

**Southern Nuclear  
Operating Company, Inc.**

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June 11, 2010

Docket No.: 50-321  
50-366

NL-10-1149

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

Edwin I. Hatch Nuclear Plant  
Licensee Event Report 2010-002-0  
Degraded Plant Service Water Cooling to Main Control Room  
Air Conditioner Results in Loss of Function

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), Southern Nuclear Operating Company is submitting the enclosed Licensee Event Report.

This letter contains no NRC commitments. If you have any questions, please contact Doug McKinney at (205)992-5982.

Sincerely,

A handwritten signature in black ink that reads "Mark J. Ajluni". The signature is written in a cursive style.

M. J. Ajluni  
Manager - Nuclear Licensing

MJA/MJK/EGA/phr

Enclosure: Licensee Event Report 2010-002-0

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cc: Southern Nuclear Operating Company  
Mr. J. T. Gasser, Executive Vice President  
Mr. D. R. Madison, Vice President – Hatch  
Ms. P. M. Marino, Vice President – Engineering  
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission  
Mr. L. A. Reyes, Regional Administrator  
Mr. R. E. Martin, NRR Project Manager – Hatch  
Mr. E.D. Morris, Senior Resident Inspector – Hatch  
Mr. P.G. Boyle, NRR Project Manager

Edwin I. Hatch Nuclear Plant  
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Enclosure

Licensee Event Report 2010-002-0

# LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects@nrc.gov](mailto:infocollects@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an 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, the information collection.

<b>1. FACILITY NAME</b> Edwin I. Hatch Nuclear Plant Unit 1	<b>2. DOCKET NUMBER</b> <b>05000 321</b>	<b>3. PAGE</b> <b>1 OF 4</b>
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**4. TITLE**  
Degraded Plant Service Water Cooling to Main Control Room Air Conditioner Results in Loss of Function

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	13	2010	2010	- 002 -	0	06	11	2010	Edwin I. Hatch Nuclear Plant Unit 2	<b>05000 366</b>
									FACILITY NAME	DOCKET NUMBER
										<b>05000</b>

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> <i>(Check all that apply)</i>			
<b>10. POWER LEVEL</b>  99.9	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A	

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Edwin I. Hatch / Steve Tipps, Principal Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 912-537-5880
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
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**ABSTRACT** *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On April 13, 2010 Unit 1 was at 2800 CMWTh, 99.9 percent power and Unit 2 was in Mode 5, Refuel mode. On this date it was determined that the plant had previously operated in a condition prohibited by the Plant Technical Specification. The cooling water flow for the Main Control Room Air Conditioning was degraded due to internal fouling. Due to the degraded cooling flow, the operability of the Main Control Room Air Conditioning would be adversely impacted during a postulated design basis accident. Evaluation with conservatism removed showed that the function of the Main Control Room Air Conditioning was maintained during a postulated design basis accident.

This event was caused by fouling of the cooling water pipe over a period of time.

Corrective actions include, cleaning of associated piping. Some portions have already been cleaned and additional piping sections are planned to be cleaned. Radiography points will be evaluated based on flow modeling to provide early detection of internal pipe fouling. Sampling of the PSW supply to MCREC chillers through Unit 2 to confirm adequate chlorine is present will be performed.

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

PLANT AND SYSTEM IDENTIFICATION

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

DESCRIPTION OF EVENT

On April 13, 2010 Unit 1 was at 2800 CMWTh, 99.9 percent power and Unit 2 was in Mode 5, Refuel mode. On this date it was determined that the plant had previously operated in condition prohibited by the Plant Technical Specification (TS). The plant service water (PSW, EIS Code BI) piping which provides cooling for the Main Control Room Air Conditioning (MCR AC, EIS Code VI) was degraded due to internal fouling of the cooling water lines. This fouling developed over a period of time resulting in less than adequate cooling flow to the Main Control Room Air Conditioners. The river temperature reached a point at which the Main Control Room Air Conditioning operability would be adversely impacted during a postulated design basis accident. In this case the DBA is a loss of coolant accident (LOCA) concurrent with a river temperature of 95 degrees Fahrenheit and a river level of 60.7 feet mean sea level.

CAUSE OF EVENT

This event was caused by fouling of the cooling water pipe over a period of time.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable under 10 CFR 50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's Technical Specifications. The cooling water flow for the Main Control Room Air Conditioning was degraded due to internal fouling. Due to the degraded cooling flow, the operability of the Main Control Room Air Conditioning would be adversely impacted during a postulated design basis accident.

The Control Room AC portion of the Main Control Room Environmental Control System (hereafter referred to as the Main Control Room AC System) provides temperature control for the control room. The Main Control Room AC System consists of three 50 percent capacity subsystems that provide cooling and heating of control room supply air. Each subsystem consists of an air handling unit (AHU) (i.e., refrigerant, cooling coils and fan), water cooled condensing units, refrigerant compressors, ductwork, dampers, and instrumentation and controls to provide for control room temperature control. The condensing units receive cooling water from the Plant Service Water System. Each PSW system, Unit 1 or Unit 2, is designed to provide adequate flow through one of the following paths: one condensing unit receives cooling from Division I PSW, one unit is capable of receiving cooling from both Divisions I and II PSW, the other condensing unit receives cooling from Division II PSW. The Control Room AC System is designed to provide a controlled environment under both normal and accident conditions. Two subsystems provide the required temperature control to maintain a suitable control room environment for a sustained occupancy of 14 persons. The design conditions for the control room environment are 72-79 degrees Fahrenheit and less than 75 percent relative humidity.

A Main Control Room Air Conditioning PSW Flow Evaluation was performed to evaluate the "as found" PSW flow issues associated with the 'loss of ability' to isolate the Shift Manager's office cooling unit due to the failure of isolation valves 1P41-F123 A/B. The "as found" piping condition for

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the 'B' and 'C' coolers with the 'A' cooler turned off allowed flows of 63.9 gpm and 78.9 gpm for 'B' and 'C' coolers, respectively, with a simulated break in the piping to the shift manager's cooling unit. The cooling capacity of the main control room air conditioning unit is 40 tons or 480,000 BTUH. The calculated heat load of the main control room is 328,125 BTUH. Design of the main control room air conditioning unit established the minimum flow for the rated capacity at 95 degrees Fahrenheit inlet water condition as 100 gpm. The design water supply flow, from plant service water was specified to be 120 gpm to maintain a flow margin. On reducing the cooler capacity to the calculated heat load value, the minimum PSW flow to the main control room air conditioning unit was established as 81 gpm at 95 degrees Fahrenheit. Through a more detailed evaluation, given the degraded PSW flow of 63.9 gpm to the main control room air conditioning unit, a maximum river temperature of 91.8 degrees Fahrenheit was established in order for the cooler to satisfy the calculated control room heat load, with 10 percent heat load added to the calculated heat load for margin.

A qualitative assessment was performed by Engineering to determine if the Main Control Room condensing units, and thus the Main Control Room AC System would operate to provide Main Control Room cooling with the degraded flow of 63.9 gpm if the PSW water temperature increased from 91.8 degrees Fahrenheit to 95 degrees Fahrenheit. It was determined that the condensing units would likely continue to operate. Increasing the PSW water temperature would cause the refrigerant temperature and pressure to increase in the condensing unit. The assessment was performed by reducing the MCR heat load to the calculated value of 328,157 BTUH (removing the margin from the operability assessment), and assuming the maximum temperature and pressure that would not trip the condensing unit. Then, the heat transfer capability was checked and confirmed to be within design values for the heat load, thus confirming that the maximum assumed temperature and pressure would not be exceeded.

Based on this analysis, it is concluded that this event had no adverse impact on nuclear safety because even with the as-found Service Water Flow, the Main Control Room Air Conditioning Units would perform their intended function during a DBA.

CORRECTIVE ACTIONS

Cleaning of associated piping. Some portions have already been cleaned and additional piping sections are planned to be cleaned. This will be tracked in the corrective action program.

Radiography points will be evaluated based on flow modeling to provide early detection of internal pipe fouling. This will be tracked in the corrective action program.

Sampling of the PSW supply to Main Control Room AC System chillers through Unit 2 to confirm adequate chlorine is present will be performed. This will be tracked in the corrective action program.

ADDITIONAL INFORMATION

Other Systems Affected: None

Failed Components Information:

None

Commitment Information: This report does not create any new permanent licensing commitments.

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

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Previous Similar Events:

LER 1-2009-006, Main Control Room Air Conditioner Inoperable Due To Inoperable Solenoid Valve identified a condition where during a seismic event the Main Control Room AC System was not single failure proof. While the mode of failure is different, this is an instance where the Main Control Room AC System could be rendered inoperable. At the time of this event the low flow condition had not been previously identified therefore the corrective actions for this event did not prevent the condition being reported under the current LER.