

# CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9611130131 DOC.DATE: 96/11/04 NOTARIZED: NO DOCKET #  
 FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 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 96-006-00:on 961004,condition prohibited by TS occurred due to failure to maintain containment integrity during refueling operations.Procedures reviewed & will be revised as necessary.W/961104 ltr.

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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/96-0197

NOV 04 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. 96-006-00

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 November 4, 1996.

Very truly yours,

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

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<p><b>NRC FORM 366</b> (4-95)</p> <p style="text-align: center;"><b>U.S. NUCLEAR REGULATORY COMMISSION</b></p> <p style="text-align: center;"><b>LICENSEE EVENT REPORT (LER)</b></p> <p style="text-align: center;">(See reverse for required number of digits/characters for each block)</p>	<p style="text-align: center;"><b>APPROVED BY OMB NO. 3150-0104</b> <b>EXPIRES 04/30/98</b></p> <p><small>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.</small></p>
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<p><b>FACILITY NAME (1)</b></p> <p>H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2</p>	<p><b>DOCKET NUMBER (2)</b></p> <p>05000-261</p>	<p><b>PAGE (3)</b></p> <p>1 OF 5</p>
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**TITLE (4)**  
**CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS DUE TO FAILURE TO MAINTAIN CONTAINMENT INTEGRITY DURING REFUELING OPERATIONS**

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
10	04	96	96	-- 006	-- 00	11	04	96		05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>OPERATING MODE (9)</b>	N	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>								
		20.2201(b)		20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)		50.73(a)(2)(viii)		
<b>POWER LEVEL (10)</b>	0	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)		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)**

<p><b>NAME</b></p> <p>A. L. Garrou, Manager - Licensing/Regulatory Programs (Acting)</p>	<p><b>TELEPHONE NUMBER (include Area Code)</b></p> <p>(803) 857-1544</p>
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**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)				EXPECTED SUBMISSION DATE (15)		
<p><b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE).</p>	X	NO				

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

On October 4, 1996, H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 was in cold shutdown conditions for refueling, and fuel movement activities were in progress. Personnel in the reactor containment building performing welding activities associated with a modification reported that air flow was coming into the containment from a penetration sleeve bellows that was being welded to the penetration sleeve collar. Since fuel movement activities were in progress, Technical Specifications (TS) Section 3.8.1.a requirements that specific aspects of containment integrity be intact during fuel movement were not being met. A test rig vent valve had been opened in order to depressurize the penetration sleeve bellows being welded and, due to the slight negative atmosphere pressure resulting from operation of the containment purge fans, air was drawn into the containment from the outside atmosphere. As a result of inadequate procedures and oversight and coordination of field work activities, personnel did not adequately assure containment integrity requirements were met prior to commencing fuel movement. This event had no significant impact on plant safety. If a fuel handling accident had occurred while this condition existed, any radioactive material released from the fuel would remain inside the containment since the containment purge was in operation at the time maintaining the containment atmosphere at a slight negative pressure relative to the outside atmosphere. Operations personnel will review and revise as appropriate the procedure for maintaining control of containment penetrations and assuring that containment integrity requirements delineated in the TS are met. Operations management will review this event during Licensed Operator Continuing Training. Maintenance and Engineering personnel will review this event with emphasis on providing oversight of work activities. This report is submitted in accordance with 10 CFR 50.73(a)(2)(I)(B) as a condition prohibited by TS.

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(4-95)

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2	05000-261	96	006	00	2 OF 5

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

I. DESCRIPTION OF EVENT

On October 4, 1996, H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 was in cold shutdown conditions for refueling, and fuel movement activities were in progress (i.e., fuel assemblies were being returned to the reactor vessel from the spent fuel pool). The containment purge was in operation which maintained the containment atmosphere at a slight negative pressure relative to the outside atmosphere. A modification was being performed that involved installation of collars on containment penetration sleeves for piping that supplies Service Water (SW)(EIS System Code: BI) to the Heating, Ventilation, and Air Handling (HVH) (EIS System Code: BK) units in the containment. The valve lineup for this work opened the penetration sleeve vent valves (EIS Component Code: VTV) located on the part of the sleeves that is outside containment. As part of this modification, the bellows for that part of the penetration sleeve No. 5 located in the containment were also being replaced. As specified by the modification, an argon gas pressure test rig was located outside containment in the Reactor Auxiliary Building (RAB) Pipe Tunnel and was being used to perform post installation pressure testing of the modified penetration sleeves. In addition, although not included in procedures governing this work, the contract workers were also using the argon gas pressure test rig to supply purge gas while welding the penetration sleeve bellows on the containment side of these penetrations. This purge gas was being supplied by connecting a hose from the test rig to the penetration sleeve vent valve that was open on the RAB Pipe Tunnel side of the penetrations. At approximately 1540 hours Eastern Daylight Time, contract personnel in the containment performing welding activities associated with the penetration sleeve bellows replacement reported to Operations personnel that air flow was coming into the containment from the penetration sleeve bellows that was in the process of being welded to the penetration sleeve collar. Since fuel movement activities were in progress, Technical Specifications (TS) Section 3.8.1.a requirements that specific aspects of containment integrity be intact during fuel movement were not being met. Accordingly, an investigation was immediately initiated. An Auxiliary Operator (AO) was dispatched to the RAB Pipe Tunnel to investigate the source of the leakage, and a Senior Reactor Operator (SRO) was dispatched to investigate the piping penetration area inside the containment. After recognizing that the argon gas pressure test rig was also being used to supply purge gas to SW penetration sleeve, the position of valves on the test rig was checked. Tubing was disconnected from the penetration sleeve and the associated valve was closed and capped, and Operations personnel in the Control Room secured the containment purge fans. These actions terminated the air flow, and thereby re-established the containment integrity requirements delineated in TS for refueling operations. Use of the test rig on other penetration sleeves did not result in non-adherence to the TS requirements for containment integrity during refueling operations. We have concluded that the most likely scenario is that the test rig vent valve was opened by a contract worker in order to depressurize the penetration sleeve bellows being welded and, due to the slight negative atmosphere pressure resulting from operation of the containment purge fans, air was drawn into the containment from the RAB Pipe Tunnel.

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II. CAUSE OF EVENT

While Operations personnel had verified that TS requirements concerning containment integrity were satisfied prior to off-loading the fuel, Operations personnel did not adequately assure containment integrity requirements were met prior to commencing fuel movement for core reload. This resulted from inadequate instructions in the applicable procedure. In addition, inadequate oversight and coordination of field work activities including lack of recognition that the test rig which contained a vent valve was being used to provide a purge during welding, contributed to this event. The Operations Unit is responsible for assuring that containment integrity requirements are met prior to performing refueling activities. This action is performed and documented under General Procedure (GP)-010, "Refueling." To satisfy this requirement, on September 30, 1996, Operations personnel in the Work Control Center (WCC) reviewed clearances which could impact the TS requirements for Containment integrity during refueling operations. This review did not identify that clearances for the sleeve No. 5 bellows replacement work had established valve alignments which jeopardized control of containment integrity (e.g., opening of the penetration sleeve vent valve). Personnel functioning in a project management and oversight role for this modification did not have a full understanding of the work techniques that were being utilized to perform welding on SW penetration sleeves. The use of a special rig containing a vent valve which was not tagged or otherwise controlled, to supply an argon gas weld purge from the RAB Pipe Tunnel to the penetration sleeves was not reviewed by plant Engineering or Maintenance personnel. Since the work procedures did not require a purge for these welds, there was no recognition that the purge was being supplied.

III. ANALYSIS OF EVENT

This event had no significant impact on plant safety. With regard to fuel handling accidents, the Updated Final Safety Analysis Report (UFSAR), Chapter 15, "Accident Analysis," Section 15.7.4, states, "The possibility of a fuel handling accident is remote due to the administrative controls and physical limitations imposed on fuel handling operations." To minimize the possibility of a fuel handling accident that could affect public health and safety, the TS require that the containment vent and purge system, including the radiation monitors that initiate isolation, are verified operable prior to commencing refueling operations. TS Section 3.8.1.a requires that, during refueling operations, for those systems which provide a direct path from containment atmosphere to the outside atmosphere, all automatic containment isolation valves shall be operable or at least one valve shall be securely closed in each line penetrating the containment. The Basis for this TS requirement state that, during refueling, the reactor refueling cavity is filled with approximately 285,000 gallons of water, ensuring that there will be at least 23 feet of water above the reactor vessel flange whenever fuel assemblies are being moved within the reactor vessel to prevent a fuel assembly from becoming partially uncovered while being transported over the reactor vessel flange. Furthermore, if a fuel handling accident had occurred while this condition existed, any radioactive material released from the fuel would remain inside the containment since the containment purge was in operation at the time maintaining the containment atmosphere at a slight negative pressure relative to the outside atmosphere.

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III. ANALYSIS OF EVENT (Continued)

Although detailed refueling instructions, specified precautions, and the design of fuel handling equipment provide assurance that no incident could occur during refueling operations that would result in a hazard to public health and safety, since a direct path from containment atmosphere to the outside atmosphere existed with no automatic isolation valve when integrity was required, the requirements of TS section 3.8.1.a were not satisfied. Therefore, this report is submitted in accordance with 10 CFR 50.73(a)(2)(I)(B) as a condition prohibited by TS.

IV. CORRECTIVE ACTIONS

Upon discovery of a potential direct path from containment atmosphere to the outside atmosphere, Operations personnel were dispatched to investigate the source of air leakage. A leak check of the penetration sleeve in the RAB Pipe Tunnel, the adjacent tubing and connections, and the argon test rig connection, was performed. Engineering personnel then installed a plug in the end of the test rig tubing and performed a pressure test of the argon test rig and associated tubing and fittings. This test was performed at a pressure of approximately 42 psig for a five minute hold time, and no leakage was identified.

Operations personnel next performed the applicable Operating Procedure valve lineups resulting in closure of the penetration sleeve vent valve to assure no other potential leakage paths existed. A review of outstanding equipment clearances was then conducted to assure control of valves that affect containment integrity and to assure no other integrity concerns existed with other containment penetrations.

Operations personnel will review and revise as appropriate the procedure for maintaining control of containment penetrations and assuring that containment integrity requirements delineated in the TS are met. Any identified procedure changes will be implemented prior to Refueling Outage 18, currently scheduled to begin during 1998.

Operations management will review this event during Cycle 6 of Licensed Operator Continuing Training (LOCT) Program. This cycle is scheduled to begin on November 18, 1996.

Engineering personnel will review this event as internal Operating Experience information during first quarter 1997 Continuing Training, emphasizing the aspects of project management and work coordination.

Maintenance personnel will review this event as internal Operating Experience information by November 20, 1996, with emphasis on providing oversight of work activities and the need to maintain a conservative, questioning attitude.

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V. ADDITIONAL INFORMATION

## A. Failed Component Identification

None

## B. Previous Similar Events

None