the Technical Specifications for the H. B. Robinson Steam Electric Plant, Unit 2, the enclosed Licensee Event Report is submitted. The original report, dated February 21, 1983, described an event and subsequent investigation surrounding a Low Flow Alarm condition on Containment Fan Cooler HVH-3. This supplement contains a complete description of the event in addition to permanent corrective actions and should replace all existing copies of the original report. (The supplemental information has been barred for your convenience).

Very truly yours,

R. E. Morgan  
General Manager  
H. B. Robinson SEG Plant

CLW/wp

Enclosure

cc: INPO  
H. E. P. Krug  
J. P. O'Reilly

IE22  
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