GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775

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September 1, 1992
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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

River Bend Station - Unit 1
Docket No. 50-458

Please find enclosed Licensee Event Report No. 92-008 Revision 1 for River Bend Station -Unit 1. This supplemental report is submitted pursuant 10CFR50.73 to provide the results of additional root cause analysis and corrective actions.

Sincerely,

W. H. Odell
Manager - Oversight
River Bend Nuclear Group

LAE/DNL/WC/FRC/PDG/kvm

IE22 1/1

cc: U.S. Nuclear Regulatory Commission
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Arlington, TX 76011

NRC Resident Inspector
P.O. Box 1051
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Louisiana Department of Environmental Quality
Radiation Protection Division
P.O. Box 82135
Baton Rouge, LA 70884-2135
ATTN: Administrator

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
RIVER BEND STATION	0 5 0 0 0 4 5 8	1 OF 0 6

TITLE (4)

Containment Integrity Not Maintained During Fuel Handling

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 NAMES	DOCKET NUMBER(S)
										0 5 0 0 0
0 4	0 2	9 2	9 2	– 0 0 8	– 0 1	0 9	0 1	9 2		0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
1 1 5	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	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
	AREA CODE
L. A. England, Director - Nuclear Licensing	5 0 4 3 8 1 - 4 1 4 5

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)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

At 1345 on 4/2/92 with the Unit in Operational Condition 5 (Refueling), it was discovered that the containment building had been breached during modification of the standby service water system piping on 3/31/92 at 2330. The Division II standby service water inboard piping associated with containment penetration KJB*Z53B had been cut into while the outboard containment isolation valve 1SWP*MOV81B was in the open position. Core alterations were performed while this condition existed resulting in a violation of Technical Specification 3.6.1.2. Therefore, this report is submitted pursuant to 10CFR50.73(a)(2)(i)(b) as operation prohibited by the Technical Specifications and 10CFR50.73(a)(2)(v) as a condition that alone could have prevented the fulfillment of a safety function.

The root cause of this event was personnel error by operations and tagging personnel for not understanding the modification being performed on the service water piping. All Operations personnel were briefed on this incident on their next scheduled shift and additional training is planned for all licensed operators. The STP used to verify containment integrity - fuel handling (STP-000-0702) has been revised to include a signoff for the SS/COF to verify that all active LCOs and tracking LCOs have been reviewed for impact on containment integrity.

REPORTED CONDITION

At 1345 on 4/2/92 with the Unit in Operational Condition 5 (Refueling), it was discovered that the containment building had been breached during modification of the standby service water system (*BI*) piping on 3/31/92 at 2330. The Division II standby service water inboard piping associated with containment penetration KJB*Z53B had been cut into while the outboard containment isolation valve 1SWP*MOV81B (*20*) was in the open position. Core alterations were performed for approximately 11 hours while this condition existed resulting in a violation of Technical Specification 3.6.1.2. This constituted a containment breach subsequent to the establishment of containment integrity - fuel handling to support the core offload during the current (fourth) refueling outage. Therefore, this report is submitted pursuant to 10CFR50.73(a)(2)(i)(b) as operation prohibited by the Technical Specifications and 10CFR50.73(a)(2)(v) as a condition that alone could have prevented the fulfillment of a safety function.

INVESTIGATION

At 2057 on 3/31/92, containment integrity - fuel handling (T.S. 3.6.1.2) was established in support of the core off load for the ongoing refueling outage (fourth refueling outage (RF-4)). Containment integrity was verified by the performance of STP-000-0702. This surveillance does not verify penetration KJB*Z53B, since it is normally full of service water. At approximately 2330 on 3/31/92, the service water pipe, 1SWP-010-547-2(B) was cut into per maintenance work order (MWO) #141544. Note that MWO #141544 is associated with modification request (MR) 90-0008 and was released for work on 3/30/92 at 1105. The cutting of the service water pipe created a breach in the inboard portion of containment penetration KJB*Z53B at approximately 2330 on 3/31/92. Valve 1SWP*MOV81B (*20*), the outboard isolation valve for this penetration, had been placed in its normal open position on 3/31/92 at 1011 following LLRT testing. This was done to verify the draining of the SWP pipe for MWO #141544. Since there were no containment integrity constraints in effect at the time 1SWP*MOV81B (*20*) was opened, it was not recognized that a containment breach would exist once 1SWP-010-547-2(B) was cut. Note that 1SWP*MOV81B (*20*) was within the clearance boundary for the MWO. The clearance was originally initiated to maintain divisional separation and maintain containment integrity during the draindown of the Division II standby service water and normal service water systems on 3/24/92. However, the releasing senior reactor operator (SRO) did not understand the full extent and the exact location of the (pipe cutting) work under MWO #141544. As a result, the MWO was not listed on the tracking LCO for containment integrity - fuel handling.

Core alterations commenced at 0559 on 4/1/92 and continued until approximately 1700 on 4/1/92. During this 11 hour period, the containment breach existed at KJB*Z53B and thus core alterations were prohibited by TS 3.6.1.2. On 4/2/92 at 1345 it was discovered that a potential containment breach existed at KJB*Z53B. Valve 1SWP*MOV81B (*20*) was closed until containment integrity could be verified. Verification of the position of 1SWP*MOV81B (*20*) in computer history revealed that it was open during this time period. A 10CFR50.72 notification of a condition that alone could have prevented the fulfillment of a safety function was called in to the NRC Operations Center at 1100 CST on 4/3/92.

ROOT CAUSE

The root cause of this incident is personnel error by both the releasing senior reactor operator (SRO) and the tagging official (TO). The releasing SRO did not adequately question the personnel performing the piping modification under maintenance work order (MWO) #141544 as to the details of the work. The releasing SRO then failed to list the MWO on the tracking limiting condition for operation (LCO) for Containment Integrity-Fuel Handling. Had this communication been complete, the MWO would have been listed on the LCO and operators would have been aware of this containment breach when attempting to establish containment integrity for commencement of fuel offloading operations. The TO also did not adequately question the workers requesting that the outboard isolation valve be opened and left open to verify the pipe was drained. The TO misunderstood that the location of the cutting of the pipe was to be in the auxiliary building rather than inside containment. Had the TO understood the location of the breach, he would have reclosed the isolation valve after the pipe was verified drained.

A number of contributing factors were involved. Operations personnel believed that a more extensive review of work packages was performed by Outage Management than was the case. Operations personnel also placed reliance on a service water modification status board in the control room, but the status board was not providing a continuing, up-to-date status of the system as the modifications were being installed.

The potential for a containment integrity conflict was not identified during the development and planning stages of modification request (MR) 90-0008 and MWO #141544. Engineering procedure ENG-3-006, "Modification Request" now includes a post design review checklist which specifically addresses the operational impact of modifications.

This procedural requirement was not in place when MR 90-0008 was approved for work in January 1990. Nor did the MWO planning process flag the potential for containment integrity impact. The planning process identified containment isolation valves for added precautions.

However, the MWO in this case, was associated with a service water line number rather than an isolation valve.

A review of previous LERs revealed no similar events.

CORRECTIVE ACTION

Upon discovery of the containment breach on April 2, 1992, immediate corrective actions included closing and tagging outboard isolation valve 1SWP*MOV81B (*20*), thereby reestablishing containment integrity and suspension of additional core alterations and handling of irradiated fuel in primary containment. Notification under 10CFR50.72 of a condition that alone could have prevented the fulfillment of a safety function was called in to the NRC. A review of all active work packages to determine if any could possibly affect containment integrity, operator walkdowns of piping and valves necessary to maintain containment integrity-fuel handling, placement of danger tags on all primary containment service water penetrations, and satisfactory recompletion of STP-000-0702, "Primary Containment Integrity - Fuel Handling Verification", were performed. Reactor core offloading was resumed.

This incident was reviewed with all operators during shift briefings to emphasize the consequences of this error. Also, specific guidance was given to shift supervisors and control operating foreman via memorandum on post-design documentation requirements prior to work release of MR-related MWOs. STP-000-0702 was revised to add requirements for the SSs/COFs to review the tracking LCOs and LCOs for containment integrity impacts.

Engineering initiated a review program to provide post-modification design reviews for MRs and PMRs which have not received them. During RF-4, a service water engineer reviewed all MRs, MWOs and PMRs dealing with service water with the releasing SRO. Control Room status boards and P&ID drawings were updated prior to release of the post-modification design reviews. This review was established following this event and continued until service water modifications and cleaning were complete.

Further training shall be given to all licensed operators on procedures ENG-3-006, ADM-0028, "Maintenance Work Order," and the applicable Technical Specifications associated with this finding. This training will be given during Licensed Operator Requal Training. CR92-0201 and LER 92-008 will be included as required reading for all licensed operators.

Since post-design reviews may be performed months or years in advance of actual installation, a final design review just prior to starting work to factor in schedule changes, LCOs, or abnormal plant configurations will be evaluated.

A methodology to be used during outages will be developed to provide a uniform review of work packages. All SSs, COFs, TOs, and outage management personnel will be trained on this methodology. The maintenance planning process will be revised to aid the maintenance planner in identifying any MWO that may impact containment integrity.

SAFETY ASSESSMENT

GSU has evaluated the safety significance of a fuel handling accident (FHA) in the primary containment given the breach in the containment as described in this report. This analysis was performed in two parts:

1) Determine the flow out of containment through the cut 10-inch pipe, and

2) Determine the offsite dose consequences for a FHA with this out flow.

Operations routinely vents the containment to lower containment pressure from the alarm setpoint of 0.25 psig to 0 psig (Ref. 2). Venting is of short duration (about 3 minutes) and occurs about 3 times per day. However, with the cut pipe no venting was needed. Therefore, the outflow through the cut pipe was equal to the containment in-leakage (which normally makes venting necessary). Using this operating data and the air volume of containment, from Reference 3 it is estimated that the flow from containment through the cut 10-inch pipe amounted to approximately 50 cfm.

Fuel handling in containment began on 3/31/92, approximately 600 hours after shutdown. If an FHA had occurred at this time, with leakage of 50 cfm from containment, then the limiting offsite dose (LPZ thyroid dose) would have been 0.25 Rem (Ref. 4). This offsite dose is 300 times less than the FHA offsite dose limit of 75 Rem (25% of the 10CFR100 limit).

Based on this evaluation, GSU concludes that the safety significance of this postulated event is low.

REFERENCES

1) Condition Report (CR) 92-0234

2) Memorandum from J.P. Schippert to J.L. Burton, APM-O/R/C-92-067

3) Calculation G13.18.14.0*65-0

4) Calculation G13.18.9.5*33-0