

# CATEGORY 1

## REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9611050288      DOC. DATE: 96/10/30      NOTARIZED: NO      DOCKET #  
 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light Co.      05000261  
 AUTH. NAME      AUTHOR AFFILIATION  
 GARROU, A.L.      Carolina Power & Light Co.  
 YOUNG, D.E.      Carolina Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 96-005-00: on 960930, discovered potential for clogging containment spray nozzles due to degraded ECCS sump screens. Dewatered ECCS sump, examined sump and sump piping & restored ECCS sump screens to acceptable condition. W/961030 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6  
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RGN2 FILE 01	1 1		
EXTERNAL: L ST LOBBY WARD	1 1	LITCO BRYCE, J H	1 1
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**Carolina Power & Light Company**

Robinson Nuclear Plant  
3581 West Entrance Road  
Hartsville SC 29550

Robinson File No: 13510C

Serial: RNP-RA/96-0195

**OCT 30 1996**

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23  
LICENSEE EVENT REPORT NO. 96-005-00

Gentlemen:

The enclosed Licensee Event Report (LER), is submitted in accordance with 10 CFR 50.73.  
This report is required to be submitted to the NRC by October 30, 1996.

Very truly yours,

A handwritten signature in cursive script that reads "Dale E. Young".

D. E. Young  
Plant General Manager

Enclosure

c: Mr. S. D. Ebnetter, Regional Administrator, USNRC, Region II  
Ms. B. L. Mozafari, USNRC Project Manager, HBRSEP  
Mr. J. Zeiler, USNRC Resident Inspector, HBRSEP

9611050288 961030  
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Handwritten initials "TE22" with a vertical line through them, possibly indicating a date or reference.

NRC FORM 366  
(4-95)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104

EXPIRES 04/30/98

**LICENSEE EVENT REPORT (LER)**(See reverse for required number of  
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION  
COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED  
INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS  
REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT  
BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-  
0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF  
MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NUMBER (2)

05000-261

PAGE (3)

1 OF 5

TITLE (4)

POTENTIAL FOR CLOGGING CONTAINMENT SPRAY NOZZLES DUE TO DEGRADED ECCS SUMP SCREENS

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 NAME	DOCKET NUMBER	
09	30	96	96	-- 005	-- 00	10	30	96	FACILITY NAME	DOCKET NUMBER	
										05000	
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)								
POWER LEVEL (10)		100	20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)			50.36(c)(1)		x	50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)		

**LICENSEE CONTACT FOR THIS LER (12)**

NAME

A. L. Garrou, Manager - Licensing/Regulatory Programs (Acting)

TELEPHONE NUMBER (Include Area Code)

(803) 857-1544

**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

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 11, 1996, H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 was in cold shutdown conditions for refueling. During an inspection of the Emergency Core Cooling System (ECCS) containment sump, openings were found in the sump screens that could allow debris above a certain size to enter the system. The ECCS sump is designed so that debris that is generated and disbursed by flooding of the containment during a postulated Loss of Coolant Accident (LOCA) is excluded from the ECCS recirculation flow path. On September 30, 1996, we concluded that this condition could have prevented the screens from performing their design function. An assessment of the affect of the degraded sump screen condition concluded that this condition had a low safety significance. The cause of this condition was a lack of configuration control. Additionally, the absence of a specific component identification for the sump screens and inconsistencies in documented licensing and design information contributed to this condition. The sump screens were found to have been previously altered to accommodate pipe restraints and an insulated pipe which traverses the sump. These alterations, as well as previous repairs to the screens, failed to adequately recognize and enforce the design requirements and configuration control standards. Furthermore, procedures for inspecting the ECCS sump, as well implementation of these procedures, are being re-evaluated. The ECCS sump screens were restored to an acceptable functional and structural condition that is within the licensing basis of the system. Specific component identification for the sump screens will be established, and procedural controls for work activities in and above the ECCS sump screen area will be implemented to prevent debris from entering the sump, and to provide controls to prevent alteration of the sump screens without proper design controls. This report is submitted pursuant to 10 CFR 50.73(a)(2)(v)(D).

NRC FORM 366A

(4-95)

U.S. NUCLEAR REGULATORY COMMISSION

## LICENSEE EVENT REPORT (LER)

## TEXT CONTINUATION

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DOCKET

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

05000-261

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

I. DESCRIPTION OF EVENT

On September 11, 1996, H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 was in cold shutdown conditions for refueling. During an inspection of the Emergency Core Cooling System (ECCS) sump, the ECCS sump screens (EIIS Component Code: SCN) located in the containment were noted to be in a degraded condition. As depicted by the attached figure, the ECCS sump is designed so that debris above a certain size that is generated and disbursed by flooding of the containment during a postulated Loss of Coolant Accident (LOCA) is excluded from entering the ECCS recirculation flow path by entering the suction of the Residual Heat Removal (RHR)(EIIS System Code: BP) pumps. During a postulated LOCA, proceduralized emergency operational actions align the RHR system to take suction from the ECCS sump after the usable inventory in the Refueling Water Storage Tank (RWST) (EIIS Component Code: TK) is injected into the reactor vessel. The RHR pumps will then recirculate fluid from the ECCS sump to the Safety Injection (SI) pumps (EIIS System Code: BQ) to inject ECCS water into the reactor, or at the operator's discretion, to the Containment Spray (CS) pumps (EIIS System Code: BE) to spray containment as the conditions dictate. The filtration of the water by the ECCS sump screens is accomplished by the screen assemblies at the sump entrance comprised of two wire screens of one-half inch square mesh and 7/32 inch square mesh, respectively, in series. The screen assemblies at the sump entrance exclude particles from entering the suction piping which could clog the 3/8 inch diameter CS nozzle orifices. However, our assessment identified that the ECCS sump screens were not in accordance with their design in that openings existed in the sump screen assemblies that could allow particles as large as two inches in diameter to enter the system. Further examination of the ECCS sump prompted an internal pipe examination which revealed that an item of debris in excess of the 3/8 inch diameter limit had accumulated in the fourteen inch sump drain piping.

On September 30, 1996, we concluded that the degraded condition of the ECCS filtration sump screens could have prevented them from performing their design function of restricting the size of debris that entered the ECCS recirculation flow path. Accordingly, the degraded condition had the potential to adversely affect the previous operability of the ECCS in the recirculation mode, particularly the functioning of the CS after initial spray using the water in the RWST. As a result, the NRC was notified of this condition on September 30, 1996, at 1825 hours Eastern Daylight Time via the Federal Telephone System (FTS) in accordance with 10 CFR 50.72 (b) (2) (iii) (D) as a condition that alone could have prevented the fulfillment of a safety function that is needed to mitigate the consequences of an accident.

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(4-95)

U.S. NUCLEAR REGULATORY COMMISSION

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

II. CAUSE OF EVENT

The cause of the degraded condition of the ECCS sump screens was a lack of configuration control. The sump screens were found to have been previously altered to accommodate pipe restraints and an insulated pipe which traverses the sump. These alterations, as well as previous repairs to the screens, failed to adequately recognize and enforce the design requirements and configuration control standards. Additionally, the absence of a specific component identification for the sump screens and inconsistencies in documented licensing and design information contributed to this condition. Furthermore, the existing procedure for inspecting the ECCS sump, as well as its implementation, are being re-evaluated.

III. ANALYSIS OF EVENT

The degraded condition of the ECCS filtration screens could have prevented them from performing their design function of intrusion of debris greater than 3/8 inch into the ECCS recirculation flow path. Particles larger than 3/8 inch could have entered the ECCS and could have resulted in clogging of some of the CS nozzles. As such, the potential existed for rendering the CS functions of preventing an over-pressurization of containment by cooling the post-LOCA containment atmosphere, and removing iodine from the post-LOCA containment atmosphere. The Final Facility Description and Safety Analysis Report (FFDSAR) i.e., the original Final Safety Analysis Report, Chapter 6.5, "Leakage Detection and Provisions for the Primary and Auxiliary Coolant Loops," Appendix 6A, "Iodine Removal Effectiveness Evaluation of the Containment Spray System," states that, should some of the CS nozzles become plugged, considerable performance margin is available. At the time of recirculation, there is a greatly reduced dependence on CS for continued iodine removal because most of the absorbable iodine has been removed during initial CS system operation using the water in the RWST. The FFDSAR concludes that plugging of about one-fifth of the CS nozzles in one train of the spray system, complete outage of the other spray system, and disability of all four containment fan coolers could be tolerated at the time of recirculation without losing the ability to transfer residual heat from the containment atmosphere. Furthermore, a qualitative assessment of the affect of the degraded sump screen condition on the operation of the other ECCS components (e.g., pumps, valves) concluded that the likelihood of an adverse impact was small. Therefore, this condition is considered to have a low safety significance.

This condition is reported pursuant to 10 CFR 50.73(a)(2)(v)(D) as a condition that alone could have prevented the fulfillment of a safety function that is needed to mitigate the consequences of an accident.

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U.S. NUCLEAR REGULATORY COMMISSION

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IV. CORRECTIVE ACTIONS

The ECCS sump was dewatered, and the sump and sump piping was examined. Noted debris was removed from the piping.

The ECCS sump screens were restored to an acceptable functional and structural condition that is within the licensing basis of the system. The ECCS sump was subsequently inspected on October 9, 1996, and found in satisfactory condition.

Specific component identification for the sump screens will be established by December 19, 1996.

Procedural controls will be established by December 19, 1996, for work activities in and above the ECCS sump screen area to prevent debris from entering the sump, and will include controls to prevent alteration of the sump screens without proper design controls.

V. ADDITIONAL INFORMATION

## A. Failed Component Information

None

## B. Previous Similar Events

None

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