



Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61
P.O. Box 220
St. Francisville, LA 70775
Tel 504 396 6225
Fax 504 635 5068

James J. Fisicaro
Director
Nuclear Safety

November 28, 1995

U.S. Nuclear Regulatory Commission
Document Control Desk
Mail Stop P1-37
Washington, D.C. 20555

Subject: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Licensee Event Report 50-458/95-007-01
File Nos. G9.5, G9.25.1.3

RBG-42209
RBF1-95-0287

Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject report. This supplemental report is submitted to provide root cause and corrective actions.

Sincerely,

JJF/LR/jr
enclosure

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PDR ADOCK 05000458
S PDR

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cc: U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

NRC Resident Inspector
P. O. Box 1051
St. Francisville, LA 70775

INPO Records Center
700 Galleria Parkway
Atlanta, GA 30339-3064

Mr. C. R. Oberg
Public Utility Commission of Texas
7800 Shoal Creek Blvd., Suite 400 North
Austin, TX 78757

Louisiana Department of Environmental Quality
Radiation Protection Division
P.O. Box 82135
Baton Rouge, LA 70884-2135
ATTN: Administrator

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 20555-0901, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
RIVER BEND STATION

DOCKET NUMBER (2)
05000-458

PAGE (3)
1 OF 3

TITLE (4)
FAILURE OF HPCS UNIT COOLER (1HVR*UC5) FAN HUB

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	05	95	95	007	01	11	28	95	NA	05000
									NA	05000
OPERATING MODE (9)		1		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
L. W. Rougeux, Sr. Engr. - Nuclear Safety Dept

TELEPHONE NUMBER (include Area Code)
504-381-4803

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS
C	ACG	BLOWER	B515	YES					

SUPPLEMENTAL REPORT EXPECTED (14)

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

On September 5, 1995, with the plant at 100 percent power (Operational Condition 1), the fan hub for the High Pressure Core Spray (HPCS) Pump Room unit cooler failed. This failure caused the HPCS and HPCS Diesel Generator (DG) systems to be declared inoperable per Technical Specification (TS) 3.5.1c and 3.8.1.1d respectively. Initial corrective actions restored the unit cooler to operable status within the TS Limiting Condition for Operation (LCO) action time limits.

The root cause for the hub failure was a casting defect consisting of high porosity and iron rich precipitates along grain boundaries. Low material ductility and fracture toughness also contributed to the hub failure.

Other Emergency Core Cooling Systems (ECCS) were available during the inoperable time period. Therefore, this event was not safety significant.

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RIVER BEND STATION	05000				2 OF 3
	458	95	-- 007	-- 01	

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

REPORTED CONDITION

On September 5, 1995, with the plant at 100 percent power (Operational Condition 1), the fan for the High Pressure Core Spray (HPCS) (*BG*) Pump Room unit cooler failed. The failure caused the HPCS and HPCS Diesel Generator (DG) systems to be declared inoperable per Technical Specification (TS) 3.5.1c and 3.8.1.1d respectively. This plant condition is reportable pursuant to 10CFR50.73(a)(2)(v) as an event or condition that alone could have prevented the fulfillment of the HPCS safety function.

INVESTIGATION

The function of the HPCS Pump Room Unit Cooler is to maintain ambient environmental conditions (temperature and humidity) in the HPCS Pump Room below design limits during normal operations and Design Basis Events.

When the unit cooler fan hub failed, fan motor imbalance and fan blade missiles caused damage to the unit cooler housing, fan shroud and fan motor. However, the unit cooler cooling coils were not damaged and there were no personnel injuries. A Significant Event Response Team (SERT) was assembled to address the immediate problems of returning the HPCS to operable status. The unit cooler fan hub and damaged components were replaced and the unit cooler was successfully repaired within the TS Limiting Condition for Operation (LCO) action time limits.

A detailed metallurgical analysis provided the root and contributing causes for the HPCS fan hub failure. Engineering evaluated similar hubs of the same manufacturer and concluded that only the model 29B5 hubs may be susceptible to a similar failure mode. These hubs are currently installed in the HPCS unit cooler and both trains of the Control Building unit coolers. The Control Building unit coolers are 100% capacity each, providing a 50% usage factor and a level of redundancy. There was no evidence indicating that other similar hubs by the same manufacturer were susceptible to this type of failure. Engineering also evaluated the continued operation of the existing model 29B5 hub applications. The evaluation concluded that there would be no decrease in plant safety with continued operation of these hubs until a replacement can be installed.

ROOT CAUSE

The root cause for the HPCS fan hub failure was a casting defect consisting of high porosity and iron rich precipitates along grain boundaries. Low material ductility and low fracture toughness also contributed to the hub failure.

A review of recent LER's did not indicate any similar events. However, similar non-safety related fan hub failures have occurred and were investigated and corrected under the corrective action program previously.

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

CORRECTIVE ACTIONS

Immediate corrective actions included repair and restoration of the HPCS unit cooler to operational status. A suitable replacement for the model 29B5 hub is being evaluated to replace existing applications.*

SAFETY ASSESSMENT

Other Emergency Core Cooling Systems (ECCS) were available while the HPCS unit cooler was inoperable. The HPCS unit cooler was repaired within the TS Limiting Condition for Operation (LCO) action time limits. Therefore, this event was not safety significant.

Note: Energy Industry Identification Codes are indicated in the text as (*XX*).