

The Light company

Houston Lighting & Power

South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

May 28, 1992
ST-HL-AE-4110
File No.: G26
10CFR50.73

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project
Unit 2
Docket No. STN 50-499
Licensee Event Report 92-004
Entry Into Technical Specification 3.0.3
Due to Containment Isolation Valves Failing to Close

Pursuant to 10CFR50.73, Houston Lighting & Power (HL&P) submits the attached Licensee Event Report 92-004 regarding the entry into Technical Specification 3.0.3 due to the failure of two containment isolation valves to close. This event did not have adverse impact on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. C. A. Ayala at (512) 972-8628 or me at (512) 972-7205.

William J. Jump
William J. Jump
Manager,
Nuclear Licensing

MAC/lf

Attachment: LER 92-004 (South Texas, Unit 2)

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A Subsidiary of Houston Industries Incorporated

JEZ

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Revised 10/11/91

L4/NRC/

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUIREMENT: 50.3 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 (3150-0103), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)	PAGE (3)
South Texas, Unit 2		0 5 0 0 0 4 9 9 1	OF 0 5

TITLE (4) **Entry into Technical Specification 3.0.3 due to Containment Isolation Valves failing to close.**

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 4	2 8	9 2	9 2	0 0 4		0 0 0 5	2 8	9 2		0 5 0 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check one or more of the following) (11)

OPERATING MODE (9)	1	20.402(b)	20.406(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	1 0 0	20.405(a)(2)(iii)	50.36(e)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(3)(iii)	50.36(e)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)
		20.405(a)(4)(iii)	50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
		20.405(a)(5)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
		20.405(a)(6)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Charles Ayala - Supervising Licensing Engineer	5 1 2 9 7 2 - 8 6 2 6

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

CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRRDS
W I		I S V T 0 2 0		Y					

SUPPLEMENTAL REPORT EXPECTED (14)

<input checked="" type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			0 4	0 1	9 3

ABSTRACT (Limit to 1400 spaces. Use approximately fifteen single space typewritten lines) (16)

On April 28, 1992, at 1730 hours, Unit 2 was in Mode 1 at 100% power when an Unusual Event was declared. Unit 2 commenced the plant shutdown due to an entry into Technical Specification (TS) 3.0.3. The entry into TS 3.0.3 was required when the Action Statement of TS 3.6.3 could not be met. The Action Statement requires that at least one isolation valve be operable in each affected penetration that is open. In this case, both containment isolation valves (SB-FV-4187 and SB-FV-4187A) for penetration M-86 were declared inoperable after attempts were made to close each valve without success. The cause of the valve failures has not been determined. The corrective actions to prevent recurrence are being evaluated. A TS change is being evaluated to allow credit for the steam generator tubes, tubesheet and shell as an isolation barrier.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 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) South Texas, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 9 9 9 2	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENT/AL NUMBER	REVISION NUMBER			
		9 2	— 0 0 4	— 0 0	0 2	OF	0 5

TEXT (if more space is required, use additional NRC Form 365A's) (17)

DESCRIPTION OF EVENT:

On April 28, 1992, at 1730 hours, Unit 2 was in Mode 1 at 100% power when an Unusual Event was declared. A plant shutdown was commenced due to an entry into Technical Specification 3.0.3 when the Action Statement of Technical Specification 3.6.3 could no longer be met since both containment isolation valves were declared inoperable and could not be verified to be in the closed position.

At approximately 1800 hours, on April 27, 1992, the containment isolation valves were opened on the "C" Steam Generator Bulk Water sample line. This was done to allow monitoring of Steam Generator chemistry while Steam Generator blowdown was secured for maintenance activities. Later in the evening, a purge was initiated on the same sample line with a subsequent sample being collected. The sample line was left purging with the intent to collect additional samples. After the maintenance activities were completed, the blowdown on Steam Generator "C" was restored and the sample sink flow was secured. During a Control Room walkdown by the Shift Supervisor, on April 28, 1992, both containment isolation valves (SB-FV-4187 and SB-FV-4187A) for the "C" Steam Generator Bulk Water sample line were noticed to be open. Normal lineup with no sample flow is SB-FV-4187 closed and SB-FV-4187A open. After the Control Room Operators determined that sampling was no longer required, they attempted to close SB-FV-4187. The valve would not indicate closed. The fuses for the control power were removed with no success in closing the valve. At 1633 hours, on April 28, 1992, SB-FV-4187 was declared inoperable, and the plant entered the Action Statement of Technical Specification 3.6.3. Attempts to close SB-FV-4187A were also unsuccessful. At 1730 hours, the plant was unable to meet the Actions of Technical Specification 3.6.3 and entered Technical Specification 3.0.3. An Unusual Event was declared at 1730 hours, and at 1740 hours, a plant shutdown was commenced.

After a continuous effort to close both containment isolation valves, SB-FV-4187 indicated closed at approximately 1815 hours. The closure of SB-FV-4187 was verified and a clearance was hung on the valve. The plant exited Technical Specification 3.0.3 at 1835 hours. The termination of the Unusual Event was made at 1839 hours, at which time power had been decreased to approximately 93%. At the termination of the Unusual Event, SB-FV-4187A could not be closed.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 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) South Texas, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 9 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 2	- 0 0 4	- 0 0	0 3	OF 0 5

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

CAUSE OF EVENT:

At this time, the cause of the containment isolation valves failure to close is unknown. The entry into Technical Specification 3.0.3 was required since the Technical Specification 3.6.3 Action Statement could no longer be met. This event could have been avoided if Technical Specification 3.6.3 had taken credit for the steam generator and piping being a closed system (as allowed by 10CFR50 Appendix A, Criterion 57) instead of only addressing isolation valves. Without this written allowance, the conservative and correct action was to enter TS 3.0.3.

ANALYSIS OF EVENT:

Reportability was required by 10CFR50.73 when the plant entered Technical Specification 3.0.3. Entry into Technical Specification 3.0.3 was made when the Limiting Condition for Operation (LCO) for Technical Specification 3.6.3 was unable to be satisfied. Technical Specification 3.6.3 Limiting Condition for Operation states "...maintain at least one isolation valve operable in each affected penetration that is open...". Containment isolation valves FV-4187 and 4187A in "C" Steam Generator sample line, penetration M-86 were both declared inoperable. The two valves are listed in Updated Final Safety Analysis Report (UFSAR) Figure 6.2.4-1 as containment isolation valves for this line.

This penetration is designed to meet the requirements of General Design Criteria (GDC) 57 of 10CFR50 Appendix A, which requires the following:

"Criterion 57 - Closed system isolation valves. ...shall have at least one containment isolation valve which shall be either automatic, or locked closed, or capable of remote manual operation."

One containment isolation valve is required on penetration M-86 to satisfy the requirements of GDC 57. Containment penetrations are required to have two barriers so that no single failure can prevent isolation. The UFSAR, 6.2.4.1, states, "An "isolation barrier" is either an isolation valve or a closed system." The Steam Generator tubes, tube sheets and shells are considered an isolation barrier, as supported by the UFSAR, Figure 6.2.4-1, Sheet 1A which states:

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) South Texas, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 9 9 9 2 - 0 0 4 - 0 0 0 4 OF 0 5	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

ANALYSIS OF EVENT: (Continued)

"The barriers against fission product release to the environment are the Steam Generator tubes, the Steam Generator shell, and the piping associated with the Steam Generators."

With the steam generator and piping now being identified as a closed system and/or an isolation barrier, the Limiting Condition for Operation 3.6.3 action requirement can be met with the containment isolation valve inoperable and open. The failure of both isolation valves would have been an entry into a 4 hour Action Statement to close one of the containment isolation valves instead of the conservative approach to enter into Technical Specification 3.0.3.

The elapsed time from when the first valve, SB-FV-4187, was declared inoperable until the plant exited Technical Specification 3.0.3 was approximately one hour and fifty-four minutes, thus meeting the 4 hour Action Statement. Indications are that the containment isolation valve closest to containment (SB-FV-4187) had been opened for approximately twenty-four hours prior to attempting to shut it. The other containment isolation valve (SB-FV-4187A) is normally open.

CORRECTIVE ACTIONS:

1. HL&P will determine the root cause(s) of the failure of SB-FV-4187 and SB-FV-4187A. Additional corrective actions will be determined as necessary. A supplemental report will be submitted to address results of the investigation. This will be completed by April 1, 1993, due to the fact that an outage may be required to perform the troubleshooting.
2. Plant Operations has placed administrative controls on SB-FV-4187 to maintain containment integrity. An Equipment Clearance Order tag is in place to assure it remains closed and power to the operator has been removed in accordance with Technical Specification requirement.
3. Licensing will submit a revised Technical Specification 3.6.3 to properly address those containment penetrations that meet the requirements of General Design Criteria 57. This will be completed by August 19, 1992.

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST, 560 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (H-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) South Texas, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 9 9 9 2	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISED NUMBER			
		9 2	— 0 0 4	— 0 0	0 5	OF	0 5

TEXT (If more space is required, use additional NRC Form 386A's) (17)

ADDITIONAL INFORMATION:

The Steam Generator 2C sample isolation valve was supplied by Target Rock. The Target Rock model number is 84DD-003 and the part number is 1011105-3-5-1-P.

A similar event was reported under a Unit 1 LER 90-018 regarding a Technical Specification 3.0.3 entry due to an inoperable feedwater isolation valve.

Also, Unit 2 LER 92-001 was initiated due to a reactor trip caused by a dropped rod. During the event, SB-FV-4189A, a valve identical to SB-FV-4187A, failed to close initially. The cause was attributed to poor seating of the disc due to a low differential pressure across the valve. The corrective action was to lap the seating surfaces to ensure proper seating.

A review of Nuclear Plant Reliability Data System indicates other failures of Target Rock valves used as containment isolation valves. The failures were related primarily to indication problems, failure to open or close, or excessive leakage.