

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

South Texas Unit 1

DOCKET NUMBER (2)

05000 498

PAGE (3)

1 OF 4

TITLE (4)

Seismic Monitor Inoperable For Greater Than 30 Days and Subsequent Failure to Submit a Special Report In Accordance With Technical Specifications

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
07	19	95	95	-- 007 --	00	07	19	95	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (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)		<input checked="" type="checkbox"/> OTHER	
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)	
			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

Ray Pate - Staff Engineering Specialist

TELEPHONE NUMBER (Include Area Code)

(512) 972-7787

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)

YES (If yes, complete EXPECTED SUBMISSION DATE).

☒ NO

EXPECTED SUBMISSION DATE (15)

MONTH

DAY

YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On July 19, 1995, Unit 1 was in Mode 1 at 100% power when it was concluded the requirements of Technical Specification 3.3.3.3.a were not met due to failure to submit a Special Report for the inoperability of a seismic monitor for greater than 30 days. On June 15, 1995, a seismic accelerograph was declared inoperable due to a failed surveillance. The cause of the instrument's inability to perform its function was vibration generated from closing the Component Cooling Water supply valves to the Spent Fuel Pool Heat Exchanger. The monitor tapes were replaced each 18 month surveillance according to procedure. When the valves were stroked, the tapes were erased, making them no longer useful. Review of monitor calibration data since October 2, 1988, indicated the magnetic tapes had recorded excessive vibration each surveillance. These circumstances rendered the accelerograph inoperable for greater than 30 days. Corrective actions: On June 22, 1995, the accelerograph was replaced and returned to service. Caution tags were placed on the controls for CCMOV0032 and CCMOV0447 requiring removal of the accelerograph prior to stroking the valves. A design change package is being prepared to change the valve gear ratio to increase closure times, and the surveillance procedures are being revised to forward the tape data to the system engineer for review and evaluation. An evaluation is being performed to determine whether the accelerograph should be relocated. This event is being reported as required by Paragraph 2.G of the South Texas Project Unit 1 Operating License. This Licensee Event Report also serves as the Special Report as required by Technical Specification 3.3.3.3.a.

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REDUCTION PROJECT (3150-0104), OFFICE OF
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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
South Texas, Unit 1	05000 498	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
		95	-- 007 --	00	

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

DESCRIPTION OF EVENT:

On June 15, 1995, seismic accelerometer NOSYXPR009 was declared inoperable due to a failed surveillance. The accelerometer is located on the Unit 1 Spent Fuel Pool Heat Exchanger 1B inlet line. This instrument records peak acceleration, up to 5 g, by erasure of prerecorded lines on a magnetic tape. Once full scale erasure has been recorded, the magnetic tapes can not be used to determine the effects of an earthquake on this piping.

The purpose of this accelerometer is to determine if an actual response on Seismic Category I piping caused by an earthquake exceeds design basis. The accelerometer is not used to detect earthquakes and the data recorded would be retrieved only after the plant has been put in a safe condition following an earthquake.

During the course of the failed surveillance investigation, the monitor tapes were reviewed and revealed evidence of over-ranging. Subsequent vibration data obtained indicated over 5 g acceleration at this location when closing the Component Cooling Water supply valves CCMOV0032 and CCMOV0447 to the Spent Fuel Pool Heat Exchanger. These valves are stroked during quarterly surveillances.

The accelerometer calibration surveillance is performed on 18 month intervals. The procedure requires the tapes be removed, attached to the data package with the deflection noted, and a calibration to be performed. The procedures require new tapes be placed into the accelerometer after calibration. An evaluation is required to be performed by system engineering only if a seismic event has occurred. Since no seismic events had occurred at South Texas Project, the accelerometer tapes had not been evaluated until this accelerometer failed its surveillance. A review of calibration data since October 2, 1988, on this accelerometer indicated the magnetic tapes have consistently recorded excessive vibrations. This review indicated the tapes had been replaced according to procedure and the accelerometer returned to service. However, when the Component Cooling Water valves were stroked, the tapes were erased and no longer useful. This had rendered the accelerometer incapable of performing its function.

Technical Specification 3.3.3.3.a was violated due to not submitting a Special Report within ten days of the accelerometer not being capable of performing its function for greater than 30 days. Therefore, this condition was determined to be reportable in accordance with the requirements of Paragraph 2.G of the South Texas Project Unit 1 Operating License.

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

CAUSE OF EVENT:

The cause of the event is attributed to excessive vibration at the accelerograph location when closing the Component Cooling Water supply valves CCMOV0032 and CCMOV0447 to the Spent Fuel Pool Heat Exchanger. The amount of acceleration created when the valves are stroked over-range the accelerograph.

The delay in detection of this event is attributed to the surveillance procedures not requiring a review of data from the tapes unless a seismic event has occurred.

ANALYSIS OF EVENT:

The first surveillance was performed on this accelerograph May 9, 1987. It was concluded one of the valves was stroked within three months of the instrument surveillance and rendered the instrument incapable of recording acceleration due to earthquakes. To comply with Technical Specification 3.3.3.3.a, with the instrument inoperable for more than 30 days, a report should have been prepared and submitted to the Nuclear Regulatory Commission within the next ten days outlining the cause of the malfunction and the plans for restoring the instrument to operable status.

A review of the magnetic tape data from past calibrations for the two other accelerographs installed in the Unit 1 Containment Building did not reveal a history of excessive vibration over-ranging the instruments.

This event has not adversely impacted the safe operation of the plant, the safety of plant personnel, or the health and safety of the public. The purpose of this accelerograph is to determine if an actual response on Seismic Category I piping caused by an earthquake exceeded design basis. This instrument is not used to detect earthquakes and data recorded would be retrieved only after the plant has been put in a safe condition following an earthquake. The probability of an earthquake resulting in damage at South Texas Project is considered negligible.

Based on the results of a stress analysis performed on this piping, it was determined the operability and functionality of this piping system was not compromised by the effects of the vibration resulting from cycling the valves.

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

CORRECTIVE ACTIONS:

The accelerometer graph was replaced and returned to service on June 22, 1995.

Caution tags have been placed on controls of valves CCMOV0032 and CCMOV0447 requiring removal of the accelerometer graph from the Spent Fuel Pool Inlet piping prior to manually operating the valves and reinstallation after the valve operation. This will continue until a design change is installed preventing recurring over-ranging of this accelerometer graph.

A Design Change Package is being issued to change the gear ratio for valves CCMOV0032 and CCMOV0447 to increase the closing times thereby reducing the vibration and preventing recurring seismic monitor failure.

After the change to slow the valves closing time is installed, additional vibration data will be obtained to ensure vibration level is sufficiently low so as to not mask actual seismic data on the accelerometer graph. If not, an alternate location will be determined for the instrument.

The surveillance procedures for the accelerographs will be revised to forward the tape data to the system engineer for review and evaluation.

ADDITIONAL INFORMATION:

The peak recording accelerometer graph is a model PRA-103 manufactured by Terra Technology Corporation. A search of the Nuclear Plant Reliability Data System did not reveal any similar events.

This Licensee Event Report also serves as the Special Report as required by Technical Specification 3.3.3.3a.

In addition to the above corrective actions, if South Texas Project decides to pursue relocation of the accelerometer graph, a Technical Specification change will be submitted or incorporated into the South Texas Project Improved Technical Specification Process.