

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9210270330 DOC. DATE: 92/10/21 NOTARIZED: NO DOCKET #
 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
 AUTH. NAME AUTHOR AFFILIATION
 BROOK, R.D. Carolina Power & Light Co.
 CHAMBERS, R.H. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-020-00: on 920930, during surveillance test on fire protection sys, 525 pounds of carbon dioxide released in vital area. Caused by debris in disk surface & pilot valve. Fire protection/surveillance test revised. W/921021 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT		COPIES		RECIPIENT	COPIES	
	ID CODE/NAME	LTTR	ENCL	ID CODE/NAME		LTTR	ENCL
	PD2-1 LA	1	1	PD2-1 PD	1	1	
	MOZAFARI, B	1	1				
INTERNAL:	ACNW	2	2	AEOD/DOA	1	1	
	AEOD/DSP/TPAB	1	1	AEOD/ROAB/DSP	2	2	
	NRR/DET/EMEB 7E	1	1	NRR/DLPQ/LHFB10	1	1	
	NRR/DLPQ/LPEB10	1	1	NRR/DOEA/OEAB	1	1	
	NRR/DREP/PRPB11	2	2	NRR/DST/SELB 8D	1	1	
	NRR/DST/SICB8H3	1	1	NRR/DST/SPLB8D1	1	1	
	NRR/DST/SRXB 8E	1	1	<u>REG FILE</u> 02	1	1	
	RES/DSIR/EIB	1	1	RGN2 FILE 01	1	1	
EXTERNAL:	EG&G BRYCE, J.H	2	2	L ST LOBBY WARD	1	1	
	NRC PDR	1	1	NSIC MURPHY, G.A	1	1	
	NSIC POORE, W.	1	1	NUDOCS FULL TXT	1	1	

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Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT
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OCT 22 1992

Robinson File No: 13510C

RNPD/92-2816
(10CFR50.73)

United States Nuclear Regulatory Commission
Attn: 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 NO. 92-020-00

Gentlemen:

The enclosed supplemental Licensee Event Report (LER), is submitted in accordance with 10 CFR 50.73 and NUREG 1022, Supplements No. 1 and 2.

Very truly yours,

R. H. Chambers
General Manager
H. B. Robinson S. E. Plant

RDC:sgk

Enclosures

cc: Mr. S. D. Ebnetter
Mr. L. W. Garner
INPO

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION
COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING
BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH
(P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555,
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)

05000261

PAGE (3)

1

TITLE (4)

ALERT DECLARATION DUE TO UNPLANNED RELEASE OF TOXIC GAS IN VITAL AREA

EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ. NO.	REV. NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
09	30	92	92	-	020	-	00	10	21	92	05000

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)							
POWER LEVEL (10)	100	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract and Text)	
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		Information	
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)			
20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)

NAME

TELEPHONE NUMBER

D. CROOK, SR. SPECIALIST - REGULATORY COMPLIANCE

(803)383-1179

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)

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)				DATE (15)			

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

On September 30, 1992, H. B. Robinson Unit No. 2 was operating at 100 percent power. Licensee Fire Protection personnel were in the process of performing a surveillance test on the CO₂ Fire Suppression System for the North and South Cable Vault. At approximately 0315 hours, a seven cylinder Fire Suppression System CO₂ cylinder bank located in the Reactor Auxiliary Building Pipe Alley actuated and slowly released 525 pounds of CO₂ into the area. At 0333 hours an "ALERT" was declared in accordance with the Emergency Plan based the release of a toxic gas to a Vital Area. The NRC was notified of the event via the ENS pursuant to 10CFR50.72(a)(1)(i), and the Technical Support Center and the Operations Support Center were activated. By approximately 0840 hours, the cylinders had completely blown down. Oxygen readings were taken in the area and were found to be normal throughout the event. The Alert was terminated at 0901 hours.

The cause of this event is attributed to a small particle of debris between the disk surface and seat of the Solenoid Pilot Valve on one of the actuating cylinders, allowing CO₂ to flow through and pressurize the Pilot Operated Discharge Head, actuating the main bank of cylinders for the North and South Cable Vault room. CO₂ was not released into the North and South Cable Vault because the reserve bank was armed and no fire detection signal was received.

No time did this event pose an actual threat to plant safety, nor did it significantly hamper personnel in the performance of their duties necessary for plant operation. The event was reviewed pursuant to 10CFR50.73 and determined not to be reportable. This report is submitted for information to document the declaration and termination of an Emergency Class as specified in the approved Emergency Plan.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
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H. B. ROBINSON, UNIT NO. 2	05000261	92	-	020	-	00
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

I. DESCRIPTION OF EVENT

On September 30, 1992, H. B. Robinson Unit No. 2¹ as operating at 100 percent power. Licensee Fire Protection personnel were in the process of performing Fire Protection System Surveillance OST-620, "Carbon Dioxide Suppression System Weight Test" for the Fire Suppression System for the North and South Cable Vault. This test is performed to ensure the operability of each of the Suppression Systems seven high pressure CO₂ cylinders by verifying that the actual weight of each cylinder is not less than ninety percent of the full charge weight of the cylinder, as required by plant Technical Specifications 3.14.5.1 and 4.14.3. The cylinder bank is located in the Reactor Auxiliary Building Pipe Alley. At the time of the event, each of the cylinders had been weighed and replaced in the Main Cylinder (MCD) Bank rack. The discharge heads had been reconnected and the solenoid pilot valves were being replaced in order to return the Main Bank to service.

At approximately 0315 hours step 7.1.14 of the procedure was being performed which reconnects the solenoid pilot valve CD-13 to the cylinder in MCD Bank Slot 1 (refer to diagram 1). The solenoid valve is normally closed and de-energized, and when it is connected to the cylinder it becomes pressurized. By design, when connecting the solenoid valve to the cylinder, slight CO₂ leakage occurs at the valve connection until the connection is tightened to provide a seal. When solenoid pilot valve CD-13 was connected this normal leakage was noted. The connection was being tightened when the Fire Protection Technician performing the work realized that the pressure passed through the solenoid valve.

CO₂ flowed through the solenoid valve to the Pilot Operated Discharge Head, pressurizing and actuating the first cylinder (refer to diagram 2). This in turn pressurized the manifold and, as designed, actuated the remaining six cylinders, releasing CO₂ into Pipe Alley. A total of seven cylinders actuated and released 525 pounds of CO₂ over a five hour period. However, because no electrical signal actuated the system, the solenoid valves that control opening of the selector valves that route CO₂ to the cable vaults were not actuated. Therefore the flow path was closed and no CO₂ was discharged to the North and South Cable Vault.

Since the normal flow path was closed, the only flow path was back through the CD-15 solenoid pilot valves 1/64" orifice and into Pipe Alley. This flow path was open because CD-15 had not yet been connected to the cylinder in Main Bank cylinder slot MCD-2.

¹H. B. Robinson Steam Electric Plant Unit No. 2, is a Pressurized Water Reactor in commercial operation since March, 1971.

EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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The Fire Protection Technician performing the test realized the cylinder had actuated and immediately left the Pipe Alley. He checked Fire Detection and Actuation Panels (FDAP) A1 and B1, verifying no fire alarms were present. He then inspected both cable vaults to verify no CO₂ flow had reached these rooms.

The Fire Protection Technician notified the Operations Shift Supervisor of what had occurred. Licensee Control Room Operators noted no fire alarms or system actuation alarms had been received. The flow alarm pressure switches are downstream of the solenoid valves that control the selector valves. Because these solenoid valves were not energized and did not open, no pressure was sent to the pressure switches so no actuation alarms were received on the Fire Alarm System.

At 0333 hours an "ALERT" was declared in accordance with the Emergency Plan based the release of a toxic gas to a Vital Area as defined in Plant Procedure OMM-031, "Emergency Action Level Procedure User's Guide". The NRC was notified of the event via the ENS pursuant to 10CFR50.72(a)(1)(i) as a declaration of one of the Emergency Classes specified in the licensee's approved Emergency Plan. The Technical Support Center and the Operations Support Center were manned and activated.

The Fire Protection Technician and an Auxiliary Operator returned to Pipe Alley to review the conditions. Oxygen levels were obtained and in the immediate area of the Main Bank cylinders the levels were 19.9 to 19.6 percent, which is considered to be safe (less than 19.5 percent is considered immediately dangerous). They then decided to disconnect the solenoid valve CD-13 from the cylinder. When disconnected this provided an additional flow path back through this solenoid's 1/64 inch orifice, allowing the system to discharge. With the small size openings the system discharged at a very slow rate. Throughout the discharge time period, measured oxygen levels never dropped below 19.6 percent.

A Senior Reactor Operator and the Auxiliary Operator re-entered Pipe Alley to determine whether nearby equipment might be impacted by the CO₂ release and to obtain additional oxygen level readings. The Fire Protection Technician went to the second level of the Auxiliary building to take readings and found that no CO₂ was reaching the area.

At 0519 hours the Operations Support Center (OSC) dispatched a team consisting of licensee Fire Protection, Maintenance and Radiation Control personnel to determine if anything could be done mechanically to stop the leak. The situation was reviewed and an initial determination made that they should not do anything mechanically at that time, and the team left the area. At 0600 hours an OSC team returned to the area to determine a way to safely vent the remaining CO₂ from the manifold at a faster rate.

EXPIRES: 4/30/92

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

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

The team leader then returned to the Technical Support Center (TSC) and discussed the conditions with the Accident Assessment team. The decision was made to reconnect the solenoids valves to the cylinders in an effort to control the CO₂ leakage. The team returned to Pipe Alley, arriving at the cylinders at approximately 0840, and found that the manifold had completely blown down and no CO₂ leakage was present. Both solenoids valves CD-13 and CD-15 were then reconnected to the cylinders and the pressure gauges on both solenoid valves indicated zero pressure. Additionally, the other cylinders were sound (tap) tested and noted to be empty.

The Plant Operations Director (POD) was notified that all flow had stopped and oxygen levels were normal. The Alert was terminated at 0901 hours.

II. CAUSE OF EVENT

The cause of this event is attributed to debris on the solenoid pilot valve disk surface. The Solenoid Pilot Valve was open allowing CO₂ to flow through and pressurize the Pilot Operated Discharge Head, actuating the Main Bank of cylinders for the North and South Cable Vault Room. An indentation was found on the Solenoid Pilot Valve Body Disc that appeared to cover between ten and fifteen percent of the disc surface. In addition, a surface scratch was found on the valve body seat. This gave the appearance that a piece of debris had lodged between the Solenoid Pilot Valve Disc and the Valve Body Seat, creating a flow path that actuated the Pilot Operated Discharge Head. This in turn actuated the remaining six cylinders.

III. ANALYSIS OF EVENT

This event had no impact on operability of the CO₂ system protecting the North and South Cable Vaults. Prior to and during this event the system was lined up for automatic actuation from the Reserve Bank. If fire alarms were received the Fire Suppression System would have functioned automatically as designed. As a precaution the system was inhibited at 0620 hours. An area watch was established in accordance with Technical Specification requirements. At 0955 hours the system was returned to normal configuration, lined up to the reserve bank. The empty cylinders were removed and sent to the vendor for recharge.

At no time did this event pose an actual threat to plant safety, nor did it significantly hamper personnel in the performance of their duties necessary for plant operation. This report is submitted for information to document the declaration and termination of an Emergency Class as specified in the approved Emergency Plan.

EXPIRES: 4/30/92

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IV. CORRECTIVE ACTIONS

Adverse Condition Report ACR 92-358 was initiated to document this event, and to conduct a root cause investigation. This investigation has been completed, and corrective actions identified. These actions include revising Fire Protection Surveillance Test procedures to require disconnecting the 3/16 inch flexible hose from the Solenoid Pilot Valves prior to connecting to cylinder. In addition, a review of procedures for Cleanliness and Flushing Requirements will be performed to determine applicably to Operations procedures, which will be revised accordingly.

V. ADDITIONAL INFORMATION**A. Component Failures**

None

B. Previous Similar Events

None

**LICENSEE EVENT REPORT (LER)
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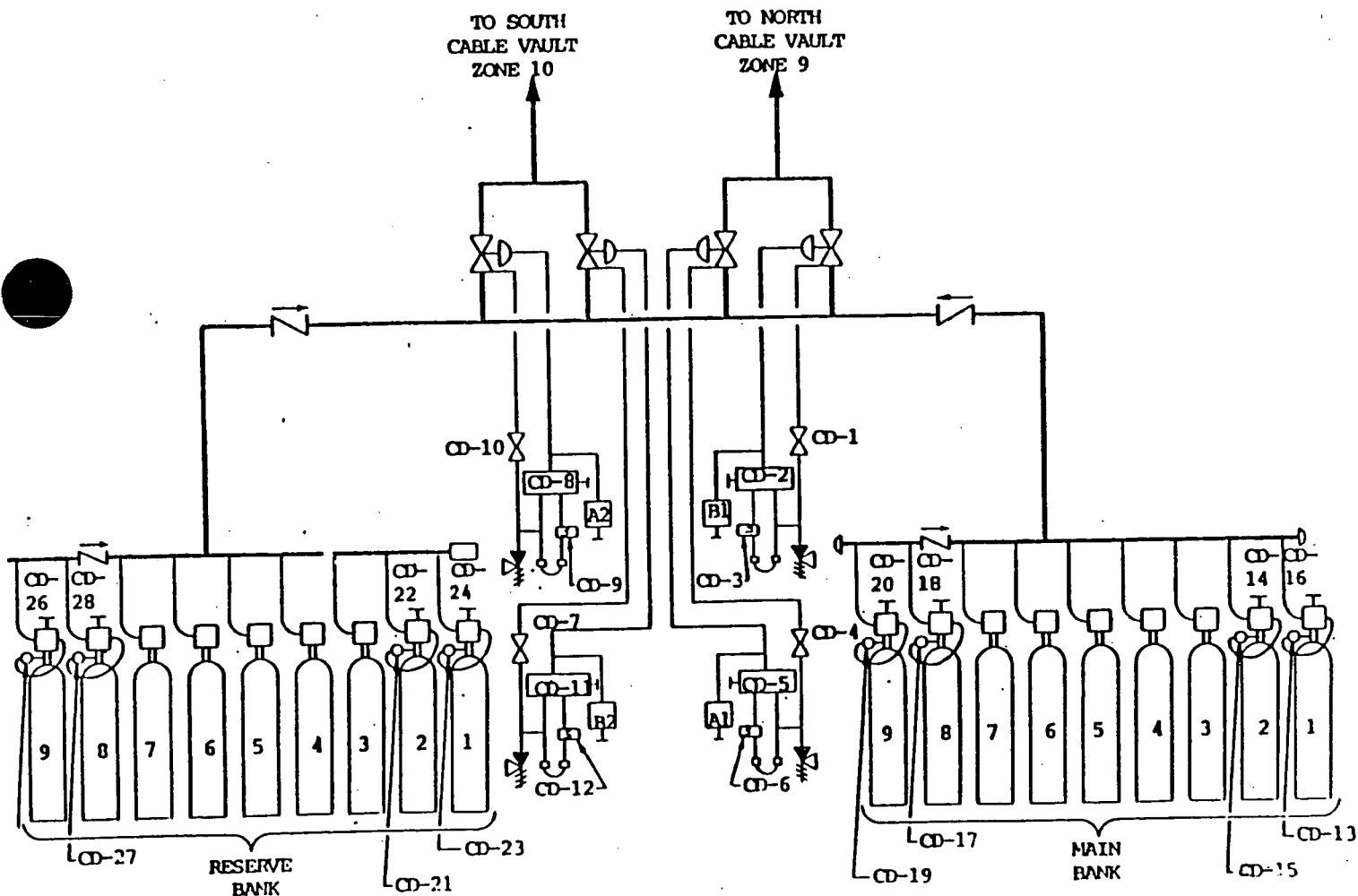
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DIAGRAM 1



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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DIAGRAM 2

