H. L. Sumner, Jr.
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Hatch Project

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SOUTHERN COMPANY
Energy to Serve Your World℠

September 12, 2003

NL-03-1753

Docket Nos.: 50-321
50-366

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant
Revised Licensee Event Report
High Pressure Coolant Injection System Fails

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(v), Southern Nuclear Operating Company is submitting the enclosed revised Licensee Event Report (LER) concerning failure of a high pressure coolant injection turbine overspeed control valve.

This revision primarily involves a change in scheduled corrective action for Unit 1.

This letter contains no NRC commitments. If you have any questions, please advise.

Sincerely,

H. L. Sumner, Jr.

HLS/whc/daj

Enclosure: LER 50-321/2002-004, Revision 1

cc: Southern Nuclear Operating Company
Mr. J. D. Woodard, Executive Vice President
Mr. G. R. Frederick, General Manager – Plant Hatch
Document Services RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. S. D. Bloom, NRR Project Manager – Hatch
Mr. D. S. Simpkins, Senior Resident Inspector – Hatch

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7/31/2004

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1(@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to,

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Edwin I. Hatch Nuclear Plant - Unit 1	05000-321	1 OF 4

4. TITLE
Turbine Overspeed Control Valve of the High Pressure Coolant Injection System Fails

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER(S)
08	14	2002	2002	004	1	09	12	2003		05000
									FACILITY NAME	DOCKET NUMBER(S)
										05000

9. OPERATING MODE (9)	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)
	20-2203(a)(2)(ii)		50.36(c)(2)	X	50.73(a)(2)(v)(B)		OTHER
	20-2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Steven B. Tipps, Nuclear Safety and Compliance Manager, Hatch	(912) 537-5880

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	BJ	PCV	T129	Yes					

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	NO X				

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

On 8/14/02 at 1419 EDT, Unit 1 was in the Run mode at a power level of approximately 2763 CMWT (100 percent rated thermal power). Prior to this time on 8/14/02 at 0125 EDT, the High Pressure Coolant Injection (HPCI, EIIS Code BJ) system weekly auxiliary oil pump run was performed in accordance with procedure 34SV-SUV-019-0. During a system walk down at 1419 EDT on 8/14/02, oil was discovered on the floor beside the Unit 1 HPCI skid. The oil reservoir level was found below the low level mark. During a subsequent troubleshooting run of the auxiliary oil pump, hydraulic control fluid sprayed out of the hydraulic actuator of the turbine overspeed trip control valve, 1E41-F3082. The HPCI System was declared inoperable following the discovery of the leaking 1E41-F3082 valve actuator. The turbine overspeed trip control valve was repaired. Subsequently, the auxiliary oil pump was started and the system checked for leakage and for proper system pressures with no anomalies identified. The HPCI system was then declared operable on 8/15/02, at 0900 EDT.

The cause of the event was a failed hydraulic actuator diaphragm. Corrective actions for this event included the replacement of the failed diaphragm, and the establishment of a requirement to periodically replace these diaphragms. SNC has installed a newer style diaphragm on Unit 2, and scheduled the installation of this newer style diaphragm on Unit 1 during the next system outage.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor
Energy Industry Identification System codes appear in the text as (EIIS Code XX).

DESCRIPTION OF EVENT

On 8/14/02 at 1419 EDT, Unit 1 was in the Run mode at a power level of approximately 2763 CMWT (100 percent rated thermal power). Prior to this time on 8/14/02 at 0125 EDT, the High Pressure Coolant Injection (HPCI, EIIS Code BJ) system weekly auxiliary oil pump run was performed in accordance with procedure 34SV-SUV-019-0. During a system walk down at 1419 EDT on 8/14/02, oil was discovered on the floor beside the Unit 1 HPCI skid. The oil reservoir level was found to be below the low level. During a subsequent troubleshooting run of the auxiliary oil pump, hydraulic control fluid sprayed out of the hydraulic actuator of the turbine overspeed trip control valve, 1E41-F3082. The HPCI System was declared inoperable following the discovery of the leaking 1E41-F3082 valve actuator. The turbine overspeed trip control valve was repaired. Subsequently, the auxiliary oil pump was started and the system checked for leakage and for proper system pressures with no anomalies identified. The HPCI system was then declared operable on 8/15/02, at 0900 EDT.

Discussions with the valve manufacturer indicated that the shelf life for this diaphragm was 14 years and that the service life for this diaphragm was 15 years. Discussions with our HPCI consultant indicated that he recommended replacing this particular diaphragm during every turbine major inspection (every 6 – 10 years). The failed diaphragm was sent offsite for analysis along with another diaphragm that was received on the same purchase order. The results from this analysis noted that the failure area had the fibers exposed indicating that the base polymeric material had seriously eroded from this area and that this was the result of wear or a random manufacturing defect. The diaphragm that failed and the one that was used to replace it are no longer manufactured. These diaphragms were Buna-N with single ply fabric-reinforcing. The original fabric-reinforced Buna-N diaphragms were designed to satisfy a minimum of 1000 cycles. The newer style diaphragms (Part Number 25471-A2 manufactured in 1991) are Buna-N with two ply fabric reinforcing. These diaphragms are designed to satisfy 100000 cycles.

A similar event occurred at the plant on 6/29/96. As a result of this June 1996 event the diaphragms on both Unit 1 and Unit 2 HPCI Turbine Overspeed Control valves were replaced. The diaphragm that failed in 1996 had been installed for more than 10 years.

CAUSE OF EVENT

The cause of the event was a failed hydraulic actuator diaphragm. Because this valve failed after only approximately 6 years of service (less than 600 cycles) and the previous diaphragm lasted more than 10 years it has been concluded that the diaphragm material was defective.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This report is reportable pursuant to 10 CFR 50.73 (a) (2) (v) in that a single event occurred which rendered a single train safety system incapable of performing its intended function. Specifically, with HPCI in operation, the leaking control valve diaphragm would result in a loss of system oil pressure sufficient to render HPCI inoperable.

The HPCI System is designed to provide adequate cooling to limit fuel-clad temperature in the event of a small break in the nuclear steam supply system that does not result in rapid depressurization of the reactor vessel. The Automatic Depressurization System (ADS, EIIS Code JE) is the backup for the HPCI system and is initiated on a low reactor water level condition coincident with a Primary Containment high pressure condition. Upon initiation of ADS, the reactor is depressurized to a point where either the Low Pressure Coolant Injection (LPCI, EIIS Code BO) system or the Core Spray (CS, EIIS Code BM) system can operate to maintain adequate core cooling.

In this event it was determined that a control valve diaphragm had failed. The leak would not have resulted in immediate failure of the HPCI system. HPCI would have been able to operate for some period of time before hydraulic fluid pressure would have decreased enough to affect operation of the turbine. Nonetheless, the CS system, the LPCI system, and ADS system were operable during the event. Consequently, in the event of an accident, these systems would have been capable of mitigating the consequences of such an accident in the absence of the HPCI system.

Based on the above information, it was concluded that this event had no adverse impact on nuclear safety.

CORRECTIVE ACTIONS

The failed diaphragm was replaced 8/15/02 with a single ply fabric reinforced Buna-N diaphragm and the system checked for leakage and proper system pressures with no anomalies identified. The installed diaphragm will be replaced with the newer style diaphragm (Part Number 25471-A2) during the next Unit 1 HPCI system outage (scheduled to occur during the spring 2004 refueling outage). This newer style diaphragm is made of Buna-N with two ply fabric reinforcing and is designed for 100000 cycles. This replacement was originally scheduled to occur in the fall of 2003 but was re-scheduled to occur during the next refueling outage. The replacement delay (of approximately 6 months) of the in-service diaphragm will not increase any risks because the diaphragm will continue to

remain within both its designed minimum rating for cycles (i.e., less than 20 percent of its designed minimum rating for cycles) and well within its expected service life prior to replacement.

The plant procedure has been revised to require this diaphragm to be replaced during every major turbine inspection (6-10 years).

The diaphragm installed on HPCI Unit 2 has been replaced with the newer diaphragm (Part Number 25471-A2) made of Buna-N with two ply fabric reinforcing.

ADDITIONAL INFORMATION

No systems other than those previously described in this report were affected by this event.

A previous similar event occurred on the Unit 1 HPCI system on 6/29/96. Corrective actions taken for that event included:

- The diaphragm was replaced on 6/29/96.
- The hydraulic fluid system was checked for leakage and proper operating pressures and HPCI was subsequently returned to service at 2355 EDT on 6/29/96.
- As a precaution, the Unit 2 HPCI turbine overspeed control diaphragm was replaced on 7/19/96.

Failed Component Information:
Master Parts List: 1E41-F3082
Manufacturer: Terry Corporation
Manufacturer Code: T129
Model Number: 890151A01
Type: Control Valve Actuator Diaphragm
EIIS System Code: BJ
EIIS Component Code: PCV
Root Cause Code: X
Reportable to EPIX: Yes