



GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775
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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 Revision 1 to Licensee Event Report No. 90-003 for River Bend Station - Unit 1. This revision is submitted to provide the current status of issues concerning Thermo-Lag fire barriers at River Bend Station.

Sincerely,

W. H. Odell
W. H. Odell

Manager-Oversight
River Bend Nuclear Group

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) RIVER BEND STATION	DOCKET NUMBER (2) 0 5 0 0 0 4 5 B	PAGE (3) 1 OF 0 4
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TITLE (4) **Inadequate Thermo-Lag Fire Barrier Envelopes Surrounding Safe Shutdown Circuits near TS 3/4.7.7**

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	2	0	6	9	0	9	0	0	0	0	3	0	1	0	7	1	2	9	0			0	5	0	0	0

OPERATING MODE (9) **1**

POWER LEVEL (10) **1 0 0**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

20.402(b)	20.406(c)	50.73(a)(2)(iv)	72.71(b)
20.406(a)(1)(i)	50.36(a)(1)	50.73(a)(2)(v)	72.71(c)
20.406(a)(1)(ii)	50.36(a)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text NRC Form 366A)
20.406(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME L. A. England, Director-Nuclear Licensing	TELEPHONE NUMBER 5 0 4 3 8 1 - 4 1 4 5
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR
0	1	3
1	1	9
1		

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

During the performance of Surveillance Test Procedure STP-000-3602 on 02/06/90 through 02/08/90 with the unit in Operational Condition 1 (full power), it was found that several minor deficiencies existed in the Thermo-Lag fire barrier envelopes redundant safe shutdown circuits. These deficiencies consisted of small holes, cracks and unfilled seams in the Thermo-Lag material. A fire watch had already been established in areas utilizing Thermo-Lag as a fire barrier.

GSU is currently working with the vendor to resolve the identified discrepancies which occurred during construction and the deficient Thermo-Lag barriers. Fire tests are planned to confirm acceptability of as installed barriers in the plant and develop repair methods where necessary.

A supplemental response to this LER and the information report dated 01/09/90 will be submitted to the NRC by 01/31/91.

The combination of the cable jacket properties, the control of transient combustibles, the use of suppression systems in the plant, and the minor nature of the defects in the barriers provides assurance that plant safety and the health and safety of the public has not been jeopardized.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 880A (11)

REPORTED CONDITION

During the performance of Surveillance Test Procedure STP-000-3602 on 02/06/90 through 02/08/90 with the unit in Operational Condition 1 (full power), it was found that several minor deficiencies existed in the Thermo-Lag fire barrier envelopes redundant safe shutdown circuits. These deficiencies consisted of small holes, cracks and unfilled seams in the Thermo-Lag material. Condition reports (CR) 90-0094, 90-0095, 90-0101, and 90-0106 were initiated to evaluate the conditions according to 10CFR50, Appendix R, fire barrier requirements. Since these deficiencies rendered the fire barrier inoperable and the unfilled seams existed since construction, this event is reportable pursuant to 10CFR50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications. A fire watch had already been established in areas utilizing Thermo-Lag as a fire barrier, thus Technical Specification Section 3/4.7.7 action statement requirements had already been fulfilled.

INVESTIGATION

Thermo-Lag fire barriers have been under review at River Bend Station since late 1989. Potential discrepancies between the installation manual of Thermal Science Incorporated (TSI) (a GSU subcontractor during construction) and the actual site installation practices, and discrepancies between TSI installation manual and the qualification fire test results were discovered at that time. Due to these issues, the fire barriers were indeterminate for operability and firewatches were established for all areas utilizing Thermo-Lag as a fire barrier. An information report was submitted to the NRC 01/09/90 concerning this subject.

The performance of STP-000-3602 was intended to identify conditions in fire barriers where normal wear and tear had caused damage to the barriers. The small holes and miscellaneous cracks that were identified during the performance of the STP fall into this category. Normally a fire watch would be established and the holes and cracks would be repaired. However, the unfilled seams in the Thermo-Lag installations that were identified during the performance of the STP are a condition that must have existed from the time of initial construction and are not in accordance with either the vendors installation manual or normal site practices. In accordance with the vendor manual, the seams between boards of a Thermo-Lag were to be prebuttered with a trowel grade material and then joined; or alternatively dry fitted together with trowel grade material then applied to the joint. In either case, the seams were to have been grouted with the trowel grade material and they were not. The preexisting firewatches satisfy the action statement of section 3/4.7.7 of the Technical Specifications. Eight fire areas were identified by the condition reports as having Thermo-Lag barriers exhibiting the unfilled seams. A brief description of each area follows.

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TEXT IF more space is required, use additional NRC Form 305A's (17)

Fire area C2A is the southeast cable chase at elevation 70 feet of the control building (*NA*). Fire area C2C is in the same cable chase but located at elevation 115 feet. These areas have safety related cabling feeding through up to the termination cabinets in the main control room. The areas have sprinkler suppression systems (*KP*) on the cable trays, which comprise the exposed fixed combustible in the areas. Area C6 is adjacent to area C2A on the west side. The area contains safety related air accumulators as well as safety related cabling. The exposed cables in cable trays comprising the exposed fixed combustible in the area, are protected by a sprinkler suppression system.

Fire area AB2/Z2 is located in the auxiliary building (*NF*) at elevation 95 feet in the southeast corner of the building. The area contains safety related instruments, piping and safety related cables. The cabling, which makes up the fixed combustible in the area, represents a fire loading of 1.0 hour. Fire area AB7 is the "D" tunnel located at elevation 70 feet on the south end of the auxiliary building. Safety related piping and motor operated valves (MOV) (*FCV*) are located in the area in addition to the safety related cabling. The cable trays and the MOVs are protected by a water deluge sprinkler system (*KP*).

Fire FB1/Z1 is located at elevation 70 feet of the fuel building (*ND*). The area contains fuel pool cooling piping (*DA*) and equipment, reactor plant component cooling water piping (*CC*) and MOVs as well as safety related cabling. The crescent area, near the reactor building shield wall (*NH*), contains the major portion of the cable trays in the area. The cable trays represent a fire loading of 21 minutes and are the fixed combustible in the area. Fire areas FB3 and FB4 are the charcoal filter rooms located at elevation 148 feet of the fuel building. The ventilation system charcoal filters and fans are contained in the area. All cabling is routed in conduit in these areas. The charcoal filters are the fixed combustible for this area. They are protected by manually actuated water spray systems. The charcoal in each area is a fire loading of 45 and 46 minutes respectively for areas FB3 and FB4.

Fire area PT1 is the pipe tunnel at elevation 70 feet which extends from the standby cooling tower (*CTW*) to the fuel building. The area contains piping, MOVs, and instrumentation in addition to the safety related cabling. The cable trays are the only fixed combustible in the area and are protected by a sprinkler suppression system. The cable trays represent a fire loading of 29 minutes.

In addition to the informational report submitted on 01/09/90, LERs 87-005 and 89-009 were reviewed for similarity. This is the first time unfilled seams have been identified.

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TEXT IF more space is required, use additional NRC Form 200A's (17)

CORRECTIVE ACTION

GSU is currently working with the vendor to resolve the identified discrepancies which occurred during construction and the deficient Thermo-Lag barriers. It has been determined that fire tests will be required to fully qualify the Thermo-Lag as it is installed in the plant. A two stage testing procedure is planned. The first stage will consist of duplicating the installation process that was used in the plant for barriers on conduit, cable tray, supports, and enclosures. Each item will be tested in both a one hour barrier configuration and a three hour barrier configuration. The second stage will consist of additional testing to determine acceptable repair methods for those items that do not meet the requirements of the first stage tests.

The corrective action to be taken to repair deficiencies identified by the STP in the Thermo-Lag barriers will be dependent on the results of the testing that is to be performed. A supplemental response to this LER and the information report dated 01/09/90 will be submitted to the NRC by 01/31/91.

SAFETY ASSESSMENT

The primary fixed combustible at River Bend in the safety related areas is cable jacketing on the electrical cables. The type of cable used at River Bend has been shown through testing to resist ignition and when the ignition/heat source is removed, the cable self extinguishes. Transient combustibles are controlled through administrative means to limit the amounts brought into any given area of the plant. The charcoal filter rooms of the fuel building are the only areas that require any appreciable amount of combustibles to be brought into the area. This happens infrequently during changing of the charcoal in the filters.

The combination of the cable jacket properties, the control of transient combustibles, the use of suppression systems in the plant, and the minor nature of the defects in the barriers provides assurance that plant safety and the health and safety of the public has not been jeopardized.

NOTE: Energy Industry Identification System Codes are identified in the text as (*XX*).